

**THE EFFECT OF LANGUAGE LEARNING
STRATEGY INSTRUCTION ON THE ACADEMIC
ACHIEVEMENT OF BELOW AVERAGE
VOCATIONAL COLLEGE EFL LEARNERS IN
CHINA**

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by

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LIST OF SYMBOLS

α	Cronbach's alpha
p	Asymptotic bilateral Significance values
W	Wilcoxon
SD	Standard deviation
U	Mann-Whitney
ES	Effect size
d	Cohen's d

LIST OF ABBREVIATIONS

BA	Below-Average
CALLA	Cognitive Academic Language Learning Approach
CEEE	College Entrance Examination of English
CEFE	College English Final Exam
CET-4	College English Test-4
CNKI	Chinese National Knowledge Infrastructure
EAA	English Academic Achievement
ECCD	English Common Course Department
EFL	English as Foreign Language
ESL	English as Second Language
LLS	Language Learning Strategy
LSU	Level of Strategy Use
NCEIC-3	New College English Integrated Courses III
OSI	Outline of semi-structured Interview
RQ1	Research Question 1
RQ2	Research Question 2
RQ3	Research Question 3
RQ4	Research Question 4
SBI	Strategies-Based Instruction
SDG	Sustainable Development Goal
SILL	Strategy Inventory for Language Learning
SSBI	Styles and Strategies - Based Instruction
TESOL	Teaching English to Speakers of Other Languages
USM	Universiti Sains Malaysia
XTEC	Xi'an Traffic Engineering College

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KESAN PENGAJARAN STRATEGI PEMBELAJARAN BAHASA TERHADAP PELAJAR EFL BAWAH SEDERHANA DI KOLEJ VOKASIONAL CHINA

ABSTRAK

Strategi pembelajaran bahasa telah diakui sebagai teknik penting untuk pembelajaran bahasa Inggeris. Beberapa strategi yang berkesan boleh membuat pelajar mencapai soalan dengan sendirinya dan merasa kuat untuk mengawal proses pembelajaran bahasa Inggeris mereka. Walau bagaimanapun, terdapat beberapa kajian yang berkaitan dengan arahan LLS pelajar EFL di bawah purata, dan terdapat lebih banyak masalah yang perlu diterokai. Beberapa masalah dilaporkan: 1) pelajar kurang pengetahuan tentang cara belajar bahasa Inggeris dengan berkesan; 2) bilangan pelajar kolej EFL di bawah purata semakin meningkat. Oleh itu, tujuan kajian ini adalah untuk menyiasat 1) kekerapan dan keutamaan LLS yang digunakan oleh pelajar di bawah purata; 2) menentukan sama ada arahan LLS berkesan dalam meningkatkan LSU dan EAA pelajar EFL di bawah purata; 3) meneroka model arahan LLS yang cekap untuk pelajar EFL di bawah purata. Khususnya, kajian ini mengedarkan soal selidik SILL kepada 442 pelajar kolej EFL Cina untuk menyiasat kekerapan dan keutamaan penggunaan LLS. Program intervensi juga dijalankan untuk 40 pelajar EFL Cina untuk meneroka kesan arahan LLS pada LSU dan EAA pelajar di bawah purata. Kajian ini menggunakan tiga instrumen: (1) Inventori Strategi untuk Pembelajaran Bahasa (SILL); Ujian pencapaian akademik bahasa Inggeris (EAA), iaitu, (2) Ujian-4 (CET-4) dan (3) Peperiksaan Akhir Bahasa Inggeris Kolej (CEFE), yang dijalankan untuk pra-ujian dan

pasca ujian program intervensi. Dari perspektif kualitatif, kajian ini menggunakan garis besar wawancara separa struktur (OSI). Secara keseluruhan, kajian ini membuat analisis dan triangulasi data dari tema biasa SILL, CET-4, CEFE, dan SOI merujuk kepada arahan LLS, LSU, dan EAA, dan akhirnya membangunkan model arahan LLS yang cekap berdasarkan laporan 20 wawancara mengenai arahan LLS. Sumber data ini menunjukkan hasil positif yang konsisten secara amnya dan pendapat sokongan arahan LLS. Keputusan menunjukkan bahawa 1) kekerapan penggunaan strategi berada di bawah purata (2.63 mata), tetapi juga cenderung "biasanya tidak digunakan"; 2) pelajar yang menganggap arahan LLS mempunyai sikap positif terhadap penggunaan strategi; Arahan LLS meningkatkan penguasaan dan tahap penggunaan LLS; 3) dan arahan LLS mempunyai kesan positif dalam meningkatkan kemahiran pembelajaran Bahasa Inggeris pelajar dan pencapaian akademik Bahasa Inggeris. 4) Model arahan LLS yang cekap melibatkan fasa penyediaan (meningkatkan kesedaran LLS pelajar), amalan berpandu, mengamalkan secara individu, peringkat amalan bebas, penilaian diri dan pembelajaran dalam talian LLS. Kajian ini mendedahkan kesan arahan LLS dan menghasilkan model arahan LLS yang cekap pada pelajar di bawah purata dan membuat percubaan yang berguna dalam bidang penyelidikan mengenai LLS pelajar kolej EFL vokasional. Penyelidikan lanjut boleh menyiasat faktor pengaruh tersembunyi penggunaan LLS pelajar di bawah purata.

THE EFFECT OF LANGUAGE LEARNING STRATEGY INSTRUCTION ON THE ACADEMIC ACHIEVEMENT OF BELOW AVERAGE VOCATIONAL COLLEGE EFL LEARNERS IN CHINA

ABSTRACT

Language learning strategy has been acknowledged as a significant technique for English learning. Some effective strategies can make learners accomplish the questions by themselves and feel powerful to regulate their English language learning process. However, there are few studies related to the LLS instruction of below-average EFL learners, and there are more problems that need to be explored. Several problems are reported: 1) learners lack of knowledge on how to learn English effectively; 2) the numbers of EFL below-average college learners are increasing. Consequently, the purpose of this study was to 1) investigate the frequency and preference of LLS used by below-average learners; 2) determine whether LLS instruction is effective in increasing below-average EFL learners' LSU and EAA; 3) explore the efficient LLS instruction model for below-average EFL learners. Specifically, the study distributed SILL questionnaires to 442 Chinese EFL college learners to investigate the frequency and preference of LLS use. Intervention programme also conducted for 40 Chinese EFL learners to explore the effect of LLS instruction on the LSU and EAA of below-average learners. The study employed three instruments: (1) Strategy Inventory for Language Learning (SILL); Tests of English academic achievement (EAA), namely, (2) Test-4 (CET-4) and (3) College English Final Exam (CEFE), which were conducted for pre-test

and post-test of the intervention program. From a qualitative perspective, the study applied outline of semi-structured interviews (OSIs). Overall, the study made analysis and triangulation of the data from SILL, CET-4, CEFE, and SOIs common themes referring to the LLS instruction, LSU, and EAA, and finally developed the efficient LLS instruction model based on 20 interviewees' report on LLS instruction. These data sources demonstrated generally consistent positive outcomes and supportive opinions of LLS instruction. The results indicated that 1) the frequencies of strategy use were below average (2.63 points), but also tended to be "usually not used"; 2) learners perceived LLS instruction had a positive attitude towards strategy use; LLS instruction improved the mastery and level of LLS use; 3) and LLS instruction had a positive effect on improving learners' English learning skills and English academic achievement. 4) The efficient LLS instruction model involves preparation phase (increases learners' LLS awareness), guided practice, practise individually, independent stage of practice, self-evaluations and online learning of LLS. The study revealed the effect of LLS instruction and generated an efficient LLS instruction model on below-average learners and made a useful attempt in the field of research on LLS of vocational EFL college learners. Further research may investigate the hidden influence factors of LLS use of below-average learners.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The primary goal of education is to equip students with strategies to critically reconstruct, analyze, contrast, and elaborate on information to generate strategic knowledge (Arulselvi, 2016). Language learning strategy (LLS) instruction, which fosters greater independence and self-regulation among students, has emerged as a central focus in contemporary LLS research (O'Malley & Chamot, 1990; Oxford, 1990; Cohen, 2000). The essence of LLS instruction is that providing individuals with valuable skills offers greater long-term benefits than simply meeting their immediate needs. In other words, merely providing learners with answers can limit their curiosity. When teachers provide answers directly, they address the immediate question, but teaching effective language learning strategies enables learners to solve problems independently, enhancing their ability to regulate their English language learning process (Griffiths, 2018). This approach is also a fundamental aspect of this study. Khan and Khan (2018) emphasized that LLS instruction benefits English reading, speaking, vocabulary, and pronunciation. Therefore, teachers are encouraged to instruct students in both explicit and implicit language learning processes.

Over the past few decades, China's English education has made considerable progress. The achievements since the new era reform (2012 to present) have been closely linked to improvements in English ability and literacy (Wen, 2019). The crucial role of English in today's world is evident, making it a necessary language for global

survival. Renowned Chinese EFL experts Huang, Wen, Cheng, and Su (2021) highlighted that English is one of the most widespread and important languages globally. It is the language of the international internet, finance, and air traffic control. English permeates all aspects of human life, including education, entertainment, science and technology, culture, industry, agriculture, and various forms of international exchange. Proficiency in English essentially opens a window to the world.

Additionally, Chinese EFL experts Wen and Zhang (2021) clearly stressed that English is the bridge of communication, as personal foreign language ability is the embodiment of China's national quality. By mastering English, citizens can expand their international horizons, improve their intercultural communication skills, enhance their employment competitiveness, and broaden their personal career development space. Systematic training for college students in LLS is not only in line with the cognitive development of adults but also promotes adult thinking development. Therefore, it plays a crucial role in college English teaching and is generally viewed as a positive contribution (Zhang, Thomas & Qin, 2019).

However, despite the significant progress in English education in China over the past few decades, several issues persist. These include time-consuming and inefficient teaching methods, reliance on cramming and rote memorization, and a substantial number of below-average EFL learners across various grades, particularly in vocational colleges (Qi & Chen, 2014; Zhao, 2017). Additionally, the EFL experts Shu and Li (2017) noted that the efficiency of English education still requires improvement. Some students' difficulties in learning English are due primarily to the limited quality of

English teachers or unscientific teaching methods, especially in vocational schools and rural areas. Furthermore, research on LLS in China has evolved from theory to practice and has matured from its initial stages to a more developed field. The dedication of numerous English pedagogy researchers has greatly contributed to this area, reflecting considerable effort and perseverance (Griffiths & Oxford, 2014).

The 21st century has ushered in an era where “teaching students to learn” is the central theme of education. The modern workforce now demands lifelong learning as a fundamental requirement. Employers increasingly seek workers who possess strong reading, writing, and specific vocational skills (Hilliard, 2012). Teaching students to learn is not only a consensus reached by international education, but also a diachronic mission given to teachers in this era. The introduction of *Guidelines on College English Teaching (2020 Version)* and *English Curriculum Standards for Higher Vocational Education (2021 Version)* are clarion calls for the reform of English curriculum teaching in China. Teaching students knowledge of learning strategies has become one of the three major teaching contents of college English in China (Jin, 2020). The ability to learn English has become a demand for English education in China. Conversely, at present, the current situation of LLS teaching and research in colleges and elementary schools in China is not very successful, and there are very few related studies on learning strategy training for students with limited English skills. In today’s era of advocating “lifelong learning” and prompting “learner orientation”, there is a strong demand for systematic training and teaching on LLS for English learners, which can enhance EFL learners’ language critical thinking and English language competency (Starostina & Sosnina, 2022).

Therefore, investigating effective English learning strategies, skills, and approaches plays an essential role in pedagogical studies for many English teaching practitioners (Ganapathy et al. 2021). Therefore, this study aims to provide a reference for research on English learning strategies and the reform of college English curricula and teaching in China. More researchers are attempting to reform relevant research on LLS among below-average EFL learners in vocational colleges.

1.2 Background of the Study

The rapid development of cognitive psychology promoted the focus of LLS research, which turned from investigating how teachers “teach” to how students “learn”. Beyond this background, the study of LLS impressively boarded the historical stage of LLS research, since then, a worldwide study of LLS has been conducted (Griffiths, 2018). Moreover, Amerstorfer (2018) proved that although the history of LLS has been more than three decades, its theory and implications for English teaching have not expired in her article *Past its Expiry Date? The SILL in Modern Mixed-methods Strategy Research* (Cohen & Griffiths, 2015). In strategy research, the SILL remains the most widely used tool for self-evaluation and is expected to continue contributing valuable insights to this complex field of study (Amerstorfer, 2018). Through tremendous efforts spanning 30 years, researchers have achieved remarkable advancements in this area. Surprisingly, there are few relevant LLS studies related to below-average EFL or ESL learners in college are little among the numerous studies, and many problems need to be discussed and settled in the field of LLS instruction for college English below-average EFL learners, whereas many problems need to be discussed and settled in the field of

LLS instruction for college EFL below-average learners (Esmaeil, Izadpanah, Namaziandost & Rahbar, 2022; Griffiths, 2018).

Therefore, with the title of “*The Effect of Language Learning Strategy Instruction on the Academic Achievement of Below-average EFL Learners in a Chinese vocational College*”, the study employs pragmatic philosophical underpinning, models of LLS instruction (Cohen’s (1990) SSBI, Chamot’s (2005) CALLA and Grenfell & Harris’s (1990) and TCLTSP models), and Gagné’s information processing theory as the theoretical foundation, using the experimental approach, survey research method, interview approach to conduct a one-semester experimental study of learning strategies instruction for some college English low achievers. This study aims to explore the impact of LLS instruction on below-average college EFL learners, seeking to identify effective methods and provide a feasible model for addressing their English learning challenges. Additionally, it examines the benefits of college English teaching reform from both theoretical and practical perspectives.

1.2.1 The Current Status of Below-Average EFL Learners

Curiosity and urgency are two driving forces that propel researchers forward in this field of study. Together, they fuel the work of researchers worldwide. This study is motivated by the urgent need to improve the learning outcomes of below-average EFL learners (Amerstorfer, 2018). According to previous literature on EFL learners in China, although students study in the same environment, their English scores are very different. For some students, English has become a great problem, as failure in English learning has caused them to completely lose confidence in English learning (Murphy, 2017).

When layered college English teaching was not implemented in the past, some low EFL or ESL achievers were hidden in their English classes (Selvarajan, 2022). In recent years, below-average learners have become a significant focus in college English teaching because of the prevalence of score-oriented teaching models. Students with low English scores in the past are now a key target for improving English instruction in colleges. This group of EFL learners has experienced online teaching, which is a great challenge for their English learning (Liu, 2021).

Some students encounter significant difficulties in certain aspects of English study due to a lack of motivation, specific learning strategies, skills, and effective teacher guidance. As a result, they become disengaged from their English courses and are unable to develop the necessary talents and skills when needed (Maiti & Priyaadharshini, 2022). Wang (2020) and Zhao (2017) noted that there is a lack of research on low EFL achievers, and that approximately one-third of the learners who have taken English in school and who are taking English courses in school do not have good strategies to learn English. At present, there are a large number of below-average EFL learners in Chinese colleges (Murphy, 2017; Rose & Washbrook, 2019). For some learners, English has become a major obstacle, as failure in English learning makes them completely lose confidence in English learning. Hence, what causes the existence of a large number of BA EFL learners? In this context, two Chinese English pedagogy experts Wen (2019) and Cheng (2021), both have their own opinions, that is, a series of research results on LLS show that when other conditions are the same, the difference in LLS mastery has a great impact on performance. In summary, below-average EFL learners are those who struggle to learn the language, despite their efforts and motivation.

Therefore, it is important to identify LLS that are effective in helping these students to make progress.

1.2.2 The Reform of English Education in China

With the development of globalization and English language reform, English has received increasing attention from people. English is often used in life and work. Therefore, the education system of vocational colleges has reformed. The reform of Chinese and English teaching occupies an important position in vigorously advocating “quality education” for students. In the teaching process, teachers are encouraged to combine current social development trends and social needs to formulate teaching content. This study proposes an employment-oriented approach based on current teaching characteristics and the importance of English teaching.

A new round of elementary education curriculum reform officially started at the beginning of the 21st century. The new teaching model enables students to obtain guidance from learning strategies, and gradually improve their ability to learn independently (Ministry of Education China, 2021; Wen, 2019), which means that LLS learning and training are quite urgent. The Higher Education Department of the Ministry of Education organized relevant experts to formulate and revised *the Teaching Requirements for College English Course (Trial)* (TRCEC), *Guidelines on College English Teaching (2020 Version)* (GCET) and *English Curriculum Standards for Higher Vocational Education (2021 Version)* (ECSHVE), indicating the importance and necessity of developing new higher vocational English curriculum standards for vocational education (Wen & Zhang, 2021). The TRCEC provided a brand-new

description of the nature and teaching requirements of China's college English teaching. College English is based on English language knowledge and application skills, learning strategies and intercultural communication as the main content, guided by foreign language teaching theories. Multiple teaching modes and methods are combined as a whole teaching system. The key concepts in TRCEC and ECSHVE include English language knowledge, application skills, learning strategies and cross-cultural communication, and they reflect the teaching goals of college English. The current teaching and research status of English learning strategies in Chinese colleges and universities is not substantial, and it is far from the requirements put forward in TRCEC and ECSHVE (Qi & Chen, 2014). Therefore, against this backdrop, this study responds to China's vocational college English curriculum and teaching reform..

1.2.2 (a) English Curriculum Standards for Higher Vocational Education

The Ministry of Education of China officially published ECSHVE (2021). This is a remarkable guiding document for the implementation of English education in higher vocational schools in China. All vocational colleges must follow the spirit of English curriculum setting, textbooks, classroom teaching, academic quality evaluation, and teacher professional development. The key competences are the specific embodiment of the implementation of the ECSHVE, and they are the “outline” and “soul” of the curriculum standard (Wen & Zhang, 2021), which is organically linked with the main ideas of high school, vocational school and college English teaching objectives. The four dimensions of the English key competences in ECSHVE (2021) are displayed in Table 1.1 meet requirements of English education, which provides a more specific English

course framework for the development of the ECSHVE 2021 (Chang, 2021).

Table 1.1 Key Vocational English Competences and Teaching Objectives

Dimension	High school key competences	Secondary vocational key competences	College English teaching objectives
Language as a communication tool	language ability	workplace language communication	English application ability
Language as a cultural carrier	cultural awareness	cross-cultural understanding	cross-cultural communication awareness and communicative competence
Language as a thinking tool	thinking quality	perception of thinking differences	critical thinking ability
The learner's autonomy	learning ability	self-directed learning	self-directed learning ability

The relationships among the four key competencies of the ECSHVE 2021 are not only distinct but also interconnected and mutually reinforcing, forming an organic whole as shown in Figure 1.1. “Workplace foreign-related communication” is at the center and is the foundation of core competencies because it is the primary distinguishing feature of higher vocational English courses from other higher vocational courses; “multicultural communication” refers to the selection of textbook content; “language thinking improvement” refers to individual students’ cognitive level development and “autonomous learning improvement” refers to the development of students’ individual learning autonomy. The development of the latter three core competencies must rely on “workplace foreign-related communication”, and they are also intertwined and inseparable. Taking “language thinking improvement” as an example, students need to learn and use language, which is based on multiculturalism. Individual autonomy is the premise and completing workplace communication activities is the task.

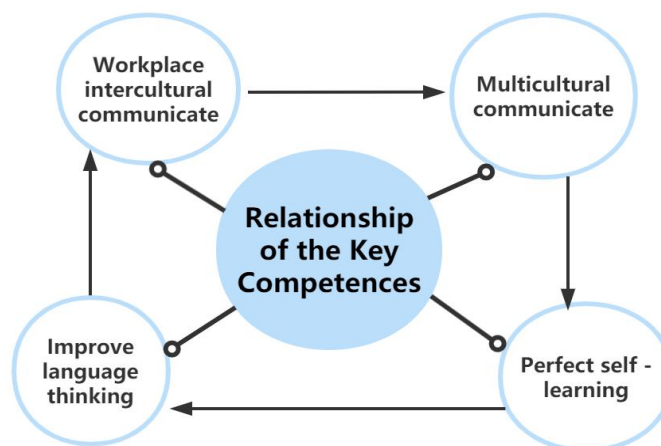


Figure 1.1 Relationships among the Key Competences of Vocational English Courses

“Perfect self-learning” in the curriculum standards means that students can manage themselves well, develop good self-learning habits, obtain learning resources from multiple channels, carry out learning independently and effectively, and form a lifelong learning system on the basis of the characteristics of English language learning and awareness and ability”.

The key capabilities of “perfect self-learning” include the following:

- 1. effectively plan learning time and tasks;*
- 2. use appropriate learning strategies;*
- 3. evaluate learning effects actively.*

(Ministry of Education of China, 2021)

In other words, students are encouraged to have the ability to manage learning objectives, resources, strategies, processes and results; have the ability to reflect and evaluate; and focus on improving learning efficiency.

1.2.2 (b) Guidelines on College English Teaching (2020 Version)

The Guidelines on College English Teaching (2020 Version) (GCET 2020) has

aroused widespread concern in the foreign language community. Among them, the original GCET 2020 positioned college English as “a public basic course that most non-English majors are required to take in the undergraduate education stage”, and the GCET 2020 was changed to “It is the most non-English major students in compulsory public basic courses and core general courses in undergraduate education” (Xiang, 2020). College English as a core general education course, it involves changing the orientation of college English teaching and the connotations of the course. The key points on the EFL teaching and learning mode are as follows:

- 1. One of the purposes of the reform of teaching mode is to promote the formation of students' individualized learning methods and the development of students' autonomous learning ability.*
- 2. The new teaching mode should enable students to choose materials and methods that suit their needs, obtain guidance on learning strategies, and gradually improve their autonomous learning ability.*
- 3. The change in teaching mode is not only a change in teaching methods and means but also a change in teaching concepts, knowledge and skills;*

(Ministry of Education of China, 2020, p.6)

In addition, to increase the quality of English education to meet national standards, reform has also enabled teaching methods to be creative in English (Cai, 2021). The GCET 2020 highlights the application of information technology and intelligent technology in college English teaching. The development of multimedia and internet technology has also had an important impact on modern EFL education and teaching methods (Liu, 2021). The key points related to EFL teaching and learning methods are as follows:

- 1. College English teaching should use appropriate and effective teaching*

strategies according to individual differences and learning styles of students, as the purpose is to improve learning efficiency.

2. *College English teaching can adopt methods such as task-based, cooperative-based. Besides, the teaching process changes from focusing on “the purpose of teaching” to “the needs of learning”, forming a condition with teachers’ guidance and inspiration, and students’ active participation.*

(Ministry of Education of China, 2020, p.13)

In general, China’s two EFL policies ECSHVE 2021 and GCET 2020 both emphasize the importance of learners’ self-learning, such as “promoting students to change from passive learning to active learning” and “enabling students to obtain guidance on learning strategies and gradually improve their autonomous learning ability”. Language learning strategies are essential in EFL teaching and learning; therefore, this study is based on this aspect as its starting point.

1.2.3 English as a Compulsory Course in Vocational Colleges

For vocational graduates to compete in the Asian Economic Community, they need to acquire a comprehensive set of skills. English is the most common language of communication, but the English proficiency level of freshmen is rather low (Datu & Rachmasari, 2016). In response, the State Council of China issued the *National Vocational Education Reform Implementation Plan* in 2019, which emphasized the establishment of a vocational education college entrance examination system to provide students with a variety of admission and learning methods for higher vocational education (State Council of China, 2021). However, students generally have low English proficiency, and the English entrance examination of undergraduate colleges has become a stumbling block on their way to higher education. This study explored the current

status of English learning among higher vocational students at XTE College to help them use English effectively in real-life situations (Li, 2021).

China's president Xi Jinping noted that the skilled worker team is an important foundation for supporting Chinese manufacturing and Chinese creation and plays an important role in promoting high-quality economic development (Ministry of Education of China, 2021). Ming (2020) also reported that several problems in vocational English education, such as boring talent training patterns, lacking creation, lacking teaching reform and concentrating on grades. Moreover, among the more than 200 million skilled laborers in China, there are only 50 million highly skilled personnel. To solve the structural contradiction between the supply and demand of high-quality technical and skilled personnel, vocational education urgently needs to move to a higher level. The need for economic and social development is carefully assessed, and the enrollment ratios between regular high schools and secondary vocational schools are encouraged to be reasonably determined. It is important to maintain the overall balance between general high school and secondary vocational school enrollment for a long period (Ministry of Education of China, 2021; Ji, 2021).

The development of vocational education is an important way to promote economic development, promote employment, and improve people's livelihood. It is a key link for alleviating the contradiction between the labor supply and demand structure and must be placed in a more prominent position. However, English is a significant course in vocational teaching (Li, 2021). With the development of globalization, English, With the advancement of globalization, English, commonly used in both daily life and

work, has received increasing attention. Therefore, the education system of vocational colleges has reformed (Cheng, 2020). The reform of China's English teaching occupies an important position in vigorously advocating quality education for students. In the teaching process, teachers are encouraged to combine current social development trends and social needs to formulate teaching content (Ming, 2020). This study proposes an employment-oriented approach based on current teaching characteristics and the importance of English teaching.

1.3 Problem Statement

In particular, it is essential to teach students learning methods and strategies that are effective within the context of Chinese EFL education. While providing answers to students may offer immediate solutions, teaching them effective language learning strategies (LLSs) empowers them to independently navigate their English language learning journeys (Griffiths, 2018). This concept serves as the fundamental premise of the study. The purpose of reforming the teaching mode is to enhance students' personalized learning methods and develop their autonomous learning capacity (Qi & Yu, 2013). The new teaching model is encouraged to enable students to acquire guidance from learning strategies, and gradually improve their ability to study independently (Ministry of Education China, 2021; Wen, 2019; et. al), which means that LLS instruction is imperative for English learning. The Higher Education Department of the Ministry of Education organized relevant experts to revised the *TRCEC*, *CETG* and *ECSHVE*, which stressed the importance and necessity of developing new vocational English curriculum standards for vocational education (Wen & Zhang, 2021). College English is based on English language knowledge and application skills and learning

strategies as the primary content. Multiple teaching modes and methods are combined for the entire education system. The key concepts in TRCEC and ECSHVE involve English language knowledge, application skills and learning strategies. The current teaching and research status of English learning strategies in Chinese colleges and universities is not substantial, and it is far from the requirements put forward in the TRCEC and ECSHVE (Qi & Chen, 2014). Therefore, in response to this context, the study addresses the ongoing reforms in China's college English curriculum and teaching practices.

The first widely recognized problem is that Chinese college students spend a large amount of time and effort studying English. However, a prevalent problem that has persisted for decades is the lack of knowledge on how to learn English effectively (Habók & Magyar, 2018; Guo & Bai, 2022; et al.). As a result, students often struggle with inefficient language learning despite their hard work. In addition, many efforts have been made to develop theories, methods and strategies for teaching language, such as the grammar translation method (using books and worksheets to perform drills, translation and rote memorization tasks, and cramming education), audiolingualism (visual imagery to perform role-plays, conversation exercises, and games) and the communicative approach (employing books, audio and visuals to do some drills, memorization tasks) to mention only three of the best known and most widely used methods (Matamoros. et al., 2017). However, problems related to learners' challenges have been comparative neglected (Griffiths & Oxford, 2014), with far less attention given to the language development process from the learner's perspective. Although valuable research has been conducted on English language acquisition and teaching, it is noteworthy that “the

growth in adults lacking English proficiency was especially high” in some American counties (Hilliard, 2012, p. 2). Therefore, this study aims to explore the effect of LLS instruction on below-average vocational college students by identifying an effective LLS instruction model that helps them navigate and motivate their English learning independently.

The next central problem is that mastering English is a challenging task for vocational college learners. Many students rely on rote memorization of word strings because they are not familiar with specific English learning strategies (Murphy, 2017). To compete in the Asian Economic Community, vocational graduates need to acquire a comprehensive set of skills, with English communication being a critical one. However, their level of English proficiency is rather low (Datu & Rachmasari, 2016). Vocational students may encounter challenges when learning English, such as English learning anxiety, limited exposure, lack of motivation, and lack of vocabulary mastery (Hapsari, 2018; Raju & Joshith, 2017). Additionally, some vocational students exhibit minimal engagement in their English studies, focusing more on passing the course rather than improving their language skills, due to a lack of interest (Hapsari, 2018). In fact, the number of students who perform below average in English is significantly higher (Zhang, 2020; Zhao, 2017). With the expansion of vocational colleges, there has been an obvious increase in the number of EFL learners in vocational colleges, whose English achievement is below average in China (Su & Li, 2017; Li, 2021). Oxford (2017) indicated that LLS is an essential part of the learner’s intellectual development not only in other practical education but also in English learning. Furthermore, studies on LLS use have highlighted that the frequency of strategy use is a significant determinant of

English performance and motivation levels (Habók & Magyar, 2018; Griffiths, 2018).

However, there is a population gap with respect to BA EFL learners in vocational colleges. Previous studies have focused primarily on primary and middle school EFL learners in general class settings, exploring BA EFL learners (Kazi, Iqbal & Moghal, 2022). This lack of attention to low achievers is evident in studies by Griffiths (2018), Samperio (2019) and others. In addition, while Habók, Magyar and Molnár (2022) investigated the effect of certain learning strategies among secondary school students, the findings cannot be reasonably generalized to EFL settings. Similarly, studies such as the one conducted by Hou (2017) on experimental strategy instruction were limited to first language settings and did not adequately address the needs of EFL learners. Thus, it is essential to investigate effective LLS instruction models, specifically for BA EFL learners to support TESOL practitioners in enhancing the quality of teaching and facilitating the learning process for these students. This goes beyond achieving good grades and instead focuses on equipping them for real-life contexts. Consequently, the present study endeavors to explore the impact of LLS instruction on below-average vocational EFL learners, thereby addressing the aforementioned population gaps.

The final problem identified by Wang (2020) and Zhao (2017) is a lack of research on below-average EFL learners. Approximately one-third of EFL college students lack effective strategies for learning English. Currently, the presence of a significant number of low-achieving EFL learners in colleges is an indisputable fact (Murphy, 2017; Rose & Washbrook, 2019). For some learners, English has become a

major problem for them, as the failure to learn English has caused them to lose confidence in English learning. Thus, what causes the prevalence of low EFL achievers? According to Chinese English pedagogy experts Wen (2021) and Cheng (2021), research indicates that, under similar conditions, differences in the mastery of LLS significantly impact performance. In addition, many teachers believe that cramming and rote memorization are still efficient ways to learn English and that many students consume considerable time and energy; however, the achievement of English is still not ideal (Cheng, 2020; Su & Li, 2017). Although there may be various complicated reasons, the most apparent and plausible reason is that they do not master efficient language learning strategies. In fact, this phenomenon observed by the researcher is by no means a case in point.

Finally, bearing in mind the abovementioned gaps, the ultimate aim of this study is to apply pragmatic philosophical underpinnings, models of LLS instruction, and Gagné's information processing theory to investigate the effects of LLS instruction for vocational college learners. The above theories view learning as an active, dynamic process, in which the learners select from incoming information, encode it into their long-term memory and retrieve it when required (Hong, 2011; Zhang, 2011). There are factors that are within a school or district that directly affect students' performance such as mastery of LLS and high-quality teachers. Other factors that are beyond the schools' control may include safety in the community. Lastly, the students trained by vocational colleges are the main source of technical talents and play a crucial role in enhancing human capital, promoting industrial upgrading, and supporting high-quality economic development (Zhang, 2020; Li, 2017). However, the English proficiency of most

vocational college students is relatively weak. Despite the important role English plays in vocational education, it remains a significant challenge for these students.

Considering the urgency of the problems to be addressed, and the aim of this study of fruition, the researcher proposes an empirical study of the below-average EFL learners by investigating the effect of LLS instruction in a vocational college so as to fill the gaps in the past research (Miles, 2019). The LLS experts Griffiths and Inceçay (2016) also highlighted that future research can continue to explore the relationships among LLS, different individuals and the strategies that have the potential to improve learners' English learning performance. Therefore, this research can serve as a reference for the EFL practitioners, researchers, and educational institutions attempting to educate weak EFL learners with some efficient LLSs. Additionally, the framework is a new attempt in the field of LLS training, which provides a better understanding of the application of a pedagogical approach in the EFL context. Therefore, the research objectives are to explore effects of LLS instruction for below-average EFL college learners, and find an efficient LLS instruction model to solve the English learning problems for these students and college teachers. Additionally, research questions of the study are related to effective approaches of LLS instruction for those in the vocational colleges. Therefore, research needs to be conducted with below-average EFL learners to identify their perceptions of their English learning strategies in vocational colleges.

1.4 Objectives of the Study

The objectives of the current study are as follows:

1. To explore the preferences and frequencies of LLS used by below-average EFL learners in the Chinese vocational college.
2. To investigate the effect of the LLS instruction on the level of strategy use of the vocational college below-average EFL learners.
3. To explore the effect of the LLS instruction on the English academic achievement of the vocational college below-average EFL learners.
4. To investigate an efficient LLS instruction model for below-average EFL learners in the Chinese vocational college.

1.5 Research Questions

The research questions for this study are as follows:

RQ1. What are the preferences and frequency of LLS used by below-average EFL learners in the Chinese vocational college?

RQ2. Is there any significant relationship between LLS instruction and the level of strategy use of below-average EFL learners in the Chinese vocational college?

RQ3. Is there any significant relationship between LLS instruction and English academic achievement of below-average EFL learners in the Chinese vocational college?

RQ4. What should be the efficient LLS instruction model for below-average EFL learners in the Chinese vocational college?

1.6 Hypotheses of the Study

The hypotheses of this study were drawn from the first and second research questions as follows:

1. Below-average EFL learners in the vocational colleges may display a low frequency and preferences of LLS use.
2. There is a significant relationship between LLS instruction and the level of strategy use of below-average EFL learners in the Chinese vocational college.
3. There is a significant relationship between LLS instruction English academic achievement of below-average EFL learners in the Chinese vocational college.
4. The mixed LLS instruction model can be effective in improving the use of strategies for below-average EFL learners in the vocational college.

1.7 Significance of the Study

The study attempts to find an efficient LLS instruction model for below-average learners in vocational college context. Therefore, the LLS instruction model and implementation path constructed in the research may provide positive references for LLS instruction models to find a new approach , particularly for use of some below-average EFL learners in vocational colleges. Besides, the study provides significant evidence on the suitability and adaptation of LLS and SILL (Strategy Inventory for Language Learning) in different contexts for specific research populations, especially in vocational college context. Moreover, Amerstorfer (2018) proved that the SILL is still effective and has not expired. In LLS research, it continues to be the most widely used

instrument for self-evaluation.

This research takes below-average EFL learners in a vocational college as the research participants and adopts a mixed approach that is different from the prior research and the instructor implemented a one-semester intervention programme in an English class. All the research results and conclusions obtained during the period may undoubtedly enrich the research in the field of LLS instruction models in China and some foreign countries (Qi & Chen, 2014).

LLS is an individualized approach aimed at enhancing the skills of learners in learning a second language. The foundation of LLS instruction lies in addressing the problems that students encounter when learning the target language. During LLS training, learners can use strategies for specific activities and employ them in different contexts (Arulselvi, 2016). Pedagogically, the proposed study can clarify the relationships between LLS and English learning achievement. This clarification may supplement research on LLS and English learning achievement (EAA) but also assist second language pedagogical researchers in developing a novel direction for future studies (Griffiths, 2014. et. al.). Additionally, the findings of the research may offer valuable insights for curriculum designers, helping them adapt the LLS contents to vocational college English courses, as LLS may be instrumental for improving learners' English learning skills (Thomas, Bowen & Reynolds, et al., 2021).

Although the importance of LLS instruction is well appreciated among researchers, the effects of strategy instruction have been difficult to establish (Zhang, 2021; Takeuchi, 2019). One of the reasons for the limited success of LLS instruction

may be a lack of consideration of necessity for target learners, such as for some below-average EFL learners, who have a pressing need for LLS (Murphy, 2017; Samperio, 2019. et al.). Therefore, the findings of this study, specifically the effect of LLS instruction on below-average learners' English achievement, provide empirical evidence that appropriate LLS instruction can positively impact the English performance of low achievers. In addition, the limited success of LLS instruction may be attributed to its frequent implementation in large classrooms, especially in schools, where diverse learner characteristics are common, especially in EFL and ESL contexts (Chakrabarty & Saha, 2014; Gan, 2015).

Additionally, the vision of USM is to transform higher education into a sustainable future (Munirah & Normaliza, 2019). One of the USM SDGs is quality education, namely, ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all people (Munirah & Normaliza, 2019, p. 13). The research participants in the study were BA learners who were disadvantaged and easily ignored in colleges, which is consistent with USM's vision and SDGs. Therefore, this study aims to make a meaningful contribution to EFL education by providing insights into how below-average EFL learners can enhance their English language learning in real-life contexts. This research may also serve a new perspective that could draw the attention of EFL and ESL practitioners and experts to the challenges faced by below-average learners. The research may help identify solutions to these the problems and support learners in overcoming English difficulties more effectively. It is a positive effort made on a practical level that may help students learn English independently.

1.8 Scope of the Study

The scope of this study encompasses various aspects, including research areas, research methods, objectives, population, and the study field. It aims to clearly define the specific research focus, methodologies, and target population, ensuring that the study is both feasible and accessible for investigation (Akanle, Ademuson & Shittu, 2020). This study specifically aimed to examine the effectiveness of LLS training for below-average EFL learners in Chinese vocational colleges. The implementation of organized LLS education for college students not only aligns with the cognitive development of adult learners but also enhances their thinking skills, thereby significantly contributing to the cultivation of independent learning abilities. Consequently, it plays a vital role in the teaching and learning of English within college institutions, which is generally considered a positive attribute (Zhang, Thomas & Qin, 2019). Therefore, it is crucial to define the target research population as college EFL BA learners, as the findings of the study may not be applicable to other research populations.

In addition, since this study is an empirical study focusing on problem-oriented investigation within the context of Chinese vocational colleges, it is appropriate to adopt a philosophical underpinning rooted in the pragmatism worldview. The pragmatism worldview serves as a suitable philosophical foundation for mixed-method research, as it emphasizes the importance of addressing research problems in social science inquiries and employing multiple approaches. This includes both quantitative methods such as experimental design, questionnaire surveys and qualitative method of semi-structured interviews, to address the research questions effectively at hand (Creswell, 2014; Tashakkori & Teddlie, 2010). Moreover, exploring an efficient LLS instruction model

and focusing on teaching LLS may improve training effects because LLS that reward quickly are considered more trainable than strategies that do not (Han & Zhou, 2021).

1.9 Definition of Terms

Certain terms are frequently used throughout the research and are closely related to the literature reviews and discussion of the study. Therefore, it is essential and necessary to illustrate the definitions and explanations of these terms in contexts to avoid ambiguity.

Below-Average Learners: Chakrabarty and Saha (2014) defined below-average (BA) learners as “a group of learners who fail to exhibit expected capability in attaining specific grades” (p. 160). Samperio (2019) noted that “low achievers are commonly seen as less proficient, less effective, or unsuccessful learners; they are usually categorized as learners who obtain a low grade on an exam or a course (p. 77)”. Teo (2018) explained the terms “low achievers”, “under achievers”, “low performers,” and “low progress learners”. These terms usually describe students who either receive below average scores on examinations or do not meet the minimum passing scores. Therefore, the definition of “below-average learners” in this study refers to students who were classified into the last level in the English entrance examination of the case college, a total of 442 students. A total of 38.87% of participants were sophomores in English courses, and their English entrance exam scores were below 90 out of 150; as 90 points is the pass line, they are below the pass score line.

Effect: The effect of language learning strategies is to help learners become proficient in English, enabling them to communicate effectively with teachers and peers

while developing foundational academic skills (Worthington, 2011). In this study, the “effect” of LLS instruction refers to the outcome observed after a period of intervention. If the performance of the experimental group significantly greater than that of the control group, it indicates that LLS instruction is effective in enhancing English academic achievement (Wen & Wang, 2004). This research employs Wen and Wang’s (2004) descriptions on effect of LLS to investigate the relationships between LLS instruction and learners’ academic achievement and level of strategy use.

EFL: EFL refers to the study of English by non-native speakers in countries where English is not the dominant language. According to Wen (2019), while China has made significant strides in English education, it has yet to become a strong foreign language nation. Many Chinese vocational college students have limited exposure to English, often favoring Mandarin and their native dialects. Additionally, there are a substantial number of below-average EFL learners across various grades in China, particularly in vocational colleges (Qi & Chen, 2014; Si, 2019). Although much research has been conducted on EFL, further extensive investigations are needed to explore different strategies that can benefit these learners (Goundar, 2019).

English Academic Achievement: Achievement test scores serve multiple purposes, such as diagnosing students’ strengths and weaknesses, and they are often used as criteria for awarding prizes, scholarships, or degrees. These scores are also valuable in evaluating the impact of various educational factors, including courses of study, teachers, teaching methods, and other significant elements in educational practice (Maleki & Zangani, 2007). In this study, the College English Test-4 (CET-4) and the

College English Final Examination (CEFE) were utilized as instruments to assess the English academic achievement (EAA) of vocational learners.

Language Learning Strategies: Definitions of language learning strategies (LLSs) vary among researchers. According to Oxford (1990), LLSs are behaviors or actions that learners use to make language learning more successful, self-directed, and enjoyable. Chamot et al. (1999) describe LLSs as techniques, approaches, or deliberate actions that students employ to facilitate learning. Burns, Richards, and Oxford (2018) define LLSs as deliberate mental acts that learners use to control their acquisition of a second or foreign language. In this study, LLSs are defined as intentional and conscious behaviors and steps taken to effectively improve the impact and efficiency of English learning. These behaviors and steps can be explicit or implicit and are expressed as methods or skills of English learning, which can be trained and are subject to various constraints.

Vocational Colleges: White (2001) identified several key features of vocational colleges: a) shorter course duration compared to universities, b) curricula with a strong practical orientation, c) responsiveness to the needs of business and industry, and d) a limited range of subjects, primarily focused on business and engineering studies. Vocational education is characterized by technical, teleological, and pragmatic traits. In this study, vocational education is understood as the acquisition and application of knowledge and skills necessary for mid-level vocations that society occasionally requires (Moodie, 2002, p. 260). XTE College, a typical private vocational college in China, was selected for this study to explore the effect of language learning strategy

(LLS) instruction on vocational learners' English academic achievement and their level of strategy use.

1.10 Conclusion

In conclusion, this chapter offers a comprehensive overview of the background of the study, focusing on the policies, challenges and English learning difficulties, and specific needs of vocational colleges in China, especially concerning below-average learners. The highlighted problems are underscored with compelling evidence, revealing potential research gaps. The following section will delve into the pedagogical significance of this study within the context of Chinese vocational education. Finally, key terms used throughout the study are defined, drawing on relevant definitions from authoritative sources.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on identifying research gaps related to the effects of Language Learning Strategies (LLS) instruction on below-average EFL learners within the Chinese vocational education context. The study aims to establish a solid theoretical and practical foundation for further research development. The chapter begins by providing background information on the English proficiency of Chinese vocational college EFL learners, followed by an in-depth discussion of below-average EFL learners. It also explores key aspects of language learning strategies, including their definitions, categories, methodologies, effects, and instruction. The subsequent section examines the relevant theories underpinning this study, drawn from cognitive psychology and second language acquisition (SLA). These theories include the pragmatic philosophical foundation, models of LLS instruction, and Gagné's information processing theory. Finally, the chapter concludes with a presentation of the conceptual framework and a review of the literature pertinent to the present study.

2.2 The Vocational College EFL Education in China

In recent years, China has made significant strides in developing vocational education, with the number of higher vocational colleges and enrolled students increasing annually. However, vocational college learners remain generally underrepresented in schools (Lai, 2018). According to Li (2021), as summarized in Figure 2.1, more than 50% of vocational college students exhibit average or low interest

in learning English. Classroom learning is a crucial method for these students to acquire knowledge, directly influencing their English acquisition and academic achievement (EAA). Figure 2.2 highlights that many vocational students struggle to adopt effective learning strategies: 34% do not actively listen to their teachers, while 43% listen without taking notes. This inadequate classroom engagement is a primary factor contributing to their low English performance (Li, 2021). Additionally, vocational students have varied perceptions of their needs, wants, and weaknesses, and they hold diverse views on the roles of teachers and learners, the learning inputs required, and the teaching and learning environments (Mahbub, 2018).

Considering the differences between vocational and traditional colleges, many studies have indicated that the development of vocational education may be a crucial strategy for optimizing China's talent structure (Kuang, Liu & Chen, 2017). While vocational colleges are characterized by a high employment rate, they often face challenges with lower employment quality compared to their traditional counterparts. Vocational education is primarily competency-based and employment-oriented, designed to prepare students for immediate entry into the workforce and future career opportunities (Kuang et al., 2017). In contrast, traditional colleges focus on the development of professional academic students, emphasizing academic achievement and innovation to meet societal needs and adapt to changes in the global economy (Liu, 2022). Given these distinctions, this study selected vocational colleges as the research context to support the ongoing development of China's economy.

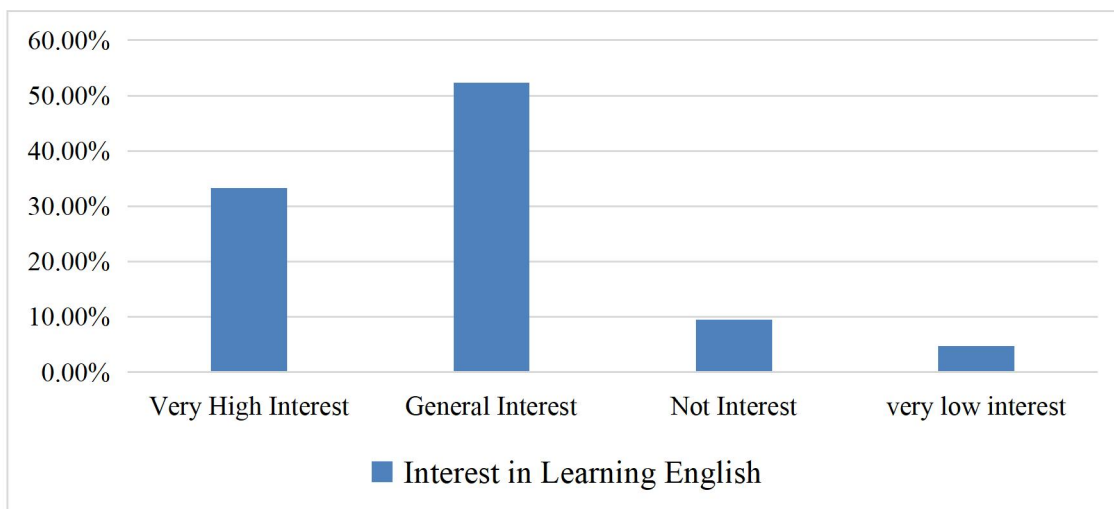


Figure 2.1 English Learning Interests of College Learners (Adopted from Li, 2021)

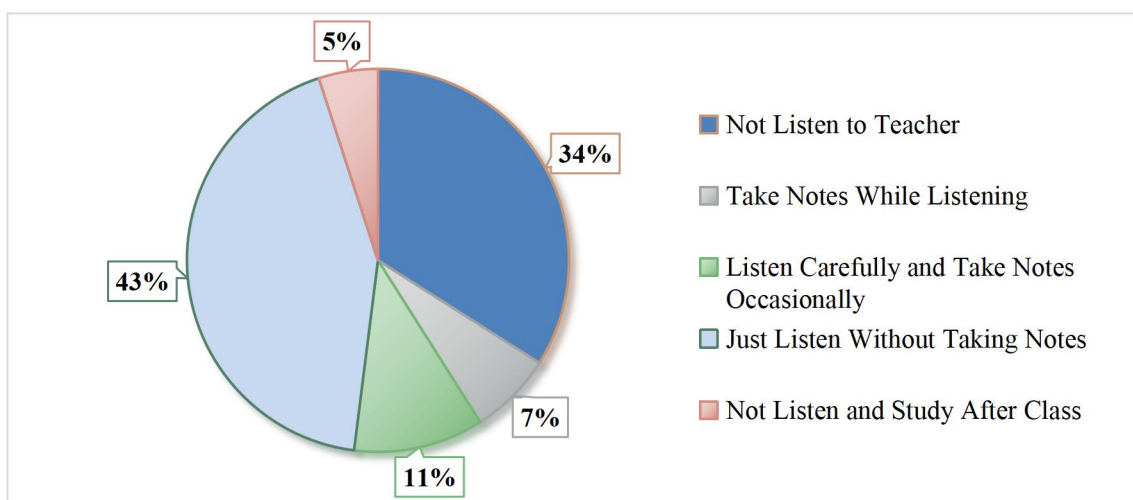


Figure 2.2 English Learning Styles of College Learners (Adopted from Li, 2021)

English is a crucial subject in vocational colleges, particularly with the growing influence of globalization, where English is increasingly used in daily life and the workplace. As a result, the vocational education system in China has undergone significant reforms (Chang, 2019). These reforms place a strong emphasis on English language education, which plays a key role in promoting quality education for students. Teachers are encouraged to align their curriculum with current social developments and student needs (Ming, 2020). This study suggests an employment-oriented approach,

reflecting the importance of English instruction and the specific teaching characteristics of vocational colleges. The neglect of vocational college EFL learners and reliance on outdated teaching methods have contributed significantly to the low level of English proficiency among these students (Li et al., 2021). Li (2020) emphasized the need to enhance English application skills in higher vocational colleges, particularly in the context of a globalizing economy. However, challenges such as rigid teaching methods, insufficient student engagement, and outdated assessment practices have hindered the creation of effective English classrooms in these institutions.

In conclusion, Chinese English language expert Wen (2021) summarized key findings on vocational learners, highlighting several challenges: the diverse backgrounds of students in higher vocational colleges contribute to their weak English foundations upon entry, and their motivation to learn English is often lacking. Graduates have reported that the limited hours dedicated to English courses fail to meet the demands of their current jobs. Additionally, some school leaders do not prioritize English courses, resulting in insufficient class time. Teachers are eagerly awaiting the release of a new curriculum standard that would clarify the nature of the curriculum, define core competencies, and establish clear teaching requirements and class duration.

2.2.1 Low LLS Levels of Vocational College EFL Learners

Notably, English is nearly a compulsory subject for almost every vocational college learner, making the exploration of LLS particularly important for this group. Several researchers have investigated the proficiency of LLS among vocational college EFL learners using questionnaires and SPSS analysis. For example, Zhang (2017)

reported that the average frequency of LLS usage among students was 2.65. Most students used LLS at a general level, accounting for 52.30%. Additionally, 40% of students rarely used LLS, while only 7.69% used them almost always. This indicates that vocational college students infrequently utilize LLS (see Table 2.1).

Table 2.1 Frequency of Students' Use of LLS (adopted from Zhang, 2017. p. 77)

Mean	Number of Students	Percentage (%)	Note: 4.5-5= Always; 3.5-4.4= almost Always; 2.5-3.4=General; 1.5-2.4= Rarely Use; 1.0-1.4=Almost Never
4.5-5	0	0%	
3.5-4.4	10	7.69%	
2.5-3.4	68	52.30%	
1.5-2.4	52	40%	
1.0-1.4	0	0%	

Additionally, as shown in the statistical findings in Table 2.4, studies on the overall use of language learning strategies are quite frequent. Among the six LLS categories, vocational college students most commonly use compensation strategies, followed by memory, social, meta-cognitive, cognitive, and affective strategies. The mean values for these strategies range from 2.4 to 2.8, indicating a medium frequency of use and general strategy utilization (Lai, 2018; Xie, 2015). Xie (2015) also examined gender differences in LLS usage, revealing that compensation strategies are the most commonly used by both male and female learners. Both genders favor cognitive strategies over meta-cognitive strategies. However, a notable difference is that female learners utilize affective strategies more frequently than male learners based on Xie's (2015) findings.

Table 2.2 Overall Use of LLS (adopted from Lai, 2018. p. 99)

Strategies	Means	Standard Deviation
Compensatory strategies	2.80	0.34
Cognitive strategies	2.57	0.45
Affective strategies	2.53	0.32
Social strategies	2.48	0.25
Memory strategies	2.48	0.25
Metacognitive strategies	2.47	0.31
Overall	2.54	0.14

Generally, based on the overall use of LLS in Table 2.2, vocational college students did not use language learning strategies very frequently; their use of LLS was moderate, and they lacked awareness of how to utilize these strategies to enhance their English proficiency. Additionally, differences in LLS utilization were observed between male and female learners (Xie, 2015; Lai, 2018; Zhang, 2017).

2.2.2 Education Policies of Vocational College EFL Learners

In response to the educational challenges faced by vocational college learners, the Chinese government introduced the *English Curriculum Standards for Higher Vocational Education (2021 Version)* (ECSHVE) to enhance English education among these students. The ECSHVE emphasized the need for students to identify learning methods suited to their needs and to receive guidance on learning strategies (Ministry of Education of China, 2021). This document served as a significant guideline for implementing English education in higher vocational schools in China and emphasizes the necessity for students to master effective learning strategies. Despite these efforts, the current state of vocational college English education in China remains unsatisfactory.

Nearly 50% of students had only an average interest in English learning. They perceived English as infrequently used in their future careers and found it challenging, leading to decreased interest and increased apprehension about the subject (Li, 2021). The ECSHVE aimed to address these issues by reflecting the professionalism of English through its curriculum structure and content, striving to meet the career needs of vocational learners (Wen, 2021).

Additionally, the Chinese government has updated the GCET in 2020, which had sparked significant attention in the field of college English education. Originally, the GCET defined college English as a public basic course required for most non-English majors during their undergraduate education. However, the GCET 2020 reclassified it as a core general education course compulsory for most non-English major students in undergraduate education (Xiang, 2020). This shift not only altered the course's designation but also reflected changes in the orientation and educational focus of college English teaching (He, 2020).

Although the Chinese government has proposed several policies and guidelines for vocational English education, past studies predominantly focused on elementary education, with little attention given to the English education of vocational college learners (Lu, 2021). It has been suggested that researchers in the EFL/ESL field were encouraged to shift their focus to the core literacy of vocational English education. This involved thoroughly understanding the values and key skills associated with each aspect of core literacy to enhance English teaching and academic quality. Such efforts aimed to elevate vocational English education to new levels of rapid development and to cultivate

a cadre of internationally competent, high-quality technical and skilled workers (Cheng, 2021).

2.3 Below-Average EFL Learners

Since below-average college EFL learners are the focus of this research, it is crucial to precisely define what is meant by “below-average EFL learners” before proceeding with the detailed research. The definitions provided a clear understanding of the target group and guide the specific experimental work included in the study.

2.3.1 Definitions of Below-Average EFL Learners

Due to varying research objectives and focuses, researchers have offered different operational definitions of “below-average EFL learners” in specific studies. Chakrabarty and Saha (2014) defined low achievers as “a group of learners who fail to exhibit expected capability in attaining specific grades”. Samperio (2019) stated that below-average learners used a few strategies less frequently, and they did not frequently achieve goals; they faced difficulty mastering language skills. While, the term “below-average learner” refers to a student who has below average school performance, low achievement, and academic failure in school, compared to their peers (Chen, 2018; Samperio, 2019).

In this study, “below-average EFL learners” are defined as students who did not meet the passing score in the college English entrance examination (CEEE) at the research case college. Out of a total of 442 enrolled students, 38.87% had English scores below 90 out of 150, with 90 being the passing line. The CEEE in China is a critical system for selecting talented individuals, promoting social mobility, and maintaining

stability, impacting the personal and academic futures of countless students. It holds significant reliability and validity. However, most students in the case college failed to meet the basic requirements of the CEEE test. Despite this, every student made their best effort to pass and achieve optimal results. Therefore, this study uses CEEE scores as the standard for defining below-average (BA) EFL learners. The specific characteristics of this group of students are as follows: they possess average intelligence levels. However, due to factors such as learning methods, motivation, perception, learning styles, willpower, and teaching conditions, these students have demonstrated below-average proficiency or attainment in English learning (Qi & Chen, 2014; Su, 2018)

2.3.2 Below-Average EFL Learners and Language Learning Strategy

Notably, below-average EFL learners are the primary research participants of this study. Past studies on the use of language learning strategies (LLS) among these learners have been explored through both quantitative and qualitative approaches.

From a qualitative perspective, several studies have explored the impact of language learning strategy use on below-average EFL learners from various angles (Griffiths & Inceçay, 2016; Habók & Magyar, 2018; Samperio, 2019; Rose, Tikly & Washbrook, 2019, et al.). Samperio (2019) noted that BA learners do not differ significantly from high achievers in the frequency of using Oxford's (1990) LLS but tend to use LLS less effectively in their learning processes, unlike high achievers who apply these strategies more purposefully. Griffiths and Inceçay (2016) found that elementary-level learners typically used only two LLS items, whereas advanced-level learners used up to 22 LLS items more frequently. Furthermore, through quantitative

analysis, Anita and Andrea (2017) identified significant differences in LLS usage among learners with varying achievement levels, noting that lower English language scores were associated with reduced LLS use. While some studies suggested that BA learners' use of LLS was similar to that of advanced learners, others indicated limited strategy use among BA learners. This study aims to address this discrepancy by comprehensively investigating the effects of all of Oxford's (1990) LLS items.

In addition, numerous researchers have examined the use of LLS among below-average EFL learners. For instance, Esmacil, Izadpanah, Namaziandost, and Rahbar (2022) administered Oxford's SILL to 100 intermediate learners using questionnaires to investigate the relationship between learners' writing performance and LLS use. Selvarajan (2022) explored LLS instruction in classrooms for low-achieving EFL students, suggesting that teachers can employ various collaborative LLS to support BA learners who struggle with strategy application. Gan (2015) focused on the impact of metacognitive strategies among students with weak listening skills, finding that those with poor listening proficiency use fewer metacognitive and listening strategies. Despite this, students generally maintain positive attitudes toward strategy training, which can enhance their strategy use.

Similarly, Liu (2021) examined the effect of metacognitive strategy training on English reading among BA EFL learners at a top university. He found that low-scoring readers often misunderstand reading strategies and underutilized metacognitive strategies. Although short-term strategy training significantly improved the use of metacognitive and reading strategies, it did not lead to a rapid improvement in reading

grades. The research mentioned above primarily focused on metacognitive strategies and English skills, often overlooking other types of strategies and their impact on English academic achievement. This narrow focus suggests a need for further exploration into how a broader range of LLS might influence overall academic achievement in English, particularly for below-average EFL learners

Furthermore, Prastik (2023) investigated LLS use among low achievers and found no significant differences in strategy use based on gender or academic major in high school. Hongyan (2018) emphasized that educators often view academic achievement as a personality trait rather than attributing it solely to cognitive or intellectual abilities. He argued that instructors possess considerable flexibility in assessing their students and suggested that teachers should regard 'low achievers' as active agents. This perspective shifts the focus towards helping each student reach their full potential rather than perceiving them as passive learners.

From a quantitative perspective, the EFL/ESL field employs various terms to describe below-average EFL learners, including “underachieving learners,” “elementary-level learners,” “low scorers,” and “low achievers” (Samperio, 2019; Wang, 2020). Despite the differing terminology, these terms essentially refer to the same group of research participants. This study conducted an extensive literature search using these keywords related to LLS through the CNKI network data retrieval system, focusing on studies published between 2013 and 2023. The search was narrowed to include non-English major college students. The results were organized, and the final outcomes are presented in Table 2.3.

Table 2.3 Scope and Quantity of Research on LLS of College Learners

Research Scope	lexical strategy	listening strategy	Reading strategy	Writing strategy	Speaking strategy	Meta-cognitive strategy	overall strategy
Quantity	3	4	3	1	1	4	1

In summary, the use of language learning strategies (LLS) has been extensively studied over the past decade, with numerous investigations exploring their impact on below-average EFL learners from various perspectives (Griffiths & Inceçay, 2016; Habók & Magyar, 2017; Samperio, 2019, et al.). As illustrated in Table 2.3, however, much of the existing research has been limited in scope, predominantly focusing on discrete strategies such as vocabulary learning, metacognitive, and listening strategies, while largely overlooking communication, affective, compensation, and other strategies (Rose, Tikly & Washbrook, 2019; Selvarajan, 2022, et al.). Furthermore, the majority of previous studies have concentrated on university students or elementary school-aged learners, with vocational college learners receiving comparatively little attention. Consequently, this study seeks to address this gap by providing a comprehensive examination of the effects of using and practically training each LLS strategy among below-average vocational college EFL learners.

2.4 Language Learning Strategies

Since then numerous studies have contributed to the understanding of the important roles that LLS plays in the process of SLA, EFL or ESL. Despite LLS being over thirty years old, its theories and implications for English teaching remain relevant (Cohen & Griffiths, 2015; Amerstorfer, 2018). In the past decade, many researchers

have examined the impact of LLS on language performance, with most findings indicating a clear positive correlation between the use of LLS and English achievement or performance (Griffiths & Inceçay, 2016; Griffiths & Oxford, 2014; Nguyen & Terry, 2017). Therefore, this study is committed to exploring the effects of LLS instruction on below-average EFL learners within the Chinese vocational college context.

Despite the considerable efforts of numerous experts and researchers, LLS research continues to be a prominent topic in language education. However, there remains a lack of consensus on several aspects, including the definition of language learning strategies, their categorization, the effects of strategy training, the research participants involved, the methodologies employed, and the models of LLS instruction (Qi & Chen, 2014; Griffiths & Oxford, 2014). Consequently, this study aims to analyze and discuss these six controversial areas within the field of LLS research.

2.4.1 The Definitions of the Language Learning Strategies

Notably, numerous researchers have attempted to define language learning strategies (LLS). Although LLS, as a comprehensive concept closely related to cognitive strategies, has garnered long-term attention, definitions have varied significantly (Qi & Chen, 2014). This variation largely arises from the diverse standards, perspectives, and theoretical frameworks employed by different linguists, international language pedagogy experts, and language researchers. Therefore, this study aims to present several representative definitions of language learning strategies (Oxford, 1990; Cohen, 1998, et al.) and establish a suitable definition for the research. The following Table 2.4 presents some of the most recognized global definitions of LLS:

Table 2.4 Definitions of the Connotation of Language Learning Strategies

Source	Definitions
Rubin 1987	Learning strategies are strategies which contribute to the development of the language system which the learner constructs and affect learning directly (Ellis, 1994).
Oxford 1990	Language learning strategies are behaviors or actions which learners use to make language learning more successful, self-directed and enjoyable (Oxford, 1990).
O'Malley 1990	Learning strategies are specific thoughts or behaviors that individuals use to help them understand, learn, or retain new information (Fang, 2004).
Cohen 1998	LLS refer to the conscious or semi-conscious behaviors and mental activities of learners. External activities have clear goals. One goal may be to enable language knowledge and language skills. Learning becomes easier, another goal is to use the language or to make up for the learner's language lack of knowledge.
Chamot 1999	LLS are techniques, approaches or deliberate actions that students take in order to facilitate the learning, recall of both linguistic and content area information (Chamot, Barnhardt & El, 1999).
Cheng & Zheng 2002	LLS are the various strategies that learners take in order to achieve better results in language learning, which includes the learner's efforts to better complete a certain learning activity, learners' understanding of their own learning goals, learning process, planning, regulating, evaluating, etc. (Cheng & Zhen, 2002)
Ministry of Education of China 2012	Learning strategies refer to the various actions and activities that students take in order to learn and use English effectively, which includes steps and the beliefs that guide those actions and activities. (Ministry of Education, 2012)

Although the definitions listed above reflect prevailing views on language learning strategies, several questions remain unresolved before a comprehensive definition can be established. These questions include whether LLS are perceived as behavioral, cognitive, or both; which specific behaviors qualify as learning strategies; whether these strategies are deliberate and intentional or subconscious; and whether they exert a direct or indirect influence on interlanguage development, along with identifying the factors that motivate their use (Ellis, 1994). Additionally, there is ongoing debate over whether these strategies are always deliberate and intentional, or if they can also

operate at a subconscious level.

Therefore, based on the comprehensive definitions provided by Oxford (1990), Cheng and Zheng (2002), Cohen (1998), Chamot (1999), and the Ministry of Education of China (2012), the suitable definition of language learning strategy for this study is as follows: LLS refers to the various intentional and conscious behaviors and steps taken by students to enhance the effectiveness and efficiency of their English learning. These behaviors and steps can be explicit or implicit, expressed as methods or skills, and can be trained or taught, while also being influenced by various factors.

2.4.2 Categorization of Language Learning Strategies

To establish an appropriate categorization of LLS for this study, it is crucial to synthesize and evaluate the existing representative classifications of LLS. The current landscape of English pedagogy offers various strategy categories, including O'Malley and Chamot's (1990) meta-cognitive, cognitive, and social/affective strategies; Oxford's (1990) direct and indirect strategies; Cohen's (1998) distinction between language learning strategies and language using strategies; Wen and Wang's (2004) management and LLS; and Cheng and Zhen's (2002) meta-cognitive, cognitive, social, and affective strategies, which closely align with O'Malley and Chamot (1990). The variations in research types, perspectives, and methodologies have led to diverse outcomes in LLS categorization within current English pedagogy, offering valuable insights for this study.

(1) The two categories proposed by Oxford (1990) exhibit certain similarities to the three categories outlined by O'Malley and Chamot (1990). Specifically, Oxford's (1990) direct strategies align closely with the cognitive strategies of O'Malley and

Chamot's (1990), while her indirect strategies encompass both metacognitive and social/affective strategies from O'Malley and Chamot. The primary distinction lies in Oxford's view that these strategy types operate independently and on the same level, whereas O'Malley and Chamot's (1990) argue that metacognitive strategies are more effective than others (Ah et al., 2021; Griffiths & Soruç, 2020). (2) Although Cohen's (1998) classification is relatively clear, it remains challenging to ascertain whether a particular learner activity is intended for language learning or application, especially in the context of international language learning environments. Additionally, Cohen's framework does not address metacognitive strategies (Chamot & Harris, 2019; O'Malley & Chamot, 1990; 2013).

The differences in the classification of LLS directly lead to differences in research objectives and research methods. Therefore, this study employed Oxford's (1990) classification to operationalize the research on LLS. This is because Oxford's (1990) classification is widely regarded as the most comprehensible and accessible (Cheng & Zheng, 2002). It represents one of the most comprehensive theoretical models available globally (Ellis, 1994). Moreover, Amerstorfer (2018) suggested that while Oxford's (1990) SILL and LLS frameworks are not outdated, they may require adaptation to new contexts and methodologies, including the integration of technology-based strategies for language acquisition. Furthermore, Lai (2018) examined the correlations among various strategies and found that 13 strategies were significantly positively correlated, with 12 of these correlations being significant at the $p < .01$ level. The most notable correlation was between metacognitive and affective strategies. However, there were also two pairs of strategies that showed no significant correlation.

Consequently, this study adopts Oxford's (1990) category of LLS for foundational research, as illustrated in Figure 2.3.

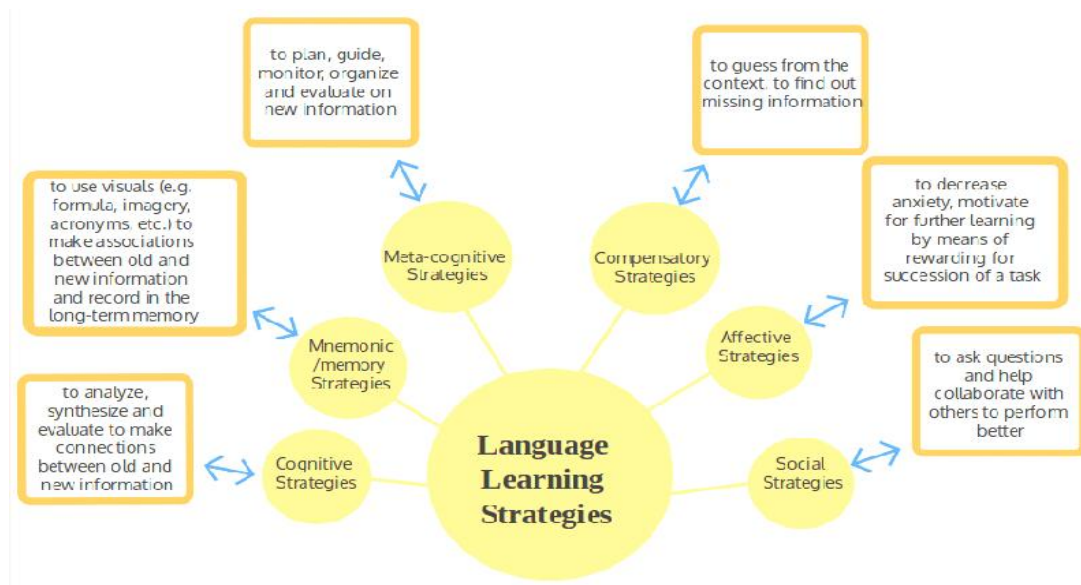


Figure 2.3 The Category of Language Learning Strategy of Oxford (1990)

Direct and Indirect Strategies: According to the relationship between strategies and language materials, Oxford (1990) categorizes language learning strategy into two groups: direct strategies and indirect strategies. Direct strategies involve a direct connection between the use of strategies and the target language, whereas indirect strategies do not have a direct connection with the target language. Direct strategies assist in managing the learning of the target language and include memory strategies, cognitive strategies, and compensation strategies. In contrast, indirect strategies support and regulate language learning and include metacognitive strategies, affective strategies, and social strategies (Oxford, 1990; Oxford & Cohen, 1992). Oxford's (1990) categories of LLS are summarized in Appendix A.

2.4.3 Quantity of Studies on Language Learning Strategies

The status quo of empirical studies on LLS: Over the past decade, 68 empirical articles on LLS have been published by Chinese researchers in major Chinese journals, employing various research methods for classification. Among these studies, 19 adopted a macro perspective, examining overall concepts and strategies of English learners, while 49 took a micro perspective, focusing on specific knowledge or skill strategies, such as listening, reading, and vocabulary strategies (see Table 2.5).

The scope of the research refers to the extent covered by the study. The literature from the macro perspective includes two main aspects: 1) 7 articles explored the integration of LLS and EFL teaching in China, focusing on both the training and application of LLS; and 2) 12 papers examined the relationship between LLS and English performance. From the micro perspective, the literature is categorized into five strategy types related to specific skills or knowledge areas: 13 articles on listening strategies, 12 on reading strategies, four on speaking strategies, six on writing strategies, and 14 on vocabulary strategies.

With respect to research participants, Habók and Magyar (2018) studied lower middle school students, Wu and Zheng (2021) investigated Chinese children, and Huang (2018) focused on Chinese middle school students. In contrast, the remaining 34 studies involved adult EFL learners. Of these, 18 were undergraduate English majors, 12 were non-English major college students, two were postgraduate students, and two were mixed student groups. It is not surprising that strategy research predominantly involved adults for two reasons. First, primary school students often lacked autonomy in their

learning. Second, a substantial proportion of adult EFL learners in the country was currently engaged in mastering English, and they typically had more rigid study requirements. Additionally, adults generally exhibited greater self-awareness and efficiency in their learning processes.

2.4.4 Research Participants of Language Learning Strategies

Considering the research participants of LLS, as shown in Tables 2.5 and 2.6 of this study, numerous EFL/ESL researchers and experts have conducted extensive studies on LLS across various scopes. However, most of the previous research focused on primary and middle school EFL learners, as well as the broader adult learner group (Kazi, Iqbal, & Moghal, 2022; Prastik, 2023). Notably, below-average EFL learners have often been overlooked (Griffiths, 2018; Samperio, 2019; Wu & Zheng, 2021). Specifically, Habók et al. (2022) explored the effects of certain learning strategies among secondary students, which could enhance their English instruction. Griffiths (2018), an expert in LLS, conducted an empirical study to examine the relationship between students' higher achievement and strategy use and development, focusing on elementary learners. Additionally, Griffiths discussed related theoretical issues, providing evidence from empirical studies through both quantitative and qualitative perspectives, exploring the use of strategies from a teaching/learning viewpoint.

Additionally, Habók and Magyar (2018) investigated the use of LLS in relation to English proficiency and achievement among Hungarian lower secondary learners aged five to eight years ($n = 868$). Wu and Zheng (2021) examined the impact of online English learning on middle-grade students under new educational methods, representing

a significant attempt to explore LLS among elementary learners. Yenphech (2020) studied high school students at a university in Thailand, highlighting a lack of research on ESL in this context and aiming to explore the general application of SILL among high school ESL students. Clearly, there are notable gaps in the study of vocational below-average EFL learners, who require more attention as they are an often-overlooked group.

On the other hand, as shown in Table 2.6 of this study, several researchers and experts have concentrated on adult learner groups, including undergraduates, adult EFL/ESL learners, and teenage EFL learners (Pradita & Nindita, 2019; Amerstorfer, 2018; Phavadee, 2020). For instance, Grzegorzewska (2017) investigated the impact of LLS use on learners' intelligence with 32 upper-intermediate college students. It is evident that training and teaching LLS to adult learners can be more effective due to their high self-awareness and self-discipline in English studies (Wang, 2020; Ardasheva, Zhe, Adesope & Valentine, 2017). Therefore, conducting research on LLS among adult learners is of significant importance.

Phavadee (2020) and Gan (2015) conducted studies among undergraduate students at a college to investigate the correlation between metacognitive strategies and English achievement. They found that undergraduates effectively use metacognitive strategies in their English learning and identified a strong relationship between these strategies and English performance. This highlights a preference among researchers for focusing on metacognitive strategies. However, these studies have notable gaps: they generally do not address metacognitive strategies across the entire undergraduate cohort,

nor do they consider below-average EFL college learners or other types of strategies (Liu, 2021). Gan (2015) also noted that strategy training is a complex process, making it difficult to demonstrate significant improvements in language proficiency within a short timeframe. Consequently, a longer experimental period is recommended. Additionally, Citraro, Vitevitch, Stella, and Rossetti (2022) explored the relationship between lexical networks and psychological strategies in LLS among 1,000 toddlers aged 18 to 30 months, making them the youngest participants in LLS research.

Izadpanah and Ghafournia (2016) conducted a study with 100 adult learners to identify the most frequently used vocabulary learning strategies among Iranian EFL students and to assess the impact of these strategies on their memory. Their findings supported existing literature on vocabulary strategy training for foreign languages. However, their study was limited to adult learners and did not address below-average students (Pradita & Nindita, 2019). Amerstorfer (2018) explored the adaptability of LLS, emphasizing that strategies are flexible and dynamic, allowing learners to select appropriate strategies for specific situations. Nonetheless, the focus was on the general dynamic use of LLS rather than on particular strategies. Wang (2020) examined undergraduates to investigate factors contributing to negative motivation in learning strategies for students with learning difficulties. He identified LLS, teaching materials, and teachers as primary contributors to negative motivation. However, his research concentrated solely on the relationship between negative motivation and learning strategies.

However, most previous studies have focused on college students or adults rather

than elementary students. In summary, the current literature on LLS participants indicates that previous research predominantly investigated specific strategies for college students or primary and secondary school-aged EFL learners, as well as whole adult learner groups (Esmail, Izadpanah, Namaziandost, & Rahbar, 2022; Griffiths, 2018; Amerstorfer, 2018). Additionally, past research had largely overlooked comprehensive LLS systems, with most studies focusing exclusively on metacognitive learning strategies and neglecting below-average EFL learners. This study aims to address this gap by providing a comprehensive view of LLS use and practical training models, specifically targeting vocational college below-average EFL learners.

Table 2.5 Empirical Research Classification on LLS

Research perspective	Research Scopes	Research Participants					Number of papers	Research Methodologies		
		English Major learners	Non-English majors learners	Vocational College Learners	Elementary School Learners	Below-Average Learners		quantitative Research Method	qualitative Research Method	mixed Method
Macro perspective	Preference of LLS;	1	2	0	4	0	7	7	0	0
	Correlation Between Variables	2	3	1	5	1	12	8	2	2
Micro perspective	Listening Strategy	3	3	1	5	1	13	10	1	2
	Speaking Strategy	2	1	0	1	0	4	3	0	1
	Reading Strategy	2	3	1	5	1	12	10	1	2
	Writing Strategy	1	2	0	3	0	6	5	0	1
	Vocabulary Strategy	3	4	1	5	1	14	12	0	2
Total		14	18	4	28	4	68	53	5	10

Table 2.6 Selected Empirical Studies of Language Learning Strategy

Researchers	Participants	Objectives	Instruments	Results	Research Gaps
Liu (2021) -China-	Grade one under- graduate students	To clarify the relationship between metacognitive strategies and academic achievement	278 grade one undergraduate students from Shandong Normal University are randomly selected through standardized tests and questionnaire.	i. Undergraduate students perform well in using metacognitive strategies during English learning. ii. Undergraduate students autonomous learning is at a high level. iii. close relationship between the variables.	i. Barely focused on metacognitive strategies and academic achievement . ii. Only employed questionnaire and test instrument, not mention experiment method. iii. Not mentioned vocational college learners.
Gan (2015) -China-	160 non- English major under- graduates	To explore the effectiveness metacognitive strategy training for low scorers in college English listening	160 students via questionnaire and 50 students as experiment objects in a college of Guangdong	i. After training, the level of metacognitive strategy use in the experimental group was greatly improved. ii. LLS training is a systematic project, it is difficult to improve language proficiency quickly.	i. Merely focused on English listening strategies. ii. Only used quantitative methods (questionnaire and experiment), not mention qualitative methods or mixed method.
Izadpanah & Ghafournia (2016) -Iran-	Iranian intermediate EFL learners aging between 19- 22	To shed light on the most frequently used vocabulary LLS by Iranian EFL students as well as the effectiveness	100 students are tested by NELT (Nelson English Language Test and questionnaire and conducted via experiment	i. Not any significant difference between the mean scores of the participants in the control group and the experimental group. ii. Findings of this study support the language research on vocabulary strategy training.	i. Only focused on whole adult learners groups, not mention BA students ii. Small sample size iii. mainly focused effectiveness of strategy- based vocabulary instruction

Amerstorfer (2018) -Austria-	five teenaged learners of EFL whose first language is German	To examine the suitability of CDST in strategy research, explore its practical value, and demonstrate complex perspective about strategic learning.	5 teenaged learners of EFL was interviewed and distributed a five- point Likert-scale questionnaire.	i. The purposes of strategies are flexible are dynamic. Learners select strategies to suit specific, situational purposes, .	i. Very small sample size. ii. Mainly focused on dynamic use of learning strategies, not mention each specific strategy. iii. Only applied interview and questionnaire methods.
Phavadee (2020) - Hungary -	Adult EFL learners	To find out if metacognition can develop learners' performance; To seek for how the metacognition can support on problem-solving and critical thinking of the learners.	Review the literature from different scholars in different areas of their studies during the five- year back of their work for the project include the thesis and the articles.	i. Metacognition encourages the students' capability to develop their diverse strategies of learning. ii. To help them in understanding themselves what are the needs and interests, what is the strength and weakness.	i. Simple methodology applied ii. Lack of information on the other strategies that influence learners' English learning performance.
Wang (2020) -China-	The college students who joined in the retraining class	To explore the factors that lead to the negative motivation of students with learning difficulties	332 undergraduates were distributed a negative motivation questionnaire. and interview.	i. LLS, teaching materials, teacher and teaching facilities are the main factors that cause the negative motivation of learning strategies.	i. Simple methodology applied. ii. Only focused on the relation between negative motivation and learning strategies.

Table 2.6 Continued

2.4.5 Research Methodologies of Language Learning Strategies

Regarding LLS research methodologies, a range of approaches were employed, including quantitative methods (such as questionnaires, quasi-experimental designs, and statistical analysis), qualitative methods (such as interviews, observations, action research, narrative methods, thematic analysis, and literature reviews), and mixed methods, which combine quantitative and qualitative approaches (Griffiths & Oxford, 2014; Qi & Chen, 2014). Over the past 30 years, Chinese researchers have published 68 empirical studies on language learning strategies in major journals, classified according to research perspective, scope, participants, and methods (see Table 2.6). Specifically, 53 studies utilized quantitative methods, including surveys and experimental designs; 5 studies employed qualitative methods, such as case studies, interviews, and literature reviews; and 10 studies used mixed methods, integrating both quantitative and qualitative approaches.

Notably, quantitative research approaches, particularly the use of the *Strategy Inventory for Language Learning* (SILL) and data analysis programs such as SPSS, dominate the study of language learning strategies. For instance, Xiao (2021) validated the SILL for investigating language learning strategies in the context of EFL at a vocational college using questionnaires and in-depth interviews. Jiang and Gu (2022) examined the relationship between postgraduate English learning motivation regulation and LLS through questionnaires and analyzed the data using bootstrapping technology. Grzegorzewska (2017) explored the connection between intelligence and LLS using a quantitative approach with the SILL. Additionally, Citraro, Vitevitch, Stella, and

Rossetti (2022) investigated the relationship between lexical networks and psychological strategies in LLS among 1,000 toddlers using a comprehensive network-based quantitative method.

Liu (2021) investigated the relationships between metacognitive strategies and English academic achievement among 278 undergraduates, using standardized tests and questionnaires. A notable gap in the studies mentioned was their limited application of diverse research methods; few incorporated experimental or qualitative approaches. For instance, Wallace (2021) examined the relationships between L2 listening and metacognition among two second-year senior high school classes in Japan, employing a metacognition questionnaire and an L2 listening comprehension test following a vocabulary intervention. In trial studies, Gan (2015) explored the effect of metacognitive strategy training on 160 students (with 50 in a control group) focusing on college English listening. The research gaps here include a predominant focus on English listening strategies and reliance on quantitative methods (questionnaires and experiments), with minimal use of qualitative or mixed methods.

However, studies employing purely qualitative approaches remain scarce. Griffiths and Oxford (2014) advocated for increased qualitative research using thematic analysis. Thematic analysis and conversational (interview) methods are crucial among qualitative research techniques. For example, Phavadee (2020) reviewed literature from various studies, including theses and articles, to evaluate whether metacognitive strategies could enhance learners' performance. Similarly, Thomas, Bowen, Reynolds, et al. (2021) conducted a systematic review of LLS research components in Taiwan, a

purely qualitative study. Huang and Wu (2020) used learners' diaries in a case study to investigate a Chinese learner's 12-week self-directed Thai language learning, examining changes and underlying causes in strategy use. Kazi, Iqbal, and Moghal (2022) performed a comparative study on LLS use in Pakistan. However, the research gaps in these qualitative studies include the application of relatively simple methodologies, which may not be suitable for larger studies and can lead to slightly biased or underrepresented results.

Finally, the integration of qualitative and quantitative research methodologies through mixed-methods can significantly enhance research outcomes (Griffiths & Oxford, 2014). For instance, Wang (2020) investigated factors contributing to negative motivation in students with learning difficulties by using both a negative motivation questionnaire and interviews with 332 undergraduates. Amerstorfer (2018) studied the applicability of the SILL framework among 5 teenage EFL learners through interviews and a five-point Likert-scale questionnaire, exploring its practical value and offering a multifaceted perspective on strategic learning. Additionally, Ardasheva et al. (2017) reviewed 37 studies on language scope and 16 on self-regulated learning to assess the impact of LLS on EFL learners' self-regulated learning outcomes, employing mathematical models to analyze the data—a prime example of combining qualitative and quantitative methods. Despite the application of mixed-methods in these studies, there has been a predominant focus on literature reviews and interview methods, with less attention given to other qualitative approaches such as thematic analysis.

In summary, while there was a predominance of quantitative methodologies,

such as the SILL questionnaire approach and experimental studies, there has been a relative scarcity of qualitative and mixed methods (Griffiths & Oxford, 2014; Griffiths & Inceçay, 2016). Quantitative methods, including questionnaires and experiments, provide descriptive data about trends in learners' attitudes and behaviors in English learning and their correlation with performance. However, questionnaire results often face validity issues (Amerstorfer, 2018), as they rely on learners' self-reported use of strategies, which may not accurately reflect their actual usage. Although such self-reported data are useful in the initial phases of strategy research, they fall short of providing a comprehensive understanding as research advances. Therefore, this study necessitates the use of qualitative methods, case studies, or mixed-method approaches to investigate the effectiveness of learning strategies on second language acquisition at a deeper level.

2.4.6 Instruction of Language Learning Strategies

Particularly, it is essential for contemporary research to develop and implement effective LLS instruction programs to evaluate their impact. Consequently, studies detail specific and efficient LLS training programs or models. From a cognitive perspective on the language learning process, LLS was both learnable and teachable to foster high engagement in learners' educational experiences (Griffiths & Oxford, 2014). While the importance of LLS instruction was well recognized, researchers have also invested in developing various strategy instruction programs. Despite the introduction of numerous strategy instruction programs by both Chinese and international researchers in recent years, a definitive conclusion on the most effective program for strategy training remains elusive.

Specifically, Cohen and Andrew (2007) identified three widely recognized frameworks for strategy instruction. These include Oxford's (1990) model, Chamot and O'Malley's (1996) Cognitive Academic Language Learning Approach (CALLA), and Weaver and Cohen's (2005) strategy-based instruction (SBI) program, which has been extensively applied in recent years. Cohen (2000) also provided a unique discussion on the implementation steps of LLS instruction, which may serve as a valuable reference for the quasi-experimental design of this research.

Another well-known LLS instruction program is Chamot and O'Malley's (1996) cognitive academic language learning approach (CALLA), designed to enhance the proficiency of EFL/ESL learners. According to Chamot and O'Malley (1996), teachers support all learners by instructing them in LLS through the CALLA model and integrating these strategies into English courses. This approach provides useful insights for the quasi-experimental design of this study. Additionally, the CALLA model promotes a circular rather than linear experiment process, allowing both the instructor and EFL learners to continually review and adjust prior teaching sessions as needed. This iterative approach encourages learners to reflect on their use of LLS during the self-assessment phase before applying strategies to new tasks. Scaffolding teaching theory further supports this process (Cao, 2014). The implementation stages are as follows:

Preparatory phase: Teachers identify learners' existing strategies for common tasks;

Presentation stage: The teacher demonstrates, gives an example, and explains the new strategy; asks learner if the strategy has been used and how to use strategy;

Practice phase: learners practice using new strategies, and in subsequent strategy exercises, teachers mainly encourage learners to use strategy exercises independently;

Self-evaluation stage: After the strategy practice is over, learners evaluated their

own strategy application immediately;

Expansion phase: Apply the strategy to new tasks. Summarize and form your own set of strategies;

Assessment phase: Teachers evaluate learners' use of strategies and their impact.

(Chamot & O'Malley, 1996, p. 266)

Empirically, several researchers have conducted studies on LLS instruction for EFL/ESL learners (Alzahrani & Watson, 2016; Cao, 2014; Zhao, 2017, et al.). Specifically, Alzahrani and Watson (2016) examined the impact of online training on Saudi medical learners' LLS, highlighting an innovative approach to LLS training in a new context using novel methodologies. Gavriilidou and Papanis (2009) demonstrated that strategy instruction significantly enhances strategy use among Muslim EFL students. Cao (2014) analyzed and compared three fundamental LLS training models (SBI Model, CALLA Model, and Grenfell & Harris's Training Model), noting that all three models effectively identify learners' existing strategies through questionnaires, assist in selecting strategies for specific tasks, and facilitate the application of these strategies to new tasks. Zhao (2017) explored several effective methods for instructing listening LLS, focusing on training low achievers in listening strategies in the new media era to improve college learners' English listening abilities.

In summary, most prior research primarily investigates and compares preferences and characteristics of strategy use, with limited focus on actual LLS instruction. Different methodologies yield varying research outcomes, making it challenging to establish a unified conclusion. Mastering a language typically involved learning grammar, language rules, and effective LLS (An, 2021). In the context of language learning, adult learning and acquisition occur simultaneously, particularly for vocational

college learners who are adults (Krashen, 1989; Fang, 2017). Therefore, it is both necessary and significant to provide targeted instruction in specific LLSs, especially for below-average EFL learners. The acquisition-learning hypothesis suggested that both learning and acquisition processes coexisted in adult language learning (Krashen, 1989; Fang, 2017), underscoring the importance of educating vocational college learners in LLS to improve their English proficiency. Hence, it is crucial to train and teach learners various specific LLSs, with particular emphasis on below-average EFL learners.

2.4.7 The Effect of Language Learning Strategies

Success in acquiring a second language is influenced by the learner's characteristics, situational variables, and learning strategies. Table 2.6 summarizes relevant studies on the effects of LLS. Researchers presented varying views on the effectiveness of strategy instruction. The research findings can be categorized into three main areas: First, some studies focused on identifying effective language learning strategies for primary and middle school learners, often involving entire classes as research participants. Second, other studies explored the relationship between learners' English performance and their use of metacognitive strategies. Contemporary literature frequently employed quasi-experimental designs to assess LLS instruction, with training targeting specific strategies. If, after a period of intervention, the performance or achievement of the experimental group significantly surpassed that of the control group, the strategy training was deemed effective, leading to the conclusion that the strategy improves performance (Wen, 2019; Qi & Chen, 2014). One of the crucial factors contributing to success in language learning was the effective use of language learning strategies, which support learners in both formal educational settings and in self-directed

learning contexts (Alfian & Rossetto, 2016). Habók, Magyar, and Molnár (2022) identified statistically significant differences in LLS use between more proficient and less proficient learners, demonstrating that LLS use is a significant predictor of foreign language achievement, despite the students' reported low or moderate levels of strategy use. However, their study did not address the impact of LLS instruction and the implementation models for such instruction.

Regarding the correlation and effects of language learning strategies, there are two controversial perspectives. Some researchers argued that there was a positive correlation between LLS and learners' English achievement, suggesting that a higher frequency and variety of strategies used generally lead to better foreign language performance (Liu, 2021; Yapp, Graaff, & Bergh, 2021; Habók & Magyar, 2018). However, others held negative perspectives. In fact, the relationship between LLS and learners' achievement is more complicated. Some strategies can be double-edged; their effectiveness depends on the degree of moderation in their use. For example, excessive use of strategies such as monitoring language behavior, tolerance of ambiguity, and guessing can negatively impact academic achievement (Wang, 2020; Griffiths & Oxford, 2014).

Another example involved learners focusing excessively on the meaning of language input at the expense of attention to its form. Although this approach can enhance comprehension ability, it can significantly restrict the expansion of the language knowledge system. Conversely, if learners concentrate too much on the form of the language output without attending to its meaning, they may achieve greater accuracy but

hinder the development of language fluency (Wen, 2019; Wu & Zheng, 2021). Additionally, there were notable differences in how male and female language learners use reading strategies, with a significant positive correlation found between reading comprehension achievement and the use of reading strategies (Zare & Othman, 2013).

The vast majority of studies indicated a strong positive correlation between the use of learning strategies and successful English language acquisition, demonstrating considerable effectiveness (Starostina & Sosnina, 2022; Gan, 2015). These findings aligned with research from the 1980s, providing robust evidence for the necessity and impact of LLS instruction. The studies showed that learners exhibit significant improvements in their second language abilities following LLS instruction (Griffiths, 2014; Izadpanah & Ghafournia, 2016). Oxford et al. (2003, 2018) conducted a case study focusing on metacognitive, cognitive, and social/affective strategies, reporting that LLS instruction is beneficial for enhancing learners' language skills and performance. Starostina and Sosnina (2022) demonstrated a clear correlation between levels of critical thinking and English proficiency with the use of LLS in foreign language education. Phavadee (2020) reviewed research on metacognition and its impact on learning performance, highlighting that organizing, monitoring, and self-regulation are effective components of language learning. Prastika (2023) found significant differences in the overall use of methods between male and female BA learners.

Additionally, in recent decades, research on language learning strategies has experienced significant growth in China. Lin (2021), Qi and Chen (2014), and other researchers have explored the impact of LLS instruction on college English teaching

through detailed teaching experiments and case studies. Their findings confirm a substantial positive correlation between the use of strategies and improvements in academic performance. Gan (2015) investigated the effectiveness of metacognitive strategy training for students with low listening scores, providing a classical model for assessing strategy training effectiveness among intermediate school students. Lin (2021) specifically focused on employing metacognitive strategies to boost strategy proficiency in English as a Second Language (ESL) learners. The results demonstrated that learners who received training showed marked enhancements in their second language abilities.

In addition, Buku, Corebima, and Rohman (2016) utilized problem-based learning in Indonesia to explore the relationship between metacognitive skills and critical thinking abilities among senior high school students in biology. This empirical study found a positive correlation between students' achievement and their use of learning strategies (see Table 2.6). Oxford et al. (2018) conducted a study examining the effectiveness of training in three strategies: metacognitive, cognitive, and social/affective. Their findings indicated that such instruction significantly improved learners' language skills in both primary and intermediate educational settings. Gu and Zang (2018) reviewed the major findings of LLS research in China over the past few decades, covering nine key areas, including preferences for language learning strategy use, strategy instruction, and the correlation between LLS and students' academic achievements.

However, in recent decades, there has been considerable debate regarding the effects of language learning strategies. Over the past ten years, literature challenging the

effectiveness of LLS has been scarce (Qi & Chen, 2014; Griffiths & Oxford, 2014). Some researchers argued that learners naturally acquired a set of strategies during their native language development, and these strategies were subsequently transferred to second language acquisition, reaching a certain level of proficiency without the need for additional LLS training. Furthermore, EFL experts Politzer and McGroarty conducted a survey of 37 international students studying in the United States, who had undergone eight weeks of intensive English training before entering graduate programs. Their research indicated that these students' English performance was not significantly associated with the use of three specific types of strategies: classroom behavior, self-learning behavior, and communicative behavior (as cited in Grenfell & Harris, 2006).

According to Table 2.6, Izadpanah and Ghafournia (2016) conducted a study involving 100 students, who were assessed using the Nelson English Language Test and a questionnaire to investigate the most frequently used vocabulary learning strategies by Iranian EFL students, as well as the effectiveness of these strategies on their memory. Despite this, their findings indicated no significant difference between the average scores of participants in the control group and those in the experimental group, with a mean difference of 0.46. Additionally, Xiao (2021) examined the validity of the Strategy Inventory for Language Learning (SILL) developed by Oxford (1990) within the context of foreign language education in higher vocational colleges. Xiao's study revealed that five out of the six strategy sub-items showed significant correlations with latent variables, while only one compensation strategy sub-item exhibited a weaker correlation with these factors related to language learning strategies.

Intuitively, the research results from the aforementioned studies on the effects of strategy instruction generally align, demonstrating that strategy instruction significantly enhanced learners' use of strategies. This improvement was notably beneficial for students at the middle or lower levels of proficiency (Plonsky, 2019; Gan, 2015; et al.). Discrepancies in research conclusions regarding the effectiveness of strategy training may stem from variations in research methodologies, instruments, participant characteristics, and specific content, or from inherent flaws in research design (Qi & Chen, 2014). Overall, most studies have validated the positive impact of strategy instruction, affirming that effective teaching of learning strategies leads to improved strategy use among learners, which, in turn, fosters greater achievements in language learning. This study concurs with these findings, reinforcing the notion that effective utilization of LLS enhances learners' strategic competencies and promotes their overall language learning outcomes.

In summary, while numerous researchers have demonstrated the effectiveness of LLS in English education, specific implementation methods for LLS training remain scarce and difficult to identify in the existing literature (Qi & Chen, 2014; Griffiths & Oxford, 2014; Izadpanah & Ghafournia, 2016). This highlighted a significant research gap: the need to investigate how LLS instruction can enhance EFL learners' English performance. Addressing this gap will contribute to the theoretical development of EFL/ESL studies and explore a range of successful language learning strategies. Additionally, it is crucial to identify a specific training model and research methodologies that are effective for EFL learners. This study aims to fill these gaps by

examining the effect of LLS instruction on improving English performance and providing a framework for effective LLS implementation and training in EFL contexts.

2.5 Theoretical Framework of the Study

Research on LLS began with foundational work by experts such as O'Malley and Chamot (1990) and Oxford (1990). This field was significantly influenced by the advancements in cognitive psychology (Oxford, 1990, 1992, 2001; O'Malley & Chamot, 1990; Griffiths, 2018). Earlier studies in EFL and teaching predominantly focused on teaching methods rather than on learner characteristics and the ESL process, prior to the incorporation of cognitive psychology (Wen, 2003; Cheng & Zheng, 2002). Consequently, this study integrates three key theories related to cognitive psychology and EFL domains: the pragmatic philosophical underpinning, instructional models of LLS (including Cohen's SSBI, Chamot's CALLA, and Grenfell & Harris's TCLTSP models), and Gagné's Information Processing Theory. These theories represent crucial frameworks for EFL/ESL/SLA research and serve to guide and structure the teaching and training of LLS in this study. Table 2.7 illustrate how these theories have been utilized to inform the work of practitioners, participants, and the researcher in this study.

Table 2.7 Theories and Applications of the Study

Theories	Definitions	Applications
Pragmatic philosophical Worldview	Pragmatism worldview is a typical philosophical underpinning for mixed methods research, as its significance for concentrating on the research problems specifically in social science investigation and then employing poly-basic methods to extract	Philosophical underpinning of the study

	information about the problem (Tashakkori, & Teddlie, 2010).	
Models of LLS instruction	<p>1.Cohen's (1990) SSBI: It is a teacher-centred form of teaching that explicitly combines styles and strategy instructional activities with everyday classroom language instruction. Teacher as diagnostician, language learner, learner trainer, coordinator, and coach in the process, helping learners learn to use LLS that are appropriate to their own learning styles (Cohen & Weaver, 2005).</p> <p>2.Chamot's (2005) CALLA: It is a cyclical rather than linear approach with six stages so that teachers and learners can always go back to previous stages of instruction based on need. Learners have to reflect on their application of strategies in self-assessment stage before they can apply them to new tasks.</p> <p>3.Grenfell & Harris 's (1990): It also has six steps: awareness rising; modeling; general practice; action planing; focused practice; evaluation.</p> <p>4.TCLTSP Model is also a significant LLS instruction model, which is designed in the practices of LLS training for Chinese EFL learners for the last decades (Gao, He & Zeng, 2017).</p>	Instruction of LLS for both instructor and EFL learners
Gagné's Information Processing Theory	Robert Gagné proposed a basic model of learning process based on modern information processing theory, and further analyzed learning activities based on this basic model, dividing it into eight stages (Good & Brophy, 1995).	Training, learning and teaching of LLS

2.5.1 Pragmatic Philosophical Underpinning

In academic research, the philosophical beliefs held by researchers often shape the methodologies they adopt. These philosophical underpinnings form the foundation of any study, and four prominent philosophical worldviews are frequently discussed: postpositivism, constructivism, transformative, and pragmatism (Creswell, 2014). Each of these worldviews carries distinct characteristics that influence research design and interpretation. Table 2.8 provides a detailed overview of these worldviews, outlining their fundamental traits and how they impact research approaches and outcomes.

Table 2.8 Four Philosophical Worldviews for Research
(adopted from Creswell, 2014)

Postpositivism	Constructivism
<ul style="list-style-type: none">• Determination• Reductionism• Empirical observation and measurement• Theory verification	<ul style="list-style-type: none">• Understanding• Multiple participant meanings• Social and historical construction• Theory generation
Transformative	Pragmatism
<ul style="list-style-type: none">• Political• Power and justice oriented• Collaborative• Change-oriented	<ul style="list-style-type: none">• Consequences of actions• Problem-centered• Pluralistic• Real-world practice oriented

Notably, the most suitable philosophical underpinning for the empirical study conducted within the context of Chinese vocational colleges is the pragmatism worldview. Pragmatism is particularly pertinent for mixed-methods research, as it emphasizes addressing research problems in the social sciences through the use of diverse methodologies to gather comprehensive information (Tashakkori & Teddlie,

2010). Adopting a pragmatist approach necessitates the integration of both quantitative and qualitative methods, as this worldview seeks to leverage the strengths of both approaches. Pragmatist researchers focus on achieving desired outcomes, which guides their methodological choices. Thus, it is essential to justify the rationale for combining these methods and to explain why employing both quantitative and qualitative approaches is crucial from the outset of the study. Consequently, this study embraces pragmatism as its philosophical foundation (Creswell, 2014).

2.5.2 Models for Language Learning Strategy Instruction

LLS instruction was meticulously designed based on a thorough understanding of each learner's characteristics and guided by an appropriate instructional model, which involves teaching language learners to consistently adopt and apply effective techniques (Yang, Gao, & Zeng, 2018). Consequently, this study focused on the development and practical application of explicit LLS training models, informed by a detailed analysis of existing LLS training frameworks. Notably, Cohen's (1990) SSBI model, Chamot's (2005) CALLA model, and Grenfell and Harris's (1990) TCLTSP model offer a robust theoretical foundation for understanding the second language learning process (Guo, 2016). Table 2.9 illustrates the procedural steps and stages of LLS instruction as outlined by CALLA, SSBI, and Grenfell & Harris models. These LLS instruction models form the core framework of this study, particularly for designing intervention programs and providing reference points for effective LLS instruction tailored to BA vocational learners. The instructional steps of Cohen's (2000) model are detailed as follows:

- (1) Teachers demonstrate LLS and give specific explanations through examples;
- (2) Inspire students to find other examples;

- (3) Group or collective discussion strategies;
- (4) Encourage learners to expand the scope of their strategies;
- (5) Integrate strategies into daily teaching materials, and provide students with an environment and opportunity for strategy practice by implicitly embedding strategies into language learning tasks.

(Cohen, 2000, p. 81)

Table 2.9 Models for LLS Instruction (adapted from Aghaie & Zhang, 2012)

SSBI* Model (Cohen, 1998)	CALLA** Model (Chamot, 2005)	Grenfell & Harris (1999)
Teacher as diagnostician: Helps students identify current strategies and learning styles.	Preparation: Teacher identifies students' current learning strategies for familiar tasks.	Awareness raising: Students complete a task, and then identify the strategies they used.
Teacher as language learner: Shares own learning experiences and thinking processes.	Presentation: Teacher models, names, explains new strategy; asks students if and how they have used it.	Modeling: Teacher models, discusses value of new strategy, makes checklist of strategies for later use.
Teacher as learner trainer: Trains students how to use learning strategies.	Practice: Students practice new strategy; in subsequent strategy practice, teacher fades reminders to encourage independent strategy use.	General practice: Students practice new strategies with different tasks.
Teacher as coordinator: Supervises students' study plans and monitors difficulties.	Self-evaluation: Students evaluate their own strategy use immediately after practice.	Action planning: Students set goals and choose strategies to attain those goals.
Teacher as coach: Provides ongoing guidance on students' progress.	Expansion: Students transfer strategies to new tasks, combine strategies into clusters, develop repertoire of preferred strategies.	Focused practice: Students carry out action plan using selected strategies; teacher fades prompts so that students use strategies automatically.
	Assessment: Teacher assesses students' use of strategies and impact on performance.	Evaluation: Teacher and students evaluate success of action plan; set new goals; cycle begins again.

Note: SSBI = Styles and Strategies-Based Instruction; CALLA = Cognitive Academic Language Learning Approach.

In the preparatory phase of all three models, emphasis is placed on key factors such as motivation, awareness, diagnosis, and reducing anxiety, which are essential components of the initial stage of LLS instruction. It is crucial for learners to possess self-confidence, as confident language learners tend to have superior language input.

Research supports that lower levels of anxiety facilitate better input acquisition (Kong, Dong, & Cui, 2019). Therefore, the experimental instructor in this study aims to provide comprehensible input within a low-anxiety environment. Developing learner-centered online courses is also vital, as such courses allow learners to have control over their own learning, including decisions about what, how, and when to learn. The SSBI model, being a learner-centered approach to language teaching, integrates instructional activities focused on styles and tactics with regular classroom instruction (Oxford, 2001). This model emphasizes not only understanding what can be learned in the language classroom but also how to effectively learn the target language. This concept underpins a strategies-based approach. Instructional methods employed include presentations, paired and small-group discussions, interactive (hands-on) strategy practice exercises, reflective writing, in-class readings, and opportunities for creating strategies-based activities and curricula using learners' own materials (Cohen & Weaver, 2005).

Moreover, the TCLTSP Model represents a significant LLS instruction framework that has been extensively applied in LLS training for Chinese EFL learners over recent decades (Gao, He, & Zeng, 2017). This model is structured around task-based experiences, with each component addressing a different aspect of language learning. In the TCLTSP model, "T" stands for "Tasks Experiencing," "C" for "Contribution of Teacher/Tutors/Group Members," "L" for "Learners' Self-Understanding," "T" for "Understanding of Target," "S" for "Understanding Learning Strategies," and "P" for "Taking Conscious Control of Learning Process." Thus, the experimental instructor guided students in applying LLS through various tasks, such as transferring reading skills to listening and speaking skills to written language.

Furthermore, it is essential for the instructor to teach learners how to employ LLS in a targeted, flexible, and appropriate manner. From a metacognitive perspective, learners were encouraged to use holistic LLS, as comprehensive strategies tend to be more effective for language acquisition compared to isolated or single strategies (Huang, 2002). The framework of the TCLTSP LLS instruction model is depicted in Figure 2.4.

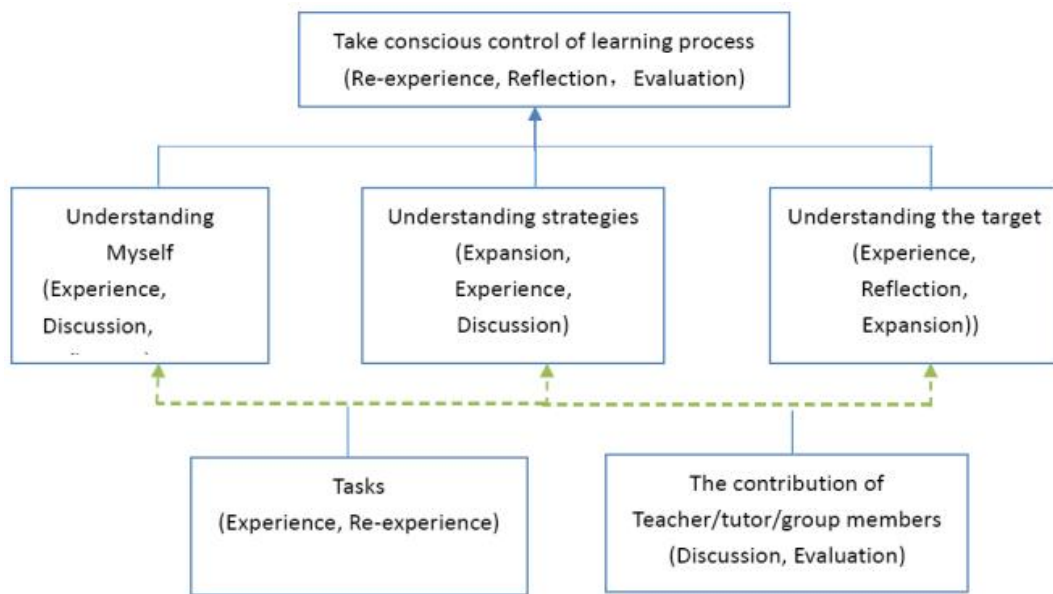


Figure 2.4 TCLTSP LLS Instruction Model (adopted from Gao, He & Zeng, 2017)

Through a comparative analysis of the four LLS instruction models, it has been observed that contemporary approaches to teaching LLS effectively support learners in self-reflection and strategy application. These models are more easily utilized by learners when teachers actively demonstrate the strategies. Each model identifies the current learning tactics employed by students and encourages reflection on these tactics through tools such as questionnaires and discussions on common tasks after task completion. To empower learners with autonomy, all four models emphasize the necessity of providing ample opportunities for practice with the strategies (Yang, Gao,

& Zeng, 2018). Additionally, each model advocates for a systematic approach where learners assess a task, select an appropriate strategy, and apply the chosen strategy to new tasks. Consequently, this study integrates the strengths of Cohen's (1990) SSBI, Chamot's (2005) CALLA, Grenfell & Harris's (1990) models, and the TCLTSP LLS instruction model into the experimental treatment, aiming to investigate an effective LLS instruction model for BA vocational learners.

Thus, these models were effectively utilized in the teaching and learning of LLS within this study. They emphasize that second language acquisition involves cognitive skills and the impact of processing internal knowledge representations on language learning. Additionally, the CALLA, SSBI, and TCLTSP models provide a theoretical framework for understanding the EFL process (Guo, 2016). According to these models, LLS usually was taught and practiced extensively, as once learners internalize these strategies, they become ingrained, especially cognitive, memory, and metacognitive strategies. Given the interrelated nature of Oxford's (1990) LLS, this study focuses on teaching all six strategies (see Figure 2.5).

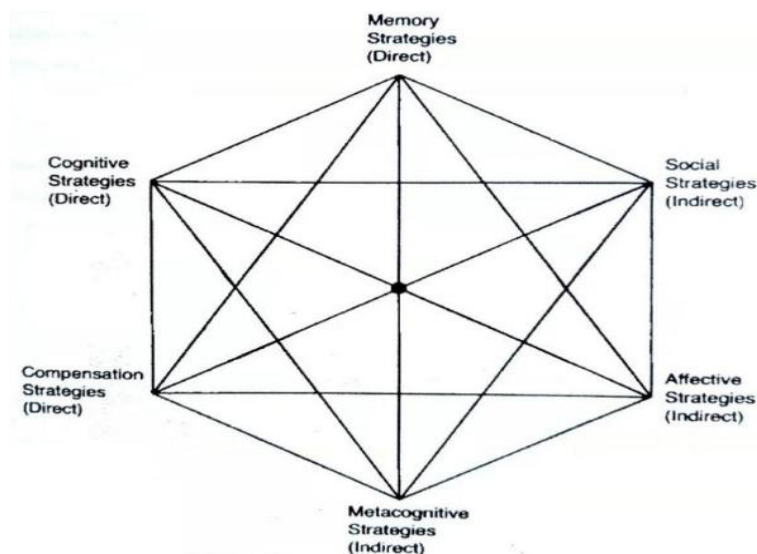


Figure 2.5 Interrelationships Among Six Strategies (adopted from Oxford, 1990)

2.5.3 Gagné's Information Processing Theory

This research applies Robert Gagné's information processing theory, focusing on its practical applications and inspirations for the study. To optimize information processing capabilities, it is essential that learners achieve normalization and automation of their cognitive processes (Swartz, 2013). Gagné's influence on instructional design cannot be overstated. He established a structured approach for developing instruction, providing instructional designers with a clear template and procedure to follow. His contributions have laid the foundation for systematic instructional design, and his principles continue to serve as fundamental guidelines for designers even after more than 60 years. Gagné proposed a foundational model of the learning process grounded in modern information processing theory. He further analyzed learning activities using this model, delineating it into eight distinct stages (Chen & Liu, 2007):

Motivation stage: Appropriate motivation is crucial for language learners, as it significantly enhances their engagement and input. It is essential to align learners' goals with their actual learning activities to stimulate their interest (Su, 2016). MacIntyre and Gardner (2010) found that anxiety scores specific to different stages and tasks (e.g., output anxiety with output tasks) were strongly correlated, indicating that language anxiety can have both significant and pervasive effects. Therefore, in the instruction and training process based on Oxford's (1990) LLS, it is imperative for the experimental instructor to foster learners' motivation and interest, reduce their anxiety, and manage their emotional states effectively.

Comprehension stage: In the comprehension stage, learners' mental activities primarily involve attention and selective perception. Learners filter information based on their motivation and expectations, focusing their attention on stimuli relevant to their learning goals (Kong, Dong & Cui, 2019). Therefore, during this stage, the experimental instructor in the study instructed learners Oxford's (1990) LLS. This involves explaining the meaning and application of each strategy and providing specific guidance through structured patterns for both input and output.

Acquisition stage: The acquisition stage involves the transition of learned information into short-term memory, where it is encoded and stored. During this phase, experimental teacher in the study helped learners adopt effective encoding strategies to enhance the acquisition of Oxford's (1990) cognitive language learning strategies. This can be achieved by training learners to practice and analyze all the strategies they have studied and trained (Chen & Liu, 2007).

Hold stage: After the acquisition phase, the encoded information is transferred to long-term memory storage, where it may remain permanently. The capacity of long-term memory is exceptionally vast, with no experiments to date confirming a definitive limit to its capacity (Chen & Liu, 2007). Based on this theory, the experimental instructor in this study assisted learners in strengthening their long-term retention of Oxford's (1990) memory and cognitive LLSs. This can be achieved by employing various techniques, such as creating mental linkages, using visual and auditory aids, and providing ample practice opportunities.

Recall stage: This stage is the information retrieval phase, where the role of clues

is crucial. Effective retrieval cues assist students in recalling information that may otherwise be difficult to access (Chen & Liu, 2007). Therefore, experimental instructor of the study provided targeted cues that facilitate memory and recall of LLS. Each method and strategy for retrieving and recalling LLS was carefully designed to enhance learners' ability to access and utilize the strategies they have studied.

Generalization stage: The extraction and application of learned information are not confined to identical learning contexts. In real-life situations, individuals often apply their knowledge in diverse scenarios, necessitating the generalization of learning. To effectively transfer acquired knowledge to new situations, learners must first generalize the knowledge and rely on appropriate cues for retrieval (Chen & Liu, 2007). This process aligns with Chamot's (2005) CALLA LLS instruction model. Therefore, instructors in this study need to teach students how to generalize and apply all learned strategies across various English learning contexts.

Operation stage: The stage of action involves learners actively engaging in operational activities, where the quality of their assignments reflects the effect of their learning. However, it is important to note that individual assignments alone cannot fully account for overall academic performance (Chen & Liu, 2007). At this stage, instructors provided various forms of assignments to enhance learners' application of LLS, giving them opportunities to demonstrate their operational skills. This includes teaching students to transfer LLS to different English language skills, such as applying reading strategies to listening tasks and speaking strategies to written language tasks. Additionally, instructors guided learners to use LLS in a targeted, flexible, and

contextually appropriate manner. From a metacognitive perspective, learners were encouraged to use holistic LLS, as comprehensive strategies are generally more effective for LLS compared to isolated or single strategies (Huang, 2002).

Feedback stage: Learners can assess whether their learning has met the predetermined goals. Feedback from these activities serves as a crucial component of reinforcement, as learners observe the outcomes of their efforts and receive internal validation (Chen & Liu, 2007). This process aligns with Chamot's (2005) CALLA model and Grenfell & Harris's LLS instruction model. Consequently, learners in this study were guided to effectively manage and evaluate their LLS learning progress.

Overall, Gagné's Information Processing Theory offers significant insights for this research. The theory's eight-stage framework serves as a valuable guide for structuring each phase of strategy training from the students' perspective. Additionally, the focus on cognitive strategy learning within this framework highlights essential external learning conditions and provides clear operational steps for this study (Feng, 2023). In summary, the detailed breakdown of the eight stages of learning activities and the discussion of cognitive strategies related to the five types of learning outcomes offer a robust theoretical foundation for developing the strategy training model in this research. The application of these cognitive learning theories and social cognitive models, as seen in the work of O'Malley and Chamot (1990), has enriched the field of LLS. These foundational theories not only justify the use and development of learning strategies but also suggest approaches to enhance language learning effectiveness.

2.6 Conceptual Framework of the Study

The current study has developed a conceptual framework to evaluate the impact of LLS instruction on EFL learners, specifically targeting vocational students with below-average English proficiency. This framework is designed to assess both academic achievement and strategy use levels. The study integrates several theories of LLS instruction, including pragmatic philosophical underpinnings, instructional models such as Cohen's (1990) SSBI, Chamot's (2005) CALLA, Grenfell & Harris's (1990) models, and the TCLTSP model, as well as Gagné's information processing theory.

A mixed-method research design was employed in this study, integrating both quantitative and qualitative methodologies to provide a robust analysis of the research questions. The quantitative component utilized a quasi-experimental approach, allowing for the examination of causal relationships between variables. This was complemented by semi-structured interviews, which were analyzed through thematic analysis to capture the nuanced perspectives and experiences of the participants.

The conceptual framework, as depicted in Figure 2.6, encapsulates the interplay of all relevant variables within the study. It offers a comprehensive representation of the theoretical models and pedagogical strategies that are integral to effective language learning strategy (LLS) instruction within an authentic educational context. This framework not only guides the interpretation of the research findings but also serves as a foundational reference for the implementation of LLS instruction, ensuring that the strategies are contextually appropriate and pedagogically sound.

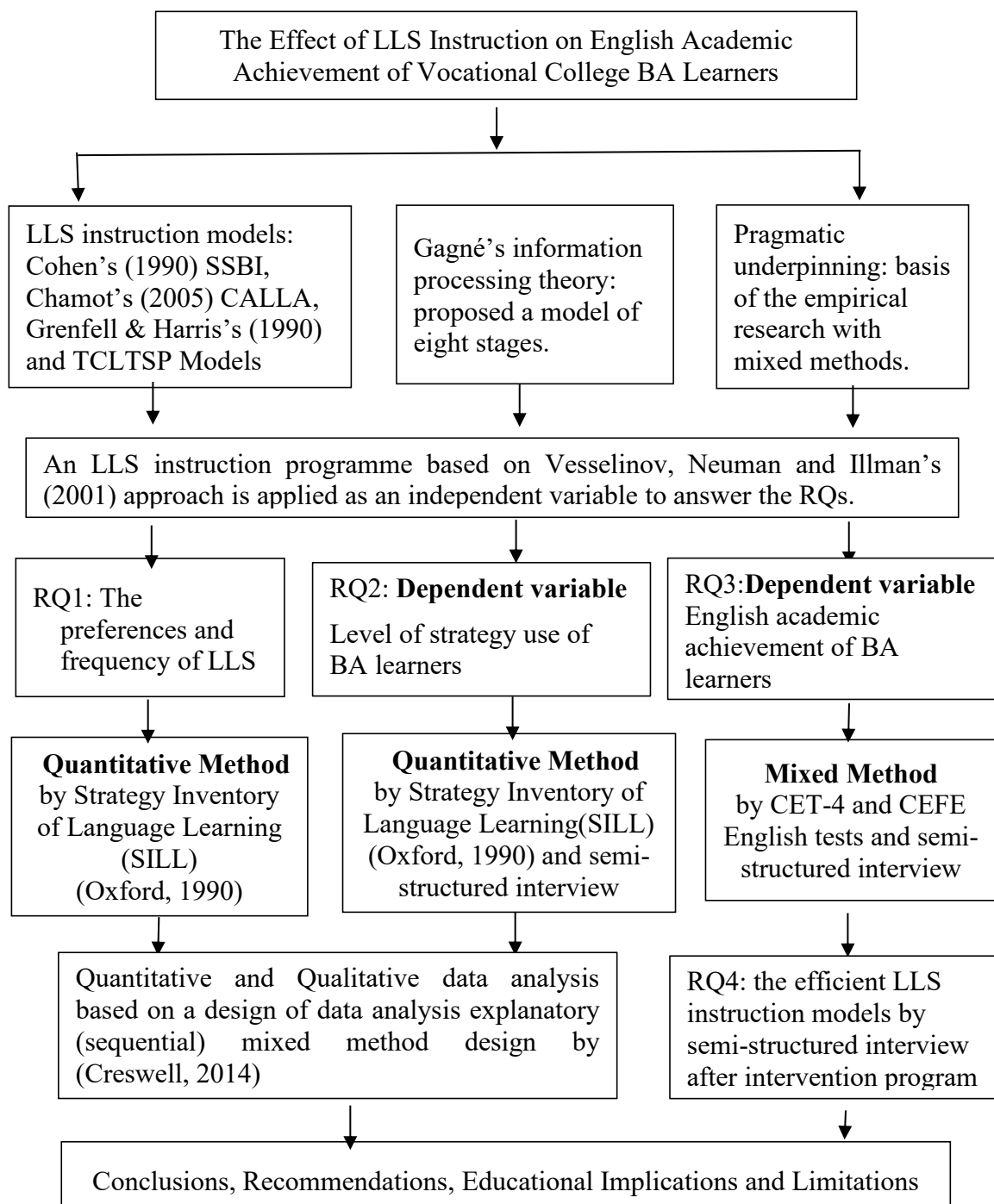


Figure 2.6 Conceptual Framework of the Study

2.7 Summary of the Literature Review and Research Gaps

LLS plays a crucial role in influencing the overall English achievement and learning styles of vocational EFL learners with below-average proficiency. Despite this, the literature indicated that these learners often experienced subpar English performance and grades (Li, 2021). This chapter reviews the theoretical foundations of the study and examines literature on the impact of LLS, including the pragmatic philosophical underpinning, instructional models such as Cohen's (1990) SSBI, Chamot's (2005) CALLA, Grenfell & Harris's (1990) models, and the TCLTSP model, as well as Gagné's information processing theory. Additionally, the current literature reveals several gaps in the effectiveness of LLS, characterized by the following issues:

1. From the perspective of the population gap: Previous studies have predominantly focused on the training and implementation of LLS, with particular emphasis on metacognitive strategies in elementary and middle schools (Griffiths, 2018; Habók et al., 2018). The application of metacognitive strategies has been expanding in these educational settings, especially among middle school students. Consequently, most research in this area has concentrated on elementary school learners, with research participants often comprising entire classes. This body of work has explored various aspects of LLS, including its correlation with learners' English performance. However, there is a notable gap in research addressing the effectiveness of LLS for vocational college students, particularly those with below-average proficiency.

2. The existing literature revealed a notable research context gap in research concerning LLS instruction within vocational colleges. Most prior studies have

predominantly focused on elementary schools and general universities (Kazi, Iqbal & Moghal, 2022; Prastik, 2023), leaving the context of vocational colleges underexplored. This gap is significant because professional EFL learners in vocational settings face unique challenges in acquiring English that have not been sufficiently addressed by previous research (Miles, 2017). The lack of empirical studies specifically targeting vocational colleges highlights the need for further investigation into the effectiveness of LLS instruction within this context. To address this gap, it is crucial to conduct in-depth research that examines the application and impact of LLS in vocational settings, which has been largely overlooked in existing studies.

3. There appeared to be a practical knowledge gap in previous research on LLS instruction. Specifically, effective LLS instruction models often lack practical application in the field. The study of LLS is ripe for research that focuses on the practical impacts of these strategies. Investigating these issues is crucial because teaching EFL learners effective LLSs can significantly enhance their learning outcomes. While numerous studies have demonstrated the benefits of LLS in English education, specific implementation methods and efficient models remain scarce in the literature (Qi & Chen, 2014; Griffiths & Oxford, 2014; Izadpanah & Ghafournia, 2016). The variation in research results indicates a lack of consensus and highlights the need for further investigation. Therefore, this study aims to address these gaps by exploring efficient LLS instruction models for improving English performance among vocational below-average EFL learners. This research will contribute to EFL/ESL pedagogical development by identifying successful LLS instruction and effective implementation models. Additionally, there is a notable lack of practical research on LLS instruction

models, with most theoretical research lacking practical application (Miles, 2017).

4. From a statistical perspective, as of December 2023, there are 18 articles related to LLS for college English BA learners listed on the China National Knowledge Infrastructure (CNKI), a database established in 1996 by Tsinghua University to facilitate the dissemination of Chinese knowledge resources on a global scale (retrieved from Baidu). This collection included four journal papers, three masters' theses, and one doctoral dissertation. Since the first research appeared in 1997, there has been an average of only 3.3 papers published annually over the past 17 years. This limited publication rate suggests a gap in the available research on this topic.

To conclude, the existing literature indicated a lack of sufficient studies on the effects of LLS training specifically for BA EFL learners (Kazi, Iqbal & Moghal, 2022; Griffiths, 2018; Samperio, 2019; Habók et al., 2022). Many potentially effective LLS instruction models have not yet been thoroughly explored or applied in practice. This research aims to address these gaps by conducting an empirical study focused on BA EFL learners in vocational colleges. The study will contribute to filling the gaps identified in previous research and offer valuable insights for EFL practitioners. Additionally, this framework represents a novel approach in the field of LLS instruction, providing a deeper understanding of pedagogical strategies within the vocational college EFL context.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter outlines the research design of the current study and details the research methodology employed to address the research objectives and questions. It also elaborates on the development of research instruments, including the design of questionnaires and the outline of semi-structured interviews. The chapter further discusses the processes undertaken to test and ensure the validity and reliability of these instruments. Additionally, the sampling procedure was clearly identified. The chapter culminates in an explanation of the mixed-method research methodology, which is fundamental to this study. This approach integrated both quantitative methods, such as a quasi-experimental design and questionnaire surveys, and qualitative methods, specifically a semi-structured interview approach grounded in thematic analysis. By incorporating both methodologies, the study aims to minimize bias and provide a comprehensive analysis.

In the methodology section, the researcher conducted survey research from three primary perspectives. First, the current English academic achievement (EAA) of below-average college EFL learners was assessed alongside their level of strategy use (LSU), and the underlying causes were explored. Second, a comparative analysis was performed on the pre-test and post-test results of the experimental and control groups concerning LSU and EAA. Third, the researcher investigated the strategies employed by below-average EFL learners, their attitudes towards these strategies, and their related needs.

This analysis was conducted within the context of the experimental research on strategy instruction, including the experimental design, the formulation of a strategy instruction plan, the construction of an LLS instruction model and implementation pathway, the operationalization of LLS instruction, and the subsequent analysis and discussion of experimental results.

3.2 Mixed-method Research Design

A mixed-method design is the most appropriate approach for addressing the research questions of the current study. This approach necessitates the integration of both quantitative methods (quasi-experiments and questionnaire surveys) and qualitative methods (such as semi-structured interviews) to effectively engage in the research process (Creswell, 2014). A framework of the research is displayed in Figure 3.1.

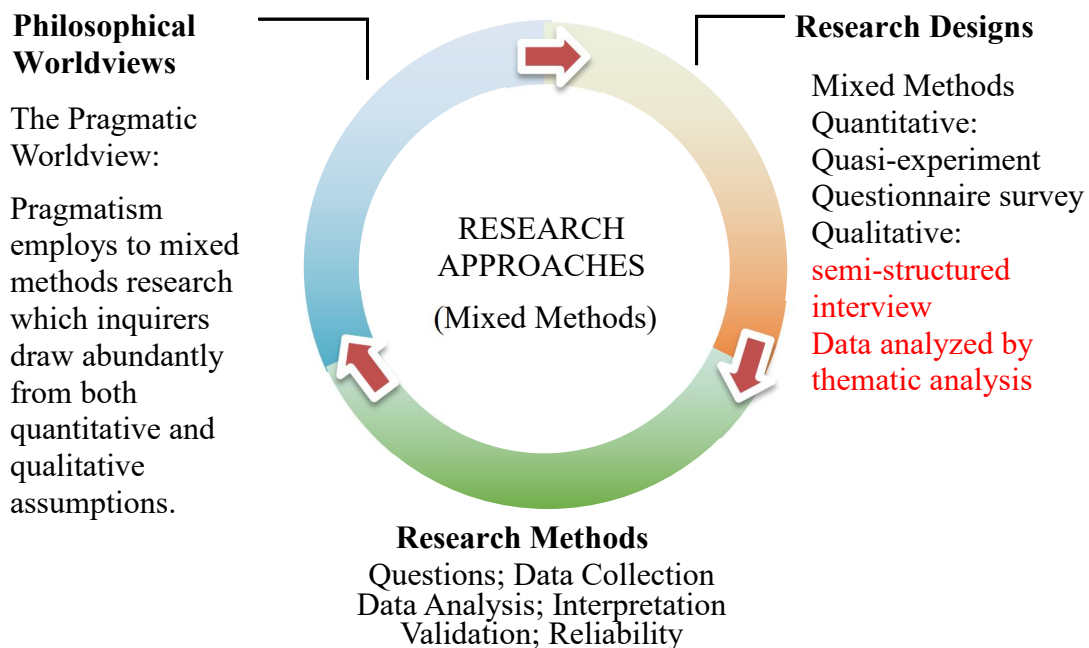


Figure 3.1 A framework for research—The interconnection of philosophical worldviews, design, and research methods (adapted from Creswell, 2014)

3.2.1 Justification of Using Mixed Design

The aim of this study was to examine the impact of LLS instruction on the EAA and LSU of below-average EFL learners through an empirical investigation. To achieve this objective, it is essential to adopt an appropriate research paradigm. The study was guided by a pragmatic philosophical worldview, which is particularly well-suited for mixed-methods research. Pragmatism does not adhere strictly to any one system of philosophy or reality but instead advocates for the use of both quantitative and qualitative methods, drawing on the strengths of each to address research questions comprehensively (Creswell, 2014; 2017). Methodological diversity, or pluralism, is a core principle of mixed-methods research and is often associated with producing more robust results compared to mono-method approaches (Johnson & Onwuegbuzie, 2004).

The selection of an appropriate research paradigm is critical, as it underpins the theoretical framework and research design of a study (Qi et al., 2014). The literature indicated that with the growing use of mixed-method research in educational studies, the most prominent and widely adopted paradigm has become the mixed-research paradigm (Creswell, 2017; Pica, Kang, & Sauro, 2016). This paradigm emphasizes the integration of both quantitative and qualitative approaches, not as substitutes for one another, but as complementary methods that enhance the overall analysis (Griffiths & Oxford, 2014). Figure 3.2 presents Rout and Aldous's (2016) decision tree for defining various research methods, serving as a reference for the study design. The mixed-method approach offers a more comprehensive understanding of LLS use by examining it from multiple perspectives. Additionally, it strengthens triangulation by allowing for the cross-verification of results obtained through different methods (Griffiths & Inceçay, 2016).

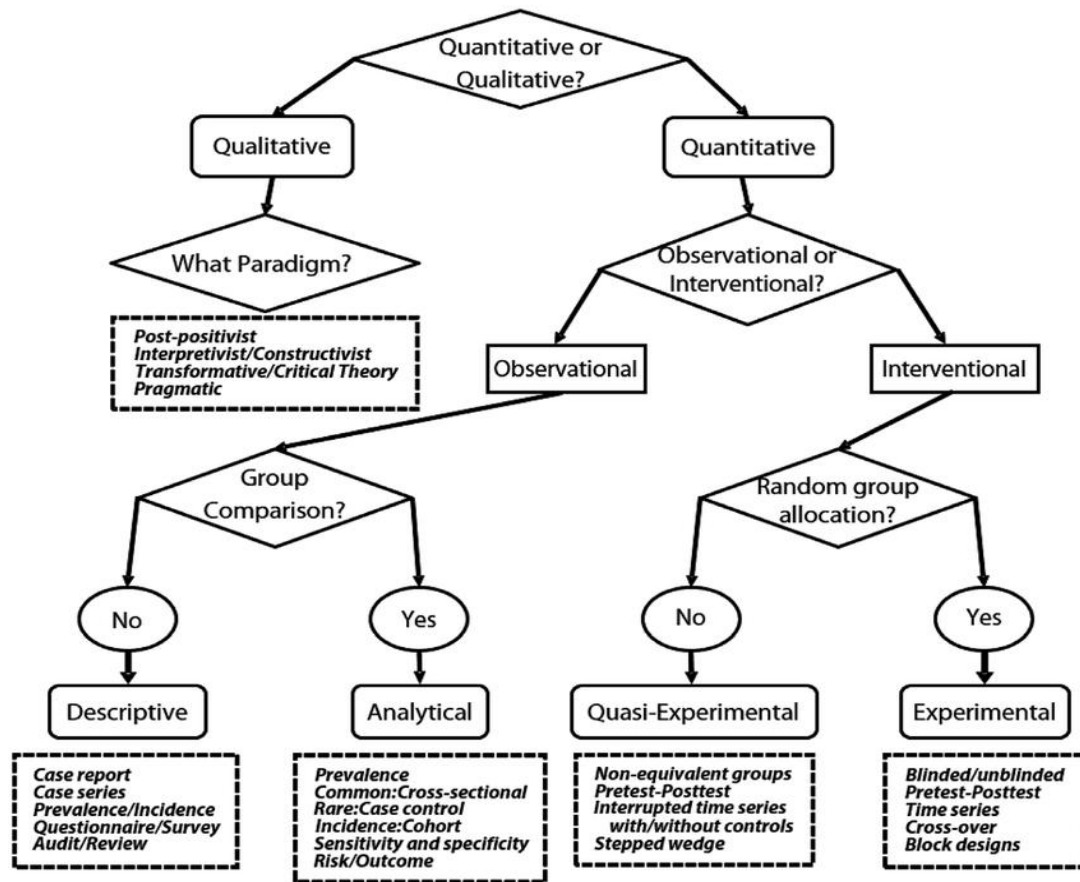


Figure 3.2 Decision Tree Defining Research Designs

(adopted from Rout & Aldous, 2016)

Building on previous research, this study integrated both macro and micro perspectives. The macro perspective drew on average use of LLS, while the micro perspective focused on the individual use of LLS in varied contexts. Specifically, the research employed both quantitative and qualitative approaches. RQ1 sought to explore the preferences and frequency of LLS use among BA learners. To address this, a systematic random sampling method was employed, selecting a total of 442 non-English major sophomores to complete the SILL questionnaire. In contrast, RQ3 investigated the impact of LLS instruction on LSU, also utilizing the SILL questionnaire, but specifically targeting the experimental and control classes. This study was developed within a

mixed-research paradigm and employed empirical methods for data collection.

The first phase of the study was conducted via a quantitative descriptive approach, including quasi-experimental and questionnaire survey methods, while the second phase employed a qualitative descriptive approach through semi-structured interviews. Specifically, the qualitative data obtained from semi-structured interviews (OSIs) were intended to explain and support the findings from the quantitative data collected through the SILL, CET-4, and CEFE tests. In this empirical research, the quantitative data are given greater emphasis than the qualitative data (Lali & Berberović, 2021). Therefore, the primary conclusions of the study were drawn from both quantitative analyses and qualitative insights to reinforce the main findings. Additionally, data collection was conducted via online platforms of QuestionnaireStar, which facilitated sharing with instructor and students. SPSS 26 software was utilized for quantitative data analysis, while thematic analysis was employed to analyze the qualitative interview transcripts.

3.2.2 Research Variables

This study examined the impact of an independent variable on two dependent variables over a specified period. According to Kaur (2013), a dependent variable represents the consequence of an investigation, whereas an independent variable refers to the antecedent factor that the outcome is supposedly dependent on. In other words, an independent variable is a causal factor that influences conditions affecting other variables, while a dependent variable is considered the result of another variable. In this study, the independent variable is LLS instruction, and the dependent variables are LSU

and EAA.

Table 3.1 Variables of the Study

Variables	Independent Variable	Dependent Variables
Language Learning Strategy Instruction (LLSI)	X	
Level of Strategy Use (LSU)		X
English Academic Achievement (EAA)		X

To illustrate the logical relationships more clearly, the researcher constructed a diagram (see Figure 3.3) depicting the causal relationships among the three variables. This diagram was adapted from the causal relations diagrams presented in Vesselinov, Neuman and Illman's (2001). The hypothesis represented by this diagram suggested that X decreases Z1 while increasing Z2. In this context, X refers to LLS instruction, Z1 represents LSU, and Z2 corresponds to EAA.

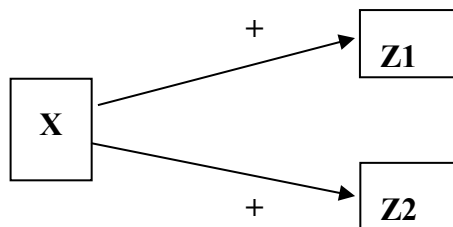


Figure 3.3 Causal Diagram of the Variables

Control of irrelevant factors: Several factors, such as instructor variability, teaching materials, assessment methods, teaching time, and attendance rate, have the potential to interfere with the experimental research. To address these potential interference, the researcher implemented controls for these irrelevant factors as follows:

1. Instructor selection effect: To control for potential instructor-related effects,

both the experimental class and the control class were taught by the same instructor.

2. Textbook: Both the experimental and control classes utilized the same textbook, *New College English (Integrated Course III)*, edited by Wu Xiaozhen and Ji Peiying and published by Shanghai Foreign Language Education Press.

3. Evaluation method: Both the experimental and control classes took part in a unified examination organized by the school, using the same test instruments: the SILL, CEFE, and CET-4. Additionally, any tests administered separately by the instructor during the research process were standardized to ensure consistency across both groups.

4. Teaching time: Both the experimental and control classes followed the teaching schedule prescribed by the school, ensuring consistency in instructional time across both groups.

5. Class attendance: Given that some students might experience frequent absences due to fatigue during the regular study period, which could potentially impact the experimental results, specific measures were implemented to address this issue. The experimental instructor emphasized the importance of attendance to students at the outset of the English classes for both the experimental and control groups. Students who missed more than three classes in a semester received an attendance score of 0, rather than the standard 40 points. This stricter policy was intended to encourage regular attendance and ensure a high level of control over the attendance variable.

Despite the above measures, the researcher dealt with the following two aspects:

1) Not informing the students of their roles in the experimental class and the control

class and managing to minimize Hawthorne Effect as far as possible (the students in the experimental class are more motivated because they know they are in the experimental class) in the experiment; 2) Not organizing any form of meeting or seminar, etc., among students in the experimental class and the control class and managing to reduce the John Henry Effect as much as possible (students in the control class secretly imitate or secretly compete with the experimental class).

3.2.3 Quasi-Experiment Approach

According to Vesselinov, Neuman and Illman's (2001), experimental and quasi-experimental research focuses on groups of people and emphasizes well-defined questions that yield specific results. Quasi-experimental research can be categorized into four types: (a) one group with one treatment; (b) one group with two treatments; (c) two groups with one treatment; and (d) two groups with two treatments (Brown & Rodgers, 2002). In the quantitative phase of the present research, the first type (one group with one treatment) was applied. The experimental method has a long-standing history in education and sociology, particularly as a valid research approach in assessing social and educational research in the USA (Williams, Sloan, & Cheung et al., 2016). In quasi-experiments, participants were randomly assigned to control and experimental groups for a specified period, and established modeling techniques are employed. Consequently, quasi-experiments have been used for several decades across various contexts, including education and language studies (Achen, 2021).

Regarding the selection of the experimental instructor, Weiss (2010) emphasized that in educational experiments, the teacher effect is a significant concern. To mitigate

this issue, the same instructor taught both the experimental and control groups to balance the teacher effect and ensure group equivalency at the random assignment level. Consequently, the intervention program in this study was conducted by the same experienced professor, who is known to enhance student effectiveness and motivation, thereby improving teacher effects (Weiss, 2010). This approach is necessary because educational experiments are designed and executed by humans, and the independent variable's impact is mediated through human interaction. Experiments are inevitably influenced by various factors, including the well-known Hawthorne and Pygmalion effects, which can unintentionally impact results. To minimize these negative effects, the LLS instruction intervention program was delivered by an experimental teacher rather than the researcher. The researcher trained the experimental teacher on LLS instruction specifics, given the researcher's familiarity with and responsibility for the study.

3.3 Research Site

The research site for this study was Xi'an Traffic Engineering College (XTEC), a full-time private vocational college in China accredited by the Ministry of Education. XTEC is a member of the Union of Presidents of Sino-Russian Transportation Colleges and the China Rail Transit Applied Technology Talent Training Alliance, and is renowned for its expertise in traffic education. The college was chosen for this study due to its representation of a typical vocational institution, making it an appropriate setting for the research. XTEC offers 15 undergraduate majors and 22 advanced vocational programs, with a student population exceeding 10,000. Additionally, the researcher is employed at this college, which facilitated data collection, experimental execution, and access to extensive information and resources for the study. Due to the COVID-19 and

H1N1 pandemics, many colleges in China have restricted access to their campuses, limiting the researcher's ability to approach other vocational institutions.

Table 3.2 English Academic Achievement Tests of the Study

Recognized Tests	Undergraduate
College Final English Exam (CFEE)	60/100
College English Test - 4 (CET-4)	425/710

The course New College English Integrated Course III (NCEIC-3) is a crucial prerequisite for second-year bachelor's degree students and plays a significant role in their academic development. This course is designed with specific educational objectives in mind. It aims to help students produce well-organized and thoroughly developed academic writing, which is essential for their success in higher education and future professional endeavors. Additionally, the course focuses on equipping students with the ability to use correct language and integrate appropriate elements for various types of writing, ranging from analytical essays to research papers and creative writing. Integral to the course is the emphasis on mastering LLS. The incorporation of LLS into the course syllabus reflects its importance in developing students' overall English proficiency. LLS are essential tools that aid students in effectively acquiring and applying language skills, enhancing their ability to understand and use English in diverse contexts. The course ensured that all participants engaged with these strategies, thereby providing a comprehensive foundation for their language development. By embedding LLS into the curriculum, NCEIC-3 aimed to foster both the practical and theoretical aspects of language learning, ultimately contributing to students' academic success and

proficiency in English.

3.4 Mixed-methods for Research Participants Sampling

To ensure internal validity, the researcher addressed potential uncertainties, such as selection bias among participants. To mitigate selection bias, a systematic sampling process was employed (Neuman, 2000). It is important to note that, according to Trochim, Donnelly, and Arora (2016), sampling methods are generally categorized into two main types: probability sampling and non-probability sampling. Probability sampling ensures that all participants within the defined scope have an equal chance of being selected for the study. In contrast, non-probability sampling means that not all members of the population have an equal chance of selection. The stochastic structural system was analyzed based on the available sample data of random variables. The population is often selected based on the researcher's interests and relevant case information (as cited in Pace, 2021). Specifically, as illustrated in Figure 3.4, probability sampling includes five methods: simple random, systematic, stratified random, cluster, and multistage sampling. Non-probability sampling encompasses two methods: convenience and purposive sampling (Martínez et al., 2016).

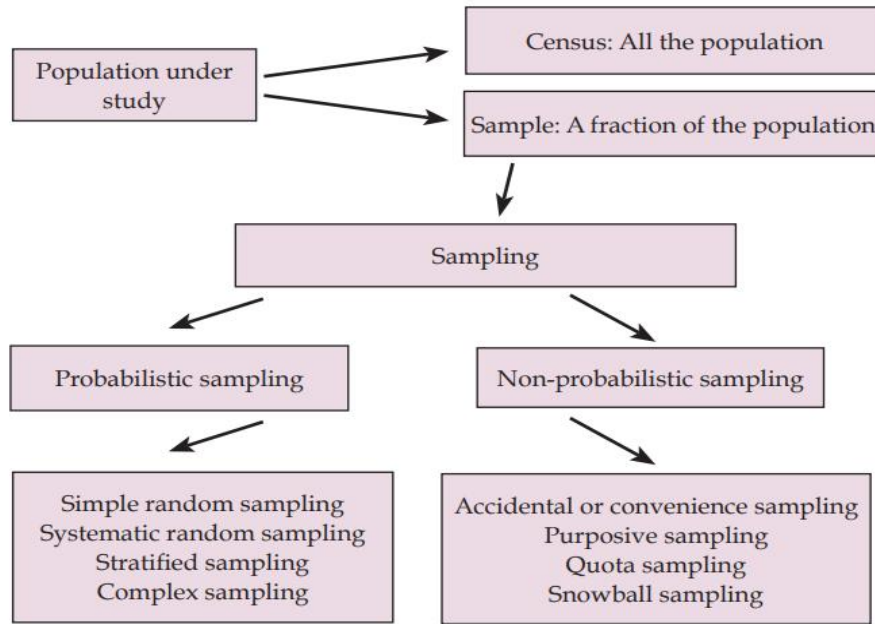


Figure 3.4 Sampling Types Used in Scientific Studies

(adopted from Martínez, et al., 2016)

The researcher contends that it is wholly unacceptable to indiscriminately select the experimental and control classes based on an investigation of a substantial sample, conduct the experimental research, and then draw broad conclusions that may appear universally applicable. Such an approach reflects not only a lack of precision in scientific research but also irresponsible research practices (Singh & Masuku, 2014). Consequently, this section aims to enhance the universality and scientific rigor of the research results. To achieve this, mixed methods—such as questionnaire surveys and interviews—were comprehensively employed to study LLS usage among 442 learners. By investigating and analyzing attitudes toward LLS instruction, the study aims to reveal the current state of strategy use and the influencing factors affecting learners. The goal is to substantiate the necessity and feasibility of future strategy training research based on empirical evidence and to provide a solid foundation for constructing a strategy

instruction framework and selecting appropriate training content.

3.4.1 Participants Sampling for a Quantitative Study

As shown in Table 3.3, the sample size was determined based on the population size of the case college, which is approximately 13,000, using tables published by Adam (2020). For Likert-scale continuous data, when the sample size is 260, the confidence level is 95% with $t = 1.96$; when the sample size is 442, the confidence level increases to 99% with $t = 2.58$ (Singh & Masuku, 2014). Among the 442 participants, 410 were male and 32 were female, with ages ranging from 19 to 22 years. The sample represented 23.76% of the total sophomore learners who were not proficient in English and came from various departments within the case college, ensuring that the sampling participants were highly representative.

Table 3.3 Table for Determining Minimum Returned Sample Size for a Given Population Size (adopted from Adam, 2020, p. 9)

Popula- tion size	Sample size					
	Categorical data (margin of error=.05), $p=2$			Continuous data (margin of error=.03), $p=4$		
	90% confidence Level $t = 1.645$	95% confidence Level $t = 1.96$	99% confidence Level $t = 2.58$	90% confidence Level $t = 1.645$	95% confidence Level $t = 1.96$	99% confidence Level $t = 2.58$
450	169	208	269	133	168	229
500	176	218	286	137	174	241
600	187	235	316	144	185	262
700	196	249	342	149	194	279
800	203	260	364	153	201	293
900	209	270	383	156	206	306
1000	213	278	400	159	211	317
1200	221	292	429	163	219	334
1500	230	306	462	167	227	354
2000	239	323	500	172	236	376
3000	249	341	545	177	245	401
5000	257	357	588	182	254	424
8000	262	367	615	184	259	437
10000	264	370	625	185	260	442
20000	267	377	645	187	264	452
50000	270	382	657	188	266	459
100000	270	383	662	188	267	461
150000	271	384	663	188	267	461
200000	271	384	664	188	267	462
>1000000	271	385	666	188	267	463

Therefore, for the questionnaire survey, the study utilized a systematic random sampling method (probability sampling). As illustrated in Figure 3.3, 442 students from the sophomore class at the case college were selected according to the minimum sample size requirements outlined in Table 3.3 (Adem, 2020). In terms of the inclusion criteria, participants were non-English majors enrolled in the New College English Integrated Course III (NCEIC-3). Prior to distributing the questionnaire, the CEEE scores for all sophomore students at the college were obtained from the school admissions office. From this, 1,768 students who scored below 90 were identified. These students were sequentially coded from 1 to 1,768. The range of codes was then input into the online randomization software at <https://www.random.org/>. Using this systematic random sampling method, the researcher generated 442 random numbers through the online system and matched these numbers to the corresponding students. The selected students were then contacted to complete the questionnaire.

Additionally, all participants were enrolled in New College English Integrated Course III (NCEIC-3), a compulsory and public course designed to enhance students' English language abilities and comprehensive application skills. The course focuses on developing listening, speaking, reading, writing, and translation skills through an in-depth study of texts, emphasizing words, sentences, and parts of speech. As a second-year course, NCEIC-3 was attended by all participants in their second academic year. Neither the experimental nor the control groups had previously received LLS instruction. All sophomore undergraduates took the CET-4 in March 2023. The choice of second-year students for this study is based on the fact that these learners had undergone at least seven years of systematic English instruction in middle school and college by the time of

this investigation. Consequently, they had developed their own learning style preferences and adopted certain LLS.

In the context of the quasi-experiment, the normal teaching schedule at the case college was maintained without disruption. The researcher did not alter the current class settings or reassign students to experimental and control groups. Instead, the study utilized the existing parallel classification of learners established when freshmen were enrolled. Among the 13 randomly selected classes, the following two steps were undertaken to select the experimental and control groups: one-sample *t*-test: The mean strategy use scores of the experimental and control classes were assessed for significance using the one-sample *t*-test method. Classes that met the criteria for representing the proportion of BA EFL learners were identified and selected. Independent Sample *t*-test and effect size: The independent sample *t*-test was employed in parametric testing, while Cohen's *d* was used to measure effect size in non-parametric testing. This process involved screening the proficiency of strategy use in each class to identify combinations with no significant differences in strategy use between the two groups. Learners' attitudes toward LLS instruction were thoroughly evaluated for both experimental and control classes.

Therefore, the researcher employed non-probability convenience sampling in the experimental phase due to the nature of the quasi-experimental design, which does not allow for random sampling (Creswell, 2014). In quasi-experiments, convenience sampling is often the only viable option because researchers must work with naturally occurring groups, such as classrooms or family units (Creswell, 2017). Convenient

sampling relied on the feasibility of selecting a group within its natural context, provided that the group met the basic inclusion criteria for the study. The criteria for including learners in this study were as follows: participants were registered at Xi'an Traffic Engineering College (XTEC), non-English majors, were enrolled in either the New College English Integrated Course III (NCEIC-3) for the first semester or New College English Integrated Course IV (NCEIC-4) for the second semester, and be willing to participate. To ensure high validity, the same sample was utilized for both qualitative and quantitative approaches (Creswell, 2014).

Table 3.4 Comparison of strategy means between experiment and control classes

Strategy	Control class		Experiment class		Variation	Significance <i>t</i> -value
	Means	SD	Means	SD		
Memory	2.48	0.0273	2.44	0.4291	0.04	-0.3126
Cognitive	2.56	0.0605	2.57	0.4467	0.01	0.0836
Compensate	2.70	0.0320	2.71	0.4521	0.01	-0.1034
Meta-cognitive	2.61	0.0151	2.65	0.3697	0.04	-0.0689
Affective	2.66	0.0076	2.68	0.3764	0.02	0.0576
Social	2.73	0.0186	2.75	0.3739	0.02	-0.1321
Overall	2.62	0.0092	2.63	0.4080	0.01	0.0535

According to the data from the pilot study, as presented in Table 3.4, the test results revealed the following: The *t*-value is 0.0535, which was substantially smaller than the critical value of 2. This indicated that there was no significant difference in the use of LLS between the experimental and control classes. The average level of strategy use was 2.63 for the experimental class and 2.62 for the control class, with a mean difference of only 0.01. This minimal difference suggested that the levels of strategy use among students in both classes were virtually identical. This suggested that the strategy use levels of students in both the experimental and control classes were nearly identical

at the pilot phase, which was precisely what is needed for this study.

Furthermore, the researcher provided formal instructions and engaged in discussions with both the instructor and participants to ensure that none of the participants had prior exposure to LLS before the study. The effect of LLS instruction hinges significantly on the instructor's familiarity with and understanding of LLS. Consequently, prior to the implementation of the formal intervention for the experimental class, the researcher facilitated relevant training for the instructor under the supervision and guidance of an EFL professor. The training encompassed the following key elements: 1) Acquainting the instructor with the specific steps of LLS training as outlined in the LLS instruction model depicted in Figure 3.9; 2) Emphasizing the importance of motivating and engaging participants in LLS, and enhancing their awareness of LLS learning; and 3) Ensuring that the instructor was well-versed in Oxford's (1990) six strategies and their practical application within the English course. Additionally, the researcher, being a faculty member at XTE college, was able to closely monitor and control various variables that could potentially impact the results. For example, during the intervention program, the learners did not study abroad or participate in any external English training classes. This oversight ensured that no external factors interfered with the intervention and that the study's outcomes were attributable solely to the implemented LLS instruction.

3.4.2 Participants Sampling for a Qualitative Study

In the qualitative phase, 20 participants were purposefully selected who could output substantial information, can ensure the accuracy of the results, and assist in

addressing the RQs (Creswell, 2014). Additionally, Guest, Bunce, and Johnson (2006) observed that after analyzing 12 interviews, new themes appeared infrequently and progressively as the analysis advanced, as depicted in Figure 3.5 (Guest, Bunce, & Johnson, 2006, p. 74). Vasileiou et al. (2018) justified the sample size for interviews, noting that after 20 interviews, theme saturation was achieved—indicating that no new codes emerged from subsequent interviews, consistent with the results shown in Figure 3.4. Furthermore, to achieve code saturation and thoroughly explore topics, 16 to 24 interviews were deemed necessary (Hennink et al., 2017). Thus, the integrated justifications for interview saturation suggested that the appropriate number of interviews ranged from 12 (Guest et al., 2006) to 24 (Hennink et al., 2017). Leonard and McAdam (2001) demonstrated that quality is prioritized over quantity in interviews. Therefore, the study balanced these considerations by selecting 20 participants.

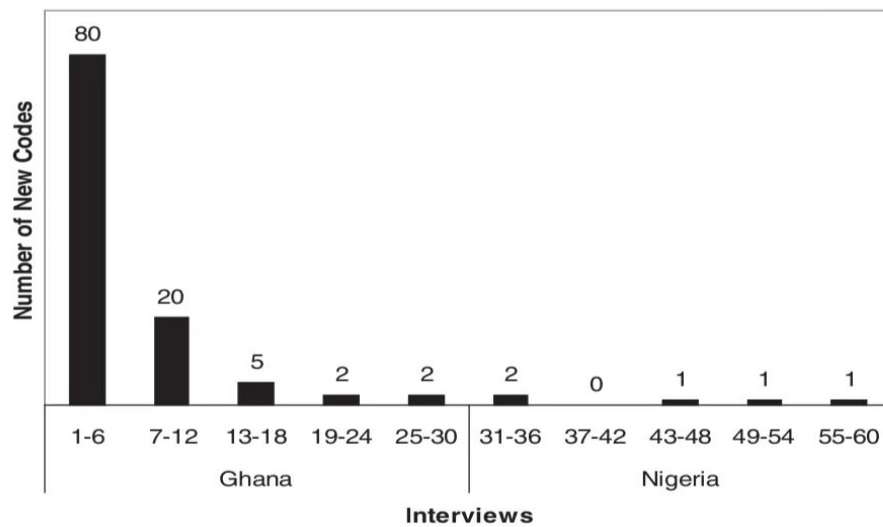


Figure 3.5 Code Creation over the Course of Data Analysis
(adopted from Guest, Bunce & Johnson, 2006)

Subsequently, a semi-structured interview was conducted in the study to

explore the effects and attitudes toward LLS and to provide detailed insights into the impact of intervention. Most qualitative sampling methods are intentionally designed, as the sampling process is conceptualized with a specific plan (Creswell, 2014). The basic information, formats, and venues for the 20 participants are detailed in Table 3.5.

Table 3.5 Basic Information of the Interviewees

No.	Gender	Age	Years of learning English	Score of CEEE	Interview format (semi-structured)	Interview venue
A01	Male	21	11	70/150	one-on-one	Online
A02	Male	20	14	89/150	one-on-one	Online
A03	Male	21	8	48/150	one-on-one	Online
A04	Male	22	11	89/150	one-on-one	Online
A05	Male	20	11	81/150	one-on-one	Online
A06	Male	20	14	89/150	one-on-one	Online
A07	Male	21	11	76/150	one-on-one	Online
A08	Male	21	11	60/150	one-on-one	Online
A09	Male	22	12	85/150	one-on-one	Online
A10	Male	21	12	83/150	one-on-one	Online
A11	Male	20	11	65/150	one-on-one	Online
A12	Male	20	11	89/150	one-on-one	Online
A13	Male	19	12	88/150	one-on-one	Online
A14	Male	21	12	56/150	one-on-one	Online
A15	Male	20	12	58/150	one-on-one	Online
A16	Male	20	12	34/150	one-on-one	Online
A17	Female	21	11	75/150	one-on-one	Online
A18	Male	21	12	89/150	one-on-one	Online
A19	Male	20	12	48/150	one-on-one	Online
A20	Male	21	12	76/150	one-on-one	Online

3.5 Research Questions and Hypotheses

3.5.1 Research Questions

RQ1. What are the preferences and frequency of LLS used by below-average EFL learners in the Chinese vocational college?

RQ2. Is there any significant relation between LLS instruction and the level of strategy use of below-average EFL learners in the Chinese vocational college?

RQ3. Is there any significant relationship between LLS instruction and English academic achievement of below-average EFL learners in the Chinese vocational college?

RQ4. What should be the efficient LLS instruction model for below-average EFL learners in the Chinese vocational college?

3.5.2 Research Hypotheses

Research Hypotheses: Based on a comprehensive analysis of the existing research results and full consideration of the actual situation of this research, this study finally proposes the following four hypotheses:

1. Below-average EFL learners in the vocational colleges are likely to display a low frequency and preferences of LLS use.

2. There is a significant relationship between LLS instruction and the level of strategy use among below-average EFL learners in the Chinese vocational college, while there is no significant effect observed in the control group.

3. There is a significant relationship between LLS instruction English academic achievement among below-average EFL learners in the Chinese vocational college, while there is no significant effect observed in the control group.

4. The mixed-method LLS instruction effectively improves the use of strategies and English academic achievement among below-average EFL learners in vocational colleges.

3.5 Research Procedures

The current research was administrated within the authentic educational context of ten full classes of the NCEIC-3. Due to the college policies in China, which stipulated that only designated instructors were authorized to teach their assigned students, the researcher was not permitted to directly implement the LLS intervention program. This limitation is illustrated in Figures 3.6 and 3.7. Instead, the researcher took on the role of an organizer for the LLS training program. Under the basis of Oxford's (1990) LLS of this study and with guidance from an EFL expert, the researcher provided training to the instructor responsible for administering the LLS program. The instructor, who volunteered for this role, was responsible for implementing the intervention, which included administering the strategy inventory for language learning (SILL) and conducting online of semi-structured interviews (OSIs). In the first week of the intervention—spanning a total of 18 weeks—the instructor informed participants about the phases of the study, clarified the processes they were expected to follow, and secured consent from respondents to participate in the research by completing a questionnaire.

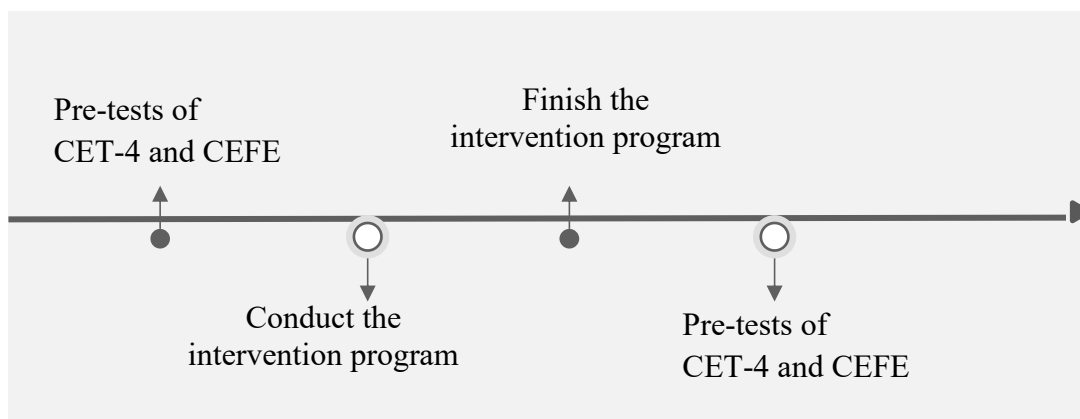


Figure 3.6 The Timeline of Intervention Program in the Study

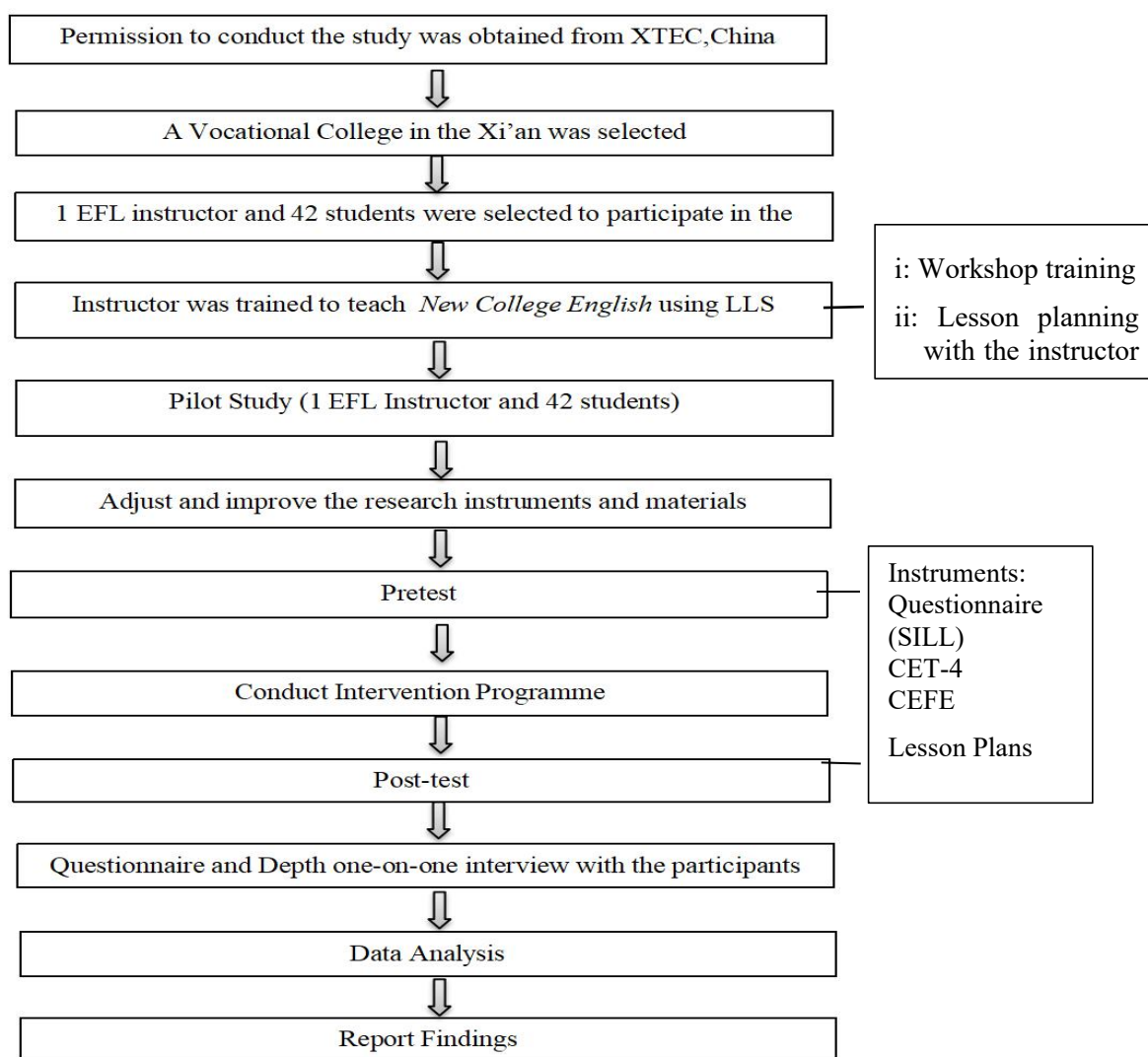


Figure 3.7 Research Procedure of the Study

3.5.1 Quasi-Experiment

The SILL questionnaires were administered to 442 randomly selected participants through a centralized classroom test, where participants completed an online questionnaire by scanning a QR code. Prior to the administration of the SILL, the researcher and instructor dedicated three minutes to explaining the purpose and significance of the study and providing instructions on how to complete the questionnaire. This brief orientation aimed to address any concerns and encourage active participation. During this explanation phase, the instructor remained in the classroom to provide the necessary information but was prohibited from reviewing or influencing the participants' responses to ensure that the answers were given truthfully and without disturbance. Following the 30-minute response period, the instructor assessed whether additional time was needed based on the participants' progress and collected the completed questionnaires. A 100% return rate was achieved, with all 442 questionnaires being collected. Subsequently, a quasi-experiment was conducted utilizing a pre-test and post-test design, as illustrated in Figure 3.8.

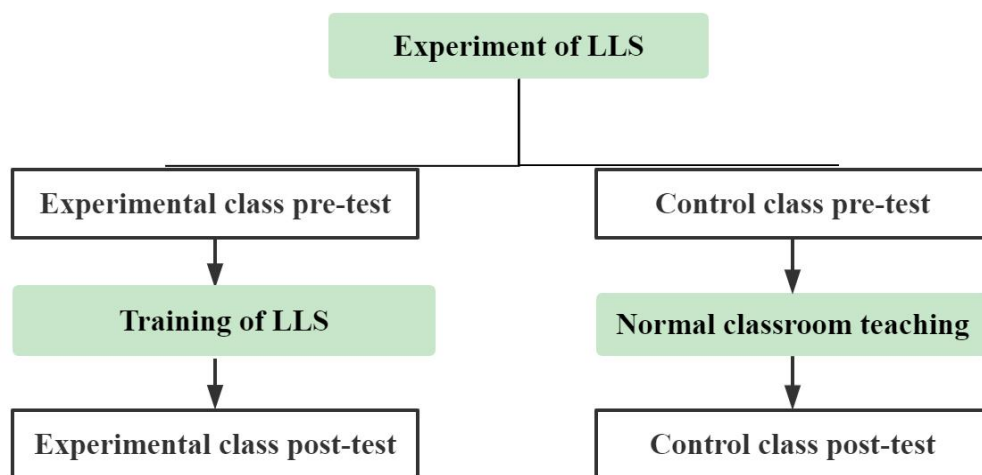


Figure 3.8 Research Design Diagram of LLS experiment

Before the experiment commenced, the level of strategy use (LSU) of participants in both the experimental and control classes was assessed separately. Initially, a pre-test was administered to the participants in the experimental class. Subsequently, the researcher implemented LLS training for this group. Throughout the following academic semester, while the experimental class received the LLS training, the control class continued with their standard classroom teaching methods. The experimental group comprised 40 participants, reflecting a typical classroom setting. After one semester, which spanned from March 2023 to July 2023, the researcher and the instructor re-evaluated the use of LLS and the English academic achievement of participants in both the experimental and control classes. Statistical analyses were then conducted based on the collected data. The LLS intervention program lasted for 18 weeks, and the study integrated both ephemeral and co-occurring research approaches, as depicted in Figure 3.9.

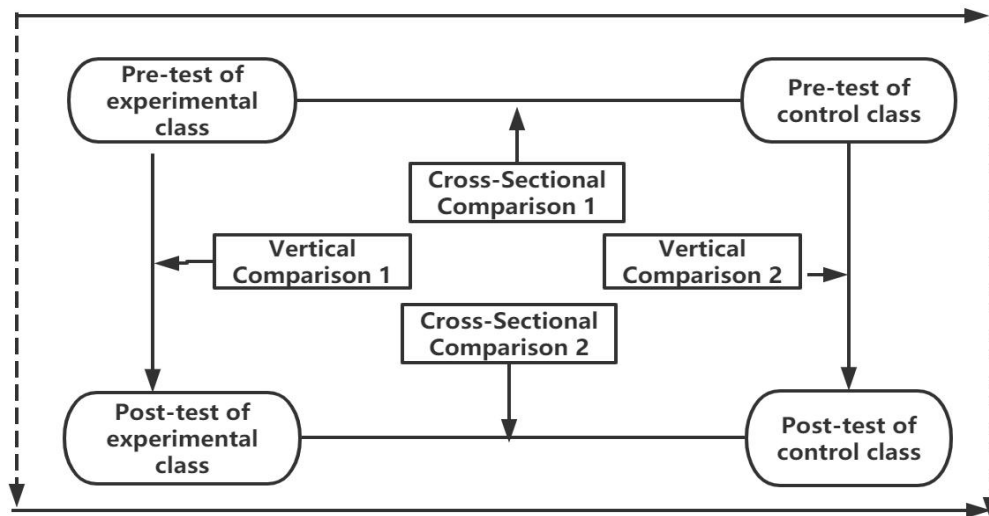


Figure 3.9 Diagram of the Diachronic and Synchronic Study of LLS Experiment

The figure above can be further interpreted as follows: A diachronic study,

encompassing both vertical and parallel comparisons, was conducted to examine changes in the LLS of learners in the experimental and control classes before and after the intervention. Specifically, the vertical comparison analyzed the changes within each group over time, while the parallel comparison assessed the differences in LSU and EAA between the experimental and control classes at both pre-test and post-test stages.

Considering the LLS intervention program environment, it is essential to address the potential cognitive and learning costs associated with learners' preferences and beliefs (Wilson, Martinez, & Mills, et al., 2018). Therefore, it is important to develop effective online LLS instruction models, activate students' enthusiasm and motivation for mastering LLS, and highlight its significance for their English achievement. The experimental instructor in this study focused on reducing anxiety by providing a supportive environment for LLS instruction. According to Salam (2020), attentive ESL learners with a solid vocabulary and alphabetical knowledge achieve success in learning a second language when their teachers are friendly, sympathetic, and motivating. Consequently, the selected experimental instructor for this study was both approachable and patient with learners.

3.6.2 Semi-Structured Interviews

The researcher conducted semi-structured interviews from July 2023 to August 2023, following the completion of the intervention program. The rationale for using semi-structured interviews was grounded in several considerations. Interviews can be categorized into three main types according to their formality: structured, semi-structured, and unstructured (Adhabi & Anozie, 2017). Among these, semi-structured

interviews are the most commonly employed format in qualitative research (Alshenqeeti, 2014). This format allowed the researcher to pose more in-depth and flexible guiding questions, adapting to the participant's responses while following a prepared outline (Adhabi & Anozie, 2017). For this study, the QQ chat app and WeChat chat app were utilized for conducting the online interviews, as the rationale for this approach is detailed in section 3.5.1(a)). The interviews were scheduled one week after the completion of the intervention program in the first semester.

The first step in qualitative research was data collection. In this study, a semi-structured interview was conducted with representative bachelor of BA EFL learners at the case college to gather first-hand information. The aim was to explore EFL students' cognition and attitudes toward LLS and to preliminarily assess the effects of LLS training. The interviewees were selected from students who were less proficient in English but had some knowledge and understanding of LLS. The criteria for including participants in the OSI were as follows: 20 participants were purposefully chosen based on their ability to provide extensive information, ensure the accuracy of the results, and best assist in conceptualizing the research problem and questions (Creswell, 2014). Consequently, the study focused on sophomores in the experimental group after the intervention program. This selection was based on the fact that sophomore learners had already completed over a year of college English courses, during which their teachers introduced basic LLS concepts in preparation for the CET-4 exam. The participants, aged 19-22, were expected to have some knowledge, active thinking, and substantial information about LLS. Additionally, the study considered the gender, age, high school learning background, family background, and other structural aspects of the interviewees

to ensure the sample was representative and aligned with the study's objectives.

In the current qualitative research, the researcher utilized online interviews via WeChat and QQ chat apps, based on participants' willingness to engage in the OSI interview. This approach offered several advantages: it eliminated the need for face-to-face meetings, thereby enhancing convenience and removing time and space constraints. Additionally, online interviews reduced the likelihood of constraints on the interviewees, allowing for more genuine and unfiltered responses. This format minimized the influence of verbal and non-verbal cues from the interviewer, resulting in more thoughtful and rational answers. The study employed a question-focused interview method, where the researcher guided the interviewees to concentrate on the interview topic from their own perspectives, establishing a participatory dialogue mode. Each semi-structured interview lasted approximately 30 minutes, providing ample time for interviewees to reflect and express themselves during the formal interviews.

Before conducting the interviews, the researcher explained the topic and key precautions to the interviewees and engaged in preliminary discussions. The interviews adhered to principles of openness, interaction, and confidentiality. In accordance with thematic analysis requirements, the interviews did not involve pre-established assumptions or paradigms. Instead, a straightforward interview outline was prepared in advance to enhance the efficiency of the interview process.

3.7 Research Instruments

This subsection details the instruments used to collect data for the current study. A mixed-method study usually incorporates at least one quantitative and one qualitative

instrument. According to Singh, Chan, and Sidhu (2006), the most commonly employed research instruments include questionnaires, observations, and interviews. In the current research, two key instruments (CET-4 and CEFE) were utilized to assess learners' EAA both before and after the intervention: (1) the strategy inventory for language learning (SILL); (2) an outline for semi-structured interviews (OSIs); and (3) Tests of English academic achievement for pre-test and post-test, which include the College English Test-4 (CET-4) and the college English final exam (CEFE). The SILL, CET-4, and CEFE were administered by the NCEIC-3 instructor, while the OSIs were conducted by the researcher.

The instruments employed in this research were primarily comprised of two components: Oxford's (1990) SILL and two English academic achievement (EAA) tests. A detailed explanation of the SILL questionnaire content is provided in Appendix B (English version) and Appendix C (Chinese version). This section focuses on the credibility and reliability of these instruments, including the English proficiency test papers used in the study.

3.7.1 Questionnaire: Strategy Inventory for Language Learning

The study employed the SILL, developed by Oxford (1990), a renowned applied linguist. Yeşilbursa and İpek (2013) emphasized the importance of validating the SILL instrument within specific research contexts. Additionally, Amerstorfer (2018) demonstrated the efficacy of the SILL and outlined adaptable approaches for various contexts and research methods. The study adopted Xiao's (2021) factor loading from Table 3.6 of the SILL in a vocational college context, demonstrating the correlation

between latent and significant variables. Xiao (2021) found through confirmatory factor analysis using SPSS that Oxford's SILL scale is a highly effective tool for researchers and learners, particularly within the context of Chinese vocational EFL learners. The analysis revealed that five of the six sub-item strategies had significant correlations with factors (latent variables), with only one compensation strategy sub-item showing a weaker, yet still statistically significant, correlation (see Table 3.6). Consequently, the study adapted Oxford's SILL (1990) for the questionnaire survey. The survey was administered and data were collected using QuestionnaireStar software, a professional tool for survey research.

Table 3.6 Factors Loading in SILL (adopted from Xiao, 2021, p. 70)

Factor (latent variable)	Analysis term (explicit variable)	Non-standard load factor (Coef.)	Standard error (Std.Error)	Z	Standard load factor (Std.Estimate)
Strategy composition of LLS	Memory strategy	1.000	--	--	0.714
	Cognitive strategy	1.796	0.092	19.617	0.848
	Compensation strategy	0.558	0.047	11.915	0.507
	Meta-cognitive strategy	1.313	0.068	19.319	0.833
	Affective strategy	0.813	0.048	16.786	0.717
	Social strategy	0.909	0.055	16.653	0.711

Statistically, if the standard loading coefficient exceeds 0.7 and the p -value is below 0.05, the correlation is considered strong. Conversely, if the p -value exceeds 0.05 or the standard loading coefficient is below 0.4, the correlation between the analytic term and the factor is considered weak. As shown in Table 3.6, five of the LLS sub-

components exhibited a strong correlation with the latent variable, while only the compensatory strategy demonstrated a slightly weaker correlation with the latent variable of LLS strategy composition. Despite this, the LLS itself remains statistically significant.

In addition, Oxford's (1990) SILL was selected for this study due to its established framework and quantifiable categories, which are essential for researching EFL learners' learning strategies. This instrument was widely recognized and utilized in empirical studies of second language learning strategies (Chamot & Harris, 2019; Green & Oxford, 1995; Hsiao & Oxford, 2002). It is also a foundational tool for many LLS researchers in China (Qi & Chen, 2014). The SILL checklist reflects Oxford's theoretical framework of LLS and is particularly suited for assessing the learning strategies of contemporary college students. Over time, Oxford's SILL has undergone several modifications and has become a widely accepted standard questionnaire for measuring LLS, which Ellis (1994) described as a valuable diagnostic tool.

Unexpectedly, based on the evaluations of five experts in Section 3.8.1, certain items in the LLS were deemed impractical and inappropriate for Chinese BA college learners. This outcome was attributed to China's exam-oriented education system, which emphasized reading, writing, and listening skills while often neglecting speaking abilities. Consequently, some of the speaking strategies in Oxford's (1990) SILL were found to be unsuitable, aligning with the findings of Yao, Chen, and Yang (2021). Based on the expert judgments and subsequent discussions, the study adapted the SILL by removing 10 specific strategies: "S5, S7, S11, S14, S16, S28, S32, S35, S40, and S46."

The remaining 40 strategies, highlighted in yellow.

3.7.2 Outline of Semi-Structured Interview

The study employed a semi-structured interview approach, where the researcher facilitated the interviewees in focusing on the topic from their own perspectives through a participatory dialogue model. The interviews were conducted without any presuppositions or fixed paradigms, but two semi-structured interview outlines, as detailed in Appendix D for the English version and Appendix E for the Chinese version, were prepared in advance to enhance the efficiency of the process. The interview outline consisted of three sections: basic information, current use of LLS, and attitudes towards LLS both before and after the intervention program.

During the semi-structured interviews, additional follow-up questions were posed in response to the initial questions and conceptual categories discussed, aiming to gain deeper insight into the interviewees' inner thoughts and further expand the interview content. For example, if an interviewee mentioned strategies for learning English in response to a question about which strategies EFL learners use to enhance their English abilities, the interviewer would follow up by asking, "Do you believe LLS can promote English proficiency? Could you elaborate on how the instructor monitor this?" The interviewer might further ask, "Do you think instructor monitoring can enhance English achievement?"

3.7.3 Tests of English Academic Achievement for Pre-test and Post-test

Pre-test and post-test assessments of English academic achievement (EAA), including the college English test-4 (CET-4) and the college English final exam (CEFE),

were conducted before and after the program intervention.

3.7.3 (a) College English Test-4 (CET-4)

The study specifically selected a set of original questions from the college English test-4 (CET-4), which is administered nationwide to all college students under standardized conditions. A designated proctor supervised the test, and participants were prohibited from bringing any books or electronic devices. The CET-4 score was a graduation requirement for college students, ensuring that all participants approached the test with great seriousness and enthusiasm. The pre-test of CET-4 was conducted in March 2023, followed by the LLS experiment during the first semester, and the post-test took place in June 2023 after the intervention program. The sample of the pre-test CET-4 is provided in Appendix F, while the sample of the post-test CET-4 is included in Appendix G. Before concluding the experiment, the experimental and control classes were independently compared. Post-intervention, both groups participated in the EAA tests, with the scores serving as the primary criterion for evaluating the EAA of students in both the experimental and control classes. Additionally, the final exam results from the case college were used as supplementary data to assess the learners' EAA. This decision was made because the English teaching unit at the case college had thoroughly considered the English learning abilities of BA EFL learners and the significance of EAA in the overall educational assessment of students by the end of the research period.

Consequently, the researcher utilized the CET-4 test (with a total score of 710) based on the following considerations: First, if the test had been created by the researcher or selected randomly from various test papers, ensuring the reliability and

validity of the test would have been challenging. The CET-4, as a national English achievement test organized by the Chinese Ministry of Education, has unquestionable reliability and validity. Additionally, by selecting an authentic CET-4 test as the instrument, all participants approached it seriously and carefully, reducing the likelihood of random or careless responses, and allowing for a more accurate assessment of their true English academic achievement (EAA). Second, many participants had previously practiced with past CET-4 tests in preparation for the exam, making the use of an authentic CET-4 test appropriate for this study. Third, since all college learners were required to achieve a minimum score of 380 on the CET-4 to graduate, every participant was highly motivated to perform well on the test. Therefore, choosing the real CET-4 test was both effective and reliable. Prior to the test, specific test requirements were explained to the students to ensure that all participants were experiencing the test for the first time, thereby allowing the results to accurately reflect their EAA.

3.7.3 (b) College English Final Exam

All participants in the study commenced their studies with the *New College English Integrated Course 3* (NCEIC-3), a course mandated by the Ministry of Higher Education. The cover page and content of NCEIC-3 are displayed in Appendix H. Each test within this course includes three sections—listening, reading, and writing—which were used to assess and compare the pre-test and post-test results of both the experimental and control classes. At the end of the semester, following the intervention program, all participants took the college English final exam (CEFE). Importantly, the college English course is a compulsory public course, requiring all participants to

achieve at least 60 points to pass. Failure to do so would result in not passing the course, thereby motivating students to take the CEFE very seriously, which in turn ensured the reliability of their CEFE scores. Consequently, the study employed the CEFE as an additional authentic instrument to assess the participants' English academic achievement (EAA).

3.7.4 Lesson Plans for the Intervention Program

In the quasi-experimental design, participants in the experimental group took part in an intervention program where they were taught Oxford's (1990) LLS throughout an entire semester. The detailed LLS training plan for each unit, designed for the experimental instructor, is provided in Appendix I. The lesson plans were collaboratively developed and designed with the instructor of NCEIC-3, drawing on Oxford's (1990) framework. Khan MR and Khan MA (2018) emphasized the importance of integrating LLS instruction into the curriculum and classroom teaching to enhance the overall use of LLS. Such instruction can be implemented by incorporating activities into regular lessons that focus on and require the application of specific strategies. Following a proficiency assessment, the instructor adjusted their LLS approach to better align with the learners' needs.

To mitigate cognitive overload among participants during the treatment phase, the initial stages of LLS instruction were conducted smoothly and naturally. Fan and Lei (2008) suggested that hybrid teaching models could effectively reduce cognitive overload. Consequently, the instructor utilized a mixed LLS instruction model, incorporating group learning, lecture-based activities, classroom-based LLS training,

lecture-based LLS instruction, and online learning as the primary methods for delivering LLS training. This approach was designed to provide valuable insights for future strategy research (Qi & Chen, 2014). Furthermore, Chang and Ley (2006) demonstrated that many students prefer printed online materials as a strategy to alleviate cognitive overload. Therefore, the researcher and instructor printed and distributed LLS materials to participants in the experimental group. The LLS instruction methods for below-average EFL learners are illustrated in Figure 3.10.

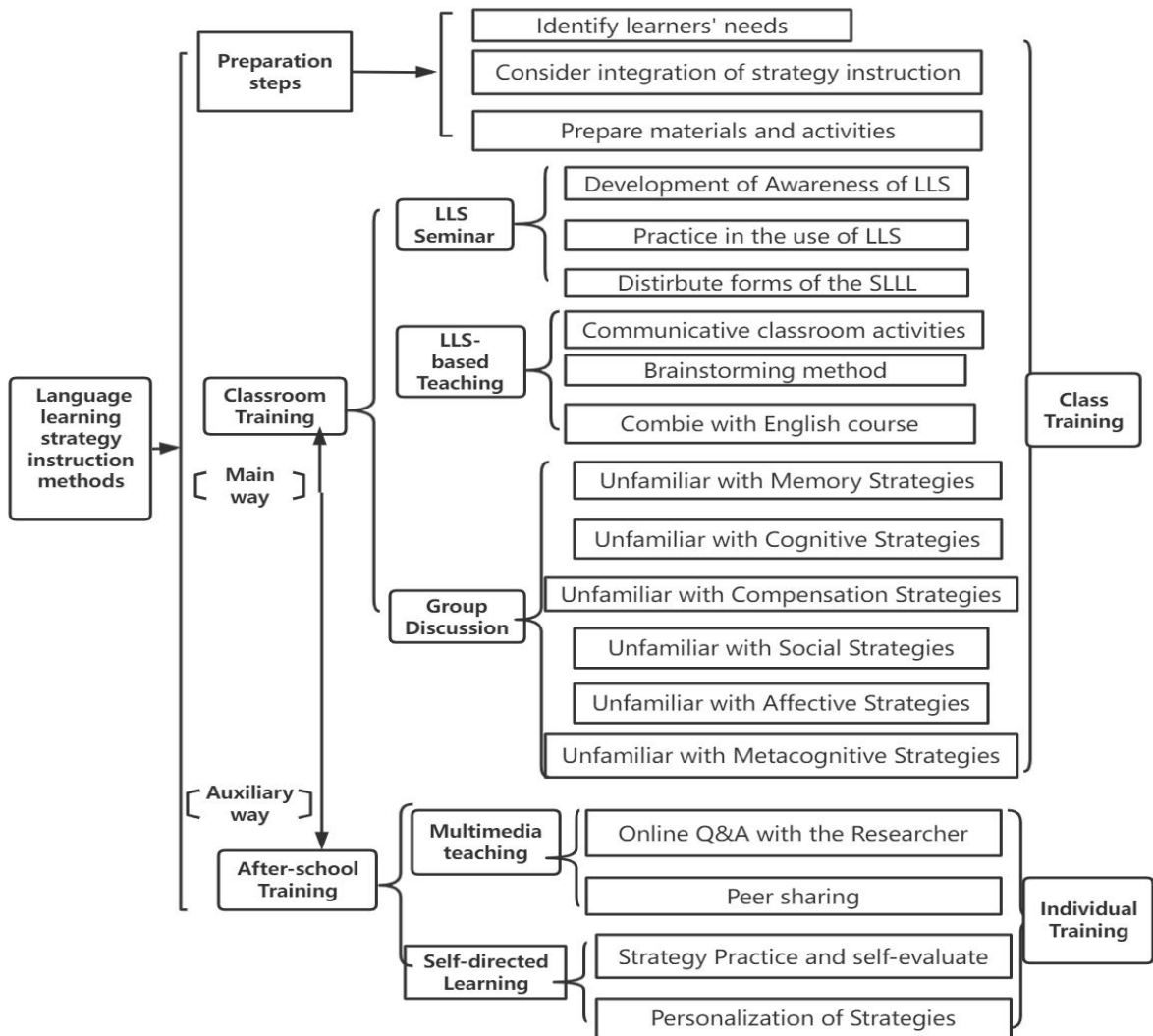


Figure 3.10 LLS Instruction Model for the Intervention Program

Hold special lectures based on LLS instruction: British linguist Wilkins asserted that without grammar, people can express few things, while without vocabulary, people cannot express anything (Yang, 2016). This underscores that the quantity of vocabulary significantly restricts learners' English acquisition. According to the questionnaire results, participants were not only markedly deficient in English vocabulary but also faced issues such as fear of memorizing words and reluctance to engage in vocabulary memorization. The aim was twofold: first, to help participants overcome vocabulary barriers as swiftly as possible, thereby facilitating the effective implementation of subsequent strategy training; and second, to enable participants to quickly experience the benefits of the strategy, thereby generating momentum for the overall strategy training activities.

Oxford's (1990) LLS was introduced to the experimental class, with each participant receiving a printed copy of the LLS as a guide booklet for their learning. Subsequently, the LLS module—encompassing memory, metacognitive, and cognitive strategies—was taught in a step-by-step manner. The training sessions were designed to focus on developing proficiency in LLS skills. Upon completion of the LLS instruction activities, participants were asked to engage in English exercises, including listening, reading, and writing, to practice their LLS skills. These exercises required the use of LLS tools as part of their English learning strategies. The effectiveness of the LLS training was assessed by comparing pre-test and post-test scores of EAA.

Teaching LLS in English class: The instructor utilized specific content to support the training of participants in learning strategies. Notably, the course they studied,

NCEIC-3, is tailored for sophomores. BA vocational college EFL learners require significant encouragement and respect to harness their strong motivation for learning English (Wang, 2015). Therefore, the study effectively addressed and leveraged motivation to enhance the LLS instruction experiment. At the same time, it aimed to boost motivation and reduce English learning anxiety among BA EFL learners, helping them to learn how to learn English (Wilson, Martinez & Mills, 2018). Throughout the strategy training, the instructor provided comprehensive LLS materials and assisted learners in overcoming any inferiority complex related to English learning. Additionally, while BA EFL learners have a certain desire to learn English, stimulating this desire requires appropriate conditions (Kong, Dong, & Cui, 2019). This study created favorable conditions within LLS instruction to help learners appreciate the significance of LLS in improving their English skills, allowing them to fully engage in and responsibly participate in the LLS training process.

Additionally, the experimental instructor meticulously followed the intervention program according to the lesson schedule outlined in Table 3.7. This program included a comprehensive set of 40 language learning strategy sub-items, each systematically labeled with an “S” to denote individual strategies. For example, S1 corresponds to strategy item 1: “I think of relationships between what I already know and new things I learn in English,” while S50 represents strategy item 50: “I try to learn about the culture of English speakers.” The intervention program spanned an entire semester, lasting 20 weeks in total. Of these, 18 weeks were dedicated to intensive English education and the instruction of language learning strategies, with the final 2 weeks allocated for the final examination.

Table 3.7 Lesson Schedule of the Intervention Programme

Unit name	Main strategy	Sub-items of strategies	Week of instruction	Session plan
Unit 1 Changes in the Way We Live	Memory Metacognitive Cognitive Compensation Affective Social	S1, S2, S6, S8, S9, S10, S13, S15, S21, S24, S29, S31, S34, S36, S39, S40, S43, S47, S49	Semester 1 Week 1- Week 4	1-Select appropriate language learning strategies; 2-Prepare teaching material and design activities;
Unit2 Givil-Rights Heroes	Memory Metacognitive Cognitive Compensation Affective Social	S2, S3, S7, S8, S9, S10, S12, S17, S18, S19, S23,S21, S25, S26, S30, S34, S42, S45, S46	Semester 1 Week 5- Week 8	3-Explain the purpose and importance of the strategy and make specific demonstration;
Unit 3 Security	Memory Metacognitive Cognitive Compensation Affective Social	S1, S4, S7, S12, S15, S17, S20, S22 S26, S29, S32, S34, S36, S38, S40, S42, S45, S50	Semester 1 Week 9- Week 12	4-Organize groups or the whole class to discuss strategies; 5- Guide students to practice using strategies;
Unit 4 Imaginati on and Creativity	Memory Metacognitive Cognitive Compensation Affective Social	S2, S7, S8, S9, S12, S16, S18, S20, S23, S28, S31, S33, S36, S37, S40,S42, S44, S46, S48	Semester 1 Week 13- Week 15	6-Evaluate and correct the use of strategies; 7-Summary and promotion of strategy use
Unit5 Giving Thanks	Memory Metacognitive Cognitive Compensation Affective Social	S2, S5, S8, S11, S14 S17, S22, S30, S32, S35, S36, S37, S40, S43, S45, S47 ,S49, S50	Semester 1 Week 16- Week 18	

3.8 Validity and Reliability of the Instruments

The validity and reliability of both quantitative and qualitative data in this study are outlined in the following paragraphs. Each instrument used in this study has been validated as appropriate for the Chinese context. Validation procedures were employed to ensure that the instruments met the required standards of validity and reliability.

Validity is a critical consideration when selecting instruments for research projects, as it is essential to confirm whether the content accurately measures the attributes intended by evaluating the elements of the instrument (Roebianto, Savitri, & Aulia, et al., 2023). In line with prior research, including the work of Thorndike and Thorndike-Christ (2014) and Zareian et al. (2015), the instruments were validated through expert judgment, self-validation, and pilot testing.

3.8.1 Self-Validation and Expert-judgment

Given that SILL was applied to a different research population and was originally developed within an American context, it is crucial to assess whether its validity remains suitable for studies in this new setting (Yao, Chen, & Yang, 2021). Oxford and Burry-Stock (1995) extensively examined the validity of SILL. Firstly, they established that the content validity was robust, noting that some items on the scale can be categorized into various types of strategies according to Oxford (1990). Secondly, the scale demonstrated good criterion-related validity, as numerous studies have shown a positive correlation between the use of LLS and academic performance. Lastly, the scale exhibited strong construct validity, with evidence from multiple studies indicating that academically successful students used LLS more frequently than their less successful counterparts.

The study assessed the content validity of the instrument through both self-validation and expert judgment. Content validity pertains to the rationality of the questionnaire item design, and it is evaluated based on expert opinions and pre-test results. Experts, drawing from authoritative sources, affirmed the validity of the

questionnaire (Colquitt et al., 2019). Initially, the researcher conducted self-validation to assess content validity by applying and evaluating validity guidelines. This stage was grounded in literature on relevant instruments and validity theories related to item development (Vandergrift et al., 2006). Specifically, the researcher ensured that all items in the instrument were clear and understandable for the participants (Roebianto, Savitri, & Aulia, et al., 2023).

Moreover, expert-judgment validation was conducted. The panel comprised five university lecturers and researchers, all of whom were professors or associate professors specializing in applied linguistics, English teaching, or English language translation. Appendix J provides the professional qualifications and personal information of the expert panel. These experts were native Chinese speakers with 9 to 15 years of experience in English teaching. They were selected based on their extensive backgrounds in teaching college English courses and their familiarity with the current research. The professors were asked to evaluate the items based on criteria such as clarity, relevance, definition, description, and comprehensiveness, as outlined by Roebianto et al. (2023).

Furthermore, validity and reliability tests for some instruments already existed and were used as the foundation for instrument development in this study, drawing upon earlier research (Roebianto, Savitri & Aulia, et al., 2023). Specifically, the adapted Oxford (1990) SILL questionnaire items have been tested for validity and reliability in the field of English education, as SILL has been proven to be both reliable and valid (Amerstorfer, 2018; Xiao, 2021). To enhance the validity and reliability of the study, the

researcher adapted several instruments from previous studies (Ganapathy & Kaur, 2014). The content validity and inter-rater reliability of the pre-test and post-test were detailed in this chapter, and the validity and reliability of the lesson plans and question guide were also justified. Given that the participants are Chinese EFL vocational learners, the study used the Chinese version of SILL (Qi & Chen, 2014). As a measurement instrument, the structural reliability and validity of the SILL scale have been emphasized by researchers, with factor analyses conducted in China confirming that the SILL scale fits the structure of Chinese college students (Xiao, 2021).

Surprisingly, the results of the five expert judgments revealed that some items on the LLSs were not suitable and practical for Chinese college learners. Two lists of the expert judgment formats are included in Appendix K and Appendix L. This was due to China's exam-oriented education system, which emphasized reading, writing, and listening skills while neglecting speaking skills. Consequently, some speaking strategies from Oxford's (1990) SILL were impractical for Chinese learners, a finding consistent with Yao, Chen, and Yang (2021). Based on the expert judgments and discussions, the study adapted the SILL by removing 10 strategies: "S5, S7, S11, S14, S16, S28, S32, S35, S40, and S46." This adjustment left 40 strategies, which are highlighted in yellow in Appendices A and B.

3.8.2 Quantitative Pilot Study

Conducting a pilot study is crucial as it can identify potential issues with the main research project, such as possible failures, violations of research protocols, and whether the suggested methodologies or equipment are too complex or inappropriate

(Teijlingen & Hundley, 2001). Herzog (2008) recommended a sample size of 10 to 40 participants for a pilot study. Sekaran (2003) noted that samples divisible into smaller groups have a minimum of 30 participants. Accordingly, a pilot study was conducted with 40 participants from the college English course, adhering to the sample size guidelines established by Herzog (2008) and Sekaran (2003). A total of 40 students ($N = 40$) participated in the quantitative pilot study, conducted in April 2023. These participants also underwent pilot testing of the quantitative instruments (SILL, CET-4, and CEFE) for the main study. The participants were similar in terms of age range (19 to 22), gender distribution (male = 36, female = 4), year of study (2nd year), and English exposure (none had stayed in English-speaking countries).

The participants in this pilot study took approximately 20 minutes to complete the SILL questionnaire, 50 minutes to complete the CEFE English test, and 120 minutes to finish the CET-4 the following day, totaling 190 minutes. Additionally, Cronbach's α reliability coefficient was used to assess the internal consistency and dependability of the piloted instruments. The pilot results indicated high reliability: SILL ($\alpha = 0.82$), CET-4 ($\alpha = 0.87$), and CEFE ($\alpha = 0.74$). These findings suggested that the instruments were reliable, clear, and suitable for the current study. The details of the SILL reliability are presented in Table 3.8.

The scale measures learners' use of SILL across six strategy dimensions: memory, cognitive, compensatory, metacognitive, affective, and social strategies, with a total of 40 items. Each item in SILL is a declarative statement that participants respond to using a multiple-choice format. Participants were asked to rate the extent to which

each statement applied to them on a five-point Likert scale, where 1 = “not at all,” 2 = “not basically,” 3 = “sometimes,” 4 = “basically,” and 5 = “completely.” After collecting the questionnaires, the six sub-strategies and the overall strategy were assessed for internal consistency to evaluate their reliability. Given that the participants at the case college had intermediate or lower English proficiency, the study utilized the Chinese version of SILL. The reliability results are detailed in Table 3.8.

Table 3.8 Results of the Reliability Test of the SILL of Chinese Version

Types of Strategies	Number of items	Cronbach's α value	Correlation with SILL
Memory Strategy	7	0.76	0.755**
Cognitive Strategy	11	0.82	0.893**
Compensatory Strategy	5	0.68	0.726**
Metacognitive Strategy	7	0.86	0.870**
Affective Strategy	5	0.71	0.789**
Social Strategy	5	0.79	0.789**
Overall strategy	40	0.82	

Note: ** Significantly correlated at the 0.01 level (two-sided)

The statistical results in the table indicate the following: 1) The Cronbach's α values for the six sub-strategies and the overall strategy were generally high. Except for the compensation strategy, which had a value of 0.68, the other strategies ranged from 0.70 to 0.80, with two strategies ranging from 0.80 to 0.90, and the overall strategy achieving a high score of 0.82. 2) The correlation coefficients among the six sub-strategies and the overall strategy were all significant at the 0.01 level. Four sub-strategies had correlation coefficients between 0.70 and 0.80, while two had coefficients

above 0.80. These findings strongly supported the reliability of the SILL checklist. Oxford (1996) noted that the reliability of the SILL for second and foreign language learners ranged from 0.86 to 0.91, and for EFL learners, the reliability increased to between 0.91 and 0.94 when the questionnaire was translated into their native language. The retest reliability values of the SILL scale in this study corresponded closely with the highest and lowest estimates provided by Oxford (Macaro, 2008). Consequently, the study utilized the Chinese version of SILL as its quantitative instrument.

3.8.3 Qualitative Pilot Study

The purpose of the second pilot study was to verify the content validity of the OSI interview questions and to ensure their clarity and comprehensibility, following initial self-validation and expert judgment. This phase of the pilot study was crucial for determining whether the interview questions would generate adequate and relevant data and for identifying any questions that participants might find unclear or confusing. By conducting pre-testing of the interview, the researcher aimed to refine the questions and adjust or eliminate any that did not meet the clarity standards. Additionally, the pre-testing of the interview methodology allowed the researcher to gain practical experience in qualitative interviewing and to evaluate the time required for conducting the interviews effectively. The pilot test for the OSI items was carried out with 5 of the 20 students, who were randomly selected using the online software <https://www.random.org/>. This process was instrumental in ensuring that the interview protocol was well-suited for the main study and that any necessary adjustments could be made based on the pilot results.

The researcher employed both expert judgment and self-validation to assess the ODI interview questions. Each question was evaluated for having a range of responses, avoiding bias or hypothetical scenarios, and ensuring that the wording and phrasing were clear and contextually appropriate, as judged by the respondents. Additionally, informal discussions with pilot participants confirmed that both the questions and the instructions for answering them were understandable. The pre-test of the interview process enabled the researcher to accurately identify the type of data needed. It was concluded that neither the procedure nor the OSIs required significant changes for the main study. However, feedback from some experts highlighted that three questions were repetitive. Consequently, the researcher removed these redundant questions.

Specifically, the information required was gathered through the OSIs used in the pilot research. All five pilot participants demonstrated an understanding of both the objectives of the current study and the significance of each interview question. Following the removal of three redundant questions from the pilot interview questions, it was decided to incorporate the data from this group into the qualitative data for the overall study. This approach aligned with Ritchie et al. (2013), who argued that, unlike in quantitative research, pilot interviews in qualitative research did not necessitate the exclusion of data.

In summary, the SILL, CET-4, CEFE, and the OSIs underwent rigorous testing through two pilot studies. The research provided compelling evidence for the validity and reliability of these instruments, demonstrating a consistent correlation between the constructs of LSU and EAA. The pilot studies affirmed that the questions on the SILL,

CET-4, CEFE, and OSIs are both valid and reliable. These findings underscore the robustness of the instruments and support their use in the primary research, ensuring that they are well-suited for accurately measuring the relevant variables.

3.9 Quantitative and Qualitative Data Analysis

In this sub-section, the data analysis process is detailed, drawing from four research instruments: (1) the CET-4; (2) the SILL; (3) the CEFE; and (4) the OSIs. The CET-4, CEFE, and SILL were analyzed quantitatively, while the OSI interviews were analyzed qualitatively. Following a framework adapted from Creswell and Clark (2017), quantitative data analysis involved presenting and interpreting statistical information through three types of data: descriptive statistics, frequency counts, and inferential statistics (including paired samples *t*-tests and Cohen' *d*). Qualitative data analysis, on the other hand, involved identifying, coding, and categorizing themes derived from the OSI data. To visually and comprehensively clarify the data analysis process, Table 3.9 presents the research instruments and corresponding data analysis patterns, integrated with the research questions (RQs) outlined in Chapters 1 and 3.

Table 3.9 Framework of RQs, Mode of Data Collection and Analysis

Research Questions	Quantitative Instruments	Qualitative Instruments	Analysis of Quantitative Instruments	Analysis of Qualitative Instruments
RQ1 What are the preferences and frequencies of LLS used by below-average EFL learners in the Chinese vocational college?	Strategy Inventory for Language Learning (SILL)	None	1- systematic coding 2- frequency counts of LLS use between experimental class and control class 3-descriptive and reasoning statistics (paired samples <i>t</i> -test and Cohen's <i>d</i>)	None

RQ2. Is there any significant relationship between LLS instruction and the level of strategy use of below-average EFL learners in the Chinese vocational college?	Strategy Inventory for Language Learning (SILL)	semi-structured interview (after the Intervention programme)	1- systematic coding by SPSS 2- frequency counts of LLS use between experimental class and control class 3- descriptive and reasoning statistics (paired samples t-test and Cohen's d)	-Analyze relative category and codes by thematic analysis
RQ3. Is there any significant relationship between LLS instruction and English academic achievement of below-average EFL learners in the Chinese vocational college?	College English Test Band-4 (CET-4) College English Final Exam (CEFE)	semi-structured interview (after the Intervention programme)	1- systematic coding by SPSS 2- compare scores of tests between experimental and control class 2-descriptive and reasoning statistics (paired samples t-test and Cohen's d)	-Analyze relative category and codes by thematic analysis
RQ4:What is the efficient LLS instruction model for below-average EFL learners in the Chinese vocational college?	Strategy Inventory for Language Learning (SILL)	semi-structured interview (after the intervention programme)	1-compare results of SILL between experimental and control class	-Analyze relative codes and category through thematic analysis

3.9.1 Triangulation of Data

To enhance the reliability and validity of the data, the study employed data triangulation (Creswell, 2014). Triangulation involved using multiple research methods to gather data from various sources on the same research topic within mixed-methods research designs. By cross-checking data obtained through different research methods, researchers assessed the consistency and reliability of the findings (Gibson, 2016).

To investigate the research questions, this study employed both quantitative and qualitative methodologies. The CET-4 and CEFE scores from the pre-test and post-test phases were collected as part of the quantitative approach, while a semi-structured

interview was utilized for the qualitative aspect. The qualitative data from the OSIs were expected to elucidate and support the outcomes derived from the quantitative data gathered through the SILL, CET-4, and CEFE. To address the study questions, the data collected using these methods were analyzed and triangulated. Specifically, triangulation in this study involved using qualitative data from OSIs interviews and quantitative data from the experiments and SILL survey to explain variations in students' English academic achievement (EAA) before and after the intervention program. Triangulation, which involves integrating multiple data collection methods, is an effective strategy in mixed-methods research to enhance the quality and validity of the data (Creswell, 2014).

3.9.2 Quantitative Data Analysis

To achieve a comprehensive data analysis in research, it is recommended to integrate general steps with specific procedures tailored to the research context (Creswell, 2014). In alignment with this principle, the researcher combined both quantitative and qualitative data analysis procedures with the overarching framework proposed by Creswell (2012). This integrated approach ensured a thorough examination of the data, enhancing both the depth and breadth of the analysis. The resulting adapted procedures, which reflected this integration, are summarized in Table 3.10 below.

Table 3.10 Procedures for Quantitative Data Analysis

Data preparation for analysis	Once the SILL, CET-4, and CEFE instruments were administered and the numeric scores were collected, the researcher proceeded to prepare and organize the data for statistical analysis. This involved assigning numeric values to each response option on the instruments, deciding whether to use single-item or difference scores for the analysis, and selecting appropriate software for data analysis. Subsequently, the data was entered into a computer file by constructing a data grid that
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	comprised variables and their corresponding values.
Data Analysis	Once the data set was constructed, the researcher initiated the analysis phase to explore the research questions or hypotheses. For inferential research questions, which involve studying a sample and drawing inferences to a population, inferential analysis was employed. This involved two key procedures: semi-structured (a) performing hypothesis testing through statistical tests and determining the <i>t</i> -test, and (b) calculating effect sizes (Cohen's <i>d</i>) to assess the magnitude of differences and their practical significance in relation to the variables.
Presenting the findings	The researcher compiled the results of both descriptive and inferential analysis into tables, accompanied by a comprehensive discussion of the findings. This discussion entails providing a detailed account of the results obtained from each statistical test, employing language that aligns with the conventions embraced by quantitative researchers.
Interpreting the findings	In the final phase, the researcher summarized the detailed results in general statements, explained the findings based on prior literature or theories, and compared them with past research. Limitations to the research were identified and potential weaknesses were noted, which led to suggestions for future research to improve upon these weaknesses and contribute further to the literature on the topic

3.9.3 Qualitative Data Analysis

Every research strategy involves employing one or more methods for data collection and analysis, with thematic analysis being one of the most widely used qualitative techniques (Bhandari, 2020). Thematic analysis focuses on identifying and describing implicit and explicit themes within the data, rather than merely counting explicit words or phrases (Guest, MacQueen, & Namey, 2012). Griffiths and Oxford (2014), pioneers in the field of language learning strategies (LLS), advocate for the use of qualitative approaches, specifically thematic analysis, in LLS research. This study employed thematic analysis to code and organize interview data concerning students' perceptions of the LLS instruction model and its relationship with English academic achievement (EAA) and language use strategies (LUS). The introduction and description

of thematic analysis are detailed in Table 3.11.

Table 3.11 Phases of Thematic Analysis (adopted from Braun & Clarke, 2006)

Phase	Description of the process
1. Familiarising yourself with your data	Transcribing data, reading and rereading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set by collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic "map" of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Thematic analysis outlines specific research strategies and analytical procedures for qualitative research, fundamentally transforming the field and establishing itself as a cornerstone of qualitative methodology. Consequently, it is essential for this study to employ thematic analysis as its primary qualitative data analysis approach, aiming to contribute to empirical research in the EFL/ESL fields. By adhering to the principles of thematic analysis, this study ensured rigorous sample selection and timely data processing. Following the completion of interviews, data collection and analysis were conducted without delay. The procedures for qualitative data analysis employed in this study are outlined as follows.

First, during the data preparation and organization stage, all data, including interviews, were meticulously organized and transcribed. It was decided to conduct manual data analysis rather than relying on computer-based methods to ensure a thorough examination. Second, the researcher summarized the initial codes by performing a preliminary review of the data to gain a comprehensive understanding of its content. Open coding was employed to refine the essential categories and enhance thematic clarity. For the OSIs, the main analysis involved coding the data, which included distilling the text into descriptions and themes derived from participant reflections. This process required a detailed examination of each line in the text database to interpret the participants' meanings and assign appropriate code labels to the relevant text segments.

Third, data analysis and key theme coding involved exploring the relationships between primary categories and their related subcategories. The researcher developed descriptions, themes, and categories from the codes. These codes, serving as foundational elements, facilitated the construction of comprehensive descriptions of participants' reflections and played a crucial role in clarifying concepts and establishing connections. Themes, which represent a higher level of abstraction than individual codes, were organized and layered to align with the research questions. Additionally, the analysis focused on identifying core categories and subcategories to deepen the understanding of the data, thereby enriching the overall interpretative framework.

Fourth, from key theme to sub-theme coding: The researcher investigated ideas and concepts to refine their essence and aspects. Thematic analysis was used to simplify

and present the results clearly. Additionally, conversations were employed to report findings, with commentary provided on the changes participants experienced. These discussions offered a detailed explanation of the results and their significance, helping to contextualize and interpret the findings. Fifth, to enhance the validation and accuracy of the findings, two validation techniques were employed: triangulation and external peer review. Triangulation involved incorporating multiple data sources to ensure consistency and reliability of the results. Peer debriefers reviewed and validated the coding of interview transcripts and the conclusions drawn. This process included having external reviewers assess the accuracy of the reports. These methods significantly enhanced the accuracy and credibility of the findings, ensuring robust and reliable research outcomes.

3.9.4 Validity and Reliability of the Qualitative Data

As noted by Gibbs (2007), qualitative validity involved the researcher's efforts to ensure the accuracy of their findings through specific methods. Throughout the data collection and analysis process, it is essential for qualitative researchers to implement strategies that validate their findings and interpretations. Creswell (2014) identified eight primary procedures for achieving qualitative validity. In this study, the researcher employed three of these procedures to ensure validity: triangulation of various data sources, peer debriefing to enhance the validity of interview findings, and self-validation. Triangulation involves evaluating multiple data sources to develop reliable theoretical constructs (Leonard & McAdam, 2001).

The first procedure for achieving qualitative validity involved triangulating various sources of data (Creswell, 2014). In this study, the researcher utilized interview

transcripts and consulted multiple internet databases and websites, including ProQuest, JSTOR, Google Scholar, and Scopus, during this initial step of employing diverse data sources. Additionally, the study compared quantitative and qualitative data to enhance the robustness of the findings.

The second procedure for achieving qualitative validity involved conducting peer debriefing, where a peer debriefer reviewed and questioned the qualitative study to ensure the findings resonate with individuals other than the researcher. This external interpretation added validity to the study's results. In the current research, a peer debriefer was engaged to review and verify the coding of the interview transcripts and the inferences drawn by the researcher. The selected peer debriefers possessed extensive knowledge in English language studies, English teaching, qualitative analysis techniques, and thematic analysis. The peer debriefer was provided with a written copy of the interview transcripts and coding schemes and was familiar with the study objectives. Through communication with the researcher, the expert confirmed that the identified themes were justifiable based on the data and that the researcher's inferences were logical and well-supported.

The third step involved the researcher engaging in self-reflection on the interpretation of the qualitative data. Self-reflection is crucial as it fosters an open and honest account that readers can relate to, ensuring transparency and credibility in the research findings (Creswell, 2014). This process allowed the researcher to provide a candid evaluation of their own interpretations and biases.

3.10 Ethical Consideration

It is important to note that the research conducted at XTEC adhered to ethical guidelines and permissions. Clearance was obtained from the secretary of the English Common Course Department, as well as from the teachers involved in the NCEIC-3 course. Consent was also sought from both the experiment and control group learners. Participants were provided with a detailed introduction to the research, including the study's content, data collection methods, and their responsibilities. They were given participation consent forms, which included details on the SILL questionnaires and the LLS instruction experiment. Learners were then asked to indicate their willingness to participate by completing and submitting the consent forms, with a sample of the consent form provided in Appendix M.

In the first week, participants were assured that their responses and opinions would not affect their course grades, encouraging them to provide honest and candid feedback. They were informed that the study's purpose was to support their English learning and conduct research, rather than to evaluate their performance. For ethical reasons, both participants and the instructor were made aware that all collected data would be anonymous, confidential, and used solely for research purposes. Additionally, LLS instruction was integrated into the English course from the outset. Consequently, the intervention program was seamlessly incorporated into the lessons, ensuring that it did not impact the participants' progress in the course.

3.11 Summary

In the present study, a mixed-method research approach was employed to

investigate the impact of LLS proficiency on the English academic achievement of below-average EFL learners through an empirical analysis. To achieve this, a suitable research paradigm was essential. Initially, questionnaires were distributed to participants selected via random sampling. The instruments utilized included: (1) the strategy inventory for language learning (SILL); (2) the outline for the semi-structured interview (OSI); and (3) tests of English academic achievement, comprising the CET-4 and the college English final exam (CEFE) for pre-test and post-test evaluations. The reliability and validity of the items in the Oxford (1990) SILL were assessed by the researcher and several experts, focusing on content and language (Amerstorfer, 2018; Xiao, 2021).

In the second phase, the researchers conducted an experiment to examine the effect of LLS instruction on below-average EFL learners. Specifically, the study aimed to determine whether LLS instruction could enhance the English academic achievement (EAA) of vocational college students classified as below average and to develop a tailored implementation model for LLS training. The experimental study was designed around six key aspects: the selection of experimental participants, the type and duration of the experiment, the definition of experimental variables, the formulation of research hypotheses, the selection of research instruments, and the implementation plan for LLS training. This section outlines the preliminary design of the experimental study on LLS training. Additionally, for the questionnaire survey, the study employed a systematic random sampling method (probability sampling), involving 442 sophomore students from the case college. This sample size was determined based on the findings of Adem (2020), which indicated the minimum required sample size for the given population.

Moreover, this research utilized one-on-one online interviews conducted via the WeChat app for semi-structured interviews, and the data were analyzed using thematic analysis (refer to section 3.9.3 for details). Justifications for interview saturation suggested that the ideal number of interviews ranges from 12 (Guest et al., 2006) to 24 (Hennink et al., 2017). Leonard and McAdam (2001) demonstrated that emphasis was typically placed on the depth and quality of interviews rather than their quantity. Consequently, the study balanced these factors and selected 20 participants. Specifically, the interviews were conducted one week after the treatment during the first semester. Each interview was initially scheduled for 30 minutes, with the possibility of extension based on individual circumstances. The researcher then analyzed all interview data using thematic analysis. Lastly, ethical considerations were emphasized throughout the study.

CHAPTER 4

RESULTS

4.1 Introduction

This chapter presents the findings and analysis of the study in relation to the research questions. RQ1 aimed to explore the preferences and frequency of LLS use among BA learners. To address this question, a systematic random sampling method was employed, selecting a total of 442 non-English major sophomores to complete the SILL questionnaire. In contrast, RQ3 focused on investigating the effect of LLS instruction on LSU by using the SILL questionnaire, specifically applied to both the experimental and control classes. RQ1 was reported through a quantitative approach, collecting SILL data, whereas RQ2 utilized a coherent parallel mixed-method approach. This involved collecting quantitative (SILL) data before and after the quasi-experiment and then triangulating it with qualitative data (from semi-structured interviews and thematic analysis) contemporaneously.

In addition, RQ3 was explored through a semi-structured interview and a quasi-experimental approach to analyze the relationship between LLS instruction and EAA of BA learners. RQ4 investigated the effective LLS instruction models among EFL BA learners in the vocational college and provided insights into the overall results of the study. This chapter presents the findings of the study on the impact of LLS instruction on BA EFL learners in a Chinese vocational college. It aims to assess the effect of LLS on both EAA and LSU of BA EFL learners. The results of the study were detailed, analyzed, and discussed comprehensively in this chapter.

4.2 Findings and Analysis in Relation to RQ 1

RQ1: What are the preferences and frequency of LLS used by below-average EFL learners in the Chinese vocational college?

It is crucial to avoid the practice of selecting experimental and control classes hastily without a substantial research sample, conducting experimental research as a routine, and then drawing broad, unsubstantiated conclusions. Such practices exemplify both a lack of critical scientific rigor and irresponsible research behavior. This chapter aimed to enhance the applicability and scientific validity of the research findings by adopting a questionnaire survey approach to investigate LLS use among 442 BA EFL learners. To identify the preferences, frequencies, and influencing factors related to strategy use among learners who were less proficient in using strategies, the study also examined the students' attitudes. This approach aimed to improve the effectiveness and efficiency of LLS instruction, thereby supporting the targeted implementation of both the quasi-experiment and the semi-structured interviews.

The results of this study validated the Hypothesis 3 that LLS instruction positively impacts the English academic achievement (EAA) of below-average EFL learners. These findings aligned with previous research demonstrating that LLS instruction enhances EAA. Additionally, the results suggested that explicit LLS instruction was an effective method for improving the EAA of below-average EFL learners within the context of a vocational college in China.

The researcher analyzed the responses from 442 questionnaires once they were collected, noting that all answers to the 40 test items fell into one of the choices from 1

to 5, indicating that each response was categorized as “never or almost never true of me” or another option. Given the current learning scenario, learning context, and test software, it was nearly impossible for every item to be answered with a uniform choice from 1 to 5. Consequently, 12 questionnaires were deemed invalid. Data from the remaining 430 valid questionnaires were entered individually into a computer and analyzed using SPSS 22.0. The statistical analysis involved descriptive statistics, one-sample *t*-tests, effect size (Cohen’s *d*), scatter plots, linear trend graphs, and standard deviation (SD) values.

4.2.1 Results of the SILL Reliability Test

The Cronbach’s α reliability test was employed to assess the reliability of the quantitative instrument used in this study, the Strategy Inventory for Language Learning (SILL), based on ratings from both the pilot study and the main study participants. As noted by Pallant (2020), a Cronbach’s α coefficient of 0.70 is generally accepted as the minimum threshold for reliability. In this study, the Cronbach’s α values for the SILL were 0.82 during the piloting phase, 0.83 during the pre-test stage, and 0.84 during the post-test stage, all of which were considered to be high levels of reliability (Larson-Hall & Herrington, 2010). These results indicated that the SILL was clear, legible, reliable, and adequate for meeting the objectives of the current study. The data are summarized in the Table 4.1 below.

Table 4.1 The Results of the SILL Reliability Tests (Cronbach’s Alpha)

Phase	Domain	Cronbach’s α	Items
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1	SILL at pilot stage	0.82	40
2	SILL at pre-test	0.83	40
3	SILL at post-test	0.84	40

The results of the SILL reliability test indicated that all 40 items of the SILL, at both the pilot stage and the pre-test and post-test stages, exhibited high reliability, with Cronbach's α values exceeding 0.80.

4.2.2 Results and Analysis of the Quantitative Data

RQ1 aimed to investigate the preferences and frequencies of LLS used by below-average EFL learners in a Chinese vocational college. To offer a comprehensive understanding of the current strategy preferences and usage frequencies among EFL underachievers in the vocational college, this section first examined the overall strategy use of these learners, along with their usage levels of the 40 specific strategy items. The results are presented in Table 4.2. To benchmark the participants' scores on the SILL pre-test against their scores on the SILL post-test, the researcher employed two measures: a paired samples t-test and an effect size measure. The statistical analysis revealed a significant difference between the pre-test and post-test scores, as indicated by the paired samples t-test. Additionally, the effect size measure confirmed that this difference was meaningful.

4.2.2 (a) The Frequencies of LLS Use

A basic analysis of the findings in Table 4.2 and 4.3 are shown as following:

- (i) The LSU of below-average learners in the vocational college is average:

According to Oxford (1990), the interpretation of strategy use levels is as follows: a mean value of 4.5-5.0 indicates “always or almost always used”; 3.5-4.4 signifies “usually used”; 2.5-3.4 reflects “sometimes used”; 1.5-2.4 denotes “usually not used”; and 1.0-1.4 represents “never or almost never used”. Overall, the statistics in Table 4.2 revealed that the level of strategy use among BA learners at the college was not only average (2.63 points) but also leaned towards “usually does not use learning strategies”. Furthermore, the standard deviation of 0.40 suggested that the dispersion of the survey data was minimal, indicating that there was little variation among the participants. Thus, the score of 2.63 effectively represented the true level of strategy use among all participants.

Table 4.2 Levels of Strategy Use of 40 Items

Strategy No.	S1	S2	S3	S4	S6	S8	S9	S10	S12	S13	S15	S17
Means	2.28	2.36	2.50	2.59	2.41	2.39	2.47	3.19	2.40	2.64	2.93	2.31
SD	0.63	0.40	0.49	0.47	0.35	0.35	0.40	0.44	0.53	0.37	0.35	0.42
Sample size	430	430	430	430	430	430	430	430	430	430	430	430
Strategy No.	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S29	S30
Means	2.51	2.58	2.70	2.71	2.53	2.51	2.72	2.58	2.73	2.88	2.88	2.58
SD	0.65	0.54	0.46	0.46	0.62	0.32	0.60	0.33	0.28	0.42	0.52	0.36
Sample size	430	430	430	430	430	430	430	430	430	430	430	430
Strategy No.	S31	S33	S34	S36	S37	S38	S39	S41	S42	S43	S44	S45
Means	2.68	2.91	2.55	2.56	2.67	2.57	2.75	2.78	2.65	2.54	2.72	2.86
SD	0.44	0.40	0.27	0.34	0.30	0.46	0.36	0.37	0.33	0.26	0.41	0.37
Sample size	430	430	430	430	430	430	430	430	430	430	430	430
Strategy No.	S47	S48	S49	S50	S-A	S-B	S-C	S-D	S-E	S-F	Overall strategy	
Means	2.63	2.95	2.60	2.61	2.44	2.57	2.71	2.64	2.67	2.74	2.63	
SD	0.33	0.34	0.42	0.40	0.42	0.44	0.45	0.36	0.37	0.37	0.40	
Sample size	430	430	430	430	430	430	430	430	430	430	430	

Note: S1 is short for the first sub-item of strategy; SD=Standard Deviation; S-A=Memory strategy; S-B=Cognitive strategy; S-C=Compensation strategy; S-D=Metacognitive strategy; S-E=Affective strategy; S-F=Social strategy

(ii) Overall Strategy Use

The level of micro-strategy use among below-average EFL college students was notably low. An initial analysis of the use of 40 specific strategies by these students revealed that the frequency of LLS use was quite limited, with scores ranging from 0.40 to 0.92. This indicated a significant variability in the extent to which these strategies were employed.

4.2.2 (b) The Preferences of LLS Use

The results presented in Table 4.2 demonstrate a broad range of strategy usage among below-average learners in the vocational college. Specifically, among the 40 strategy items assessed, no items received scores between 4.5 and 5.0, one item fell between 3.5 and 4.4, 29 items were rated between 2.5 and 3.4, 10 items were rated between 1.5 and 2.4, and no items scored between 1.0 and 1.4. Consequently, there was no strategies that were predominantly used by the BA learners, with the exception of strategy S10, which showed relatively higher usage among the learners. However, no strategies were classified as “never used” (with average scores between 1.0 and 1.4). This indicated that while the overall level of strategy use among below-average learners was low, and the frequency of use was minimal, the range of strategies employed was relatively broad, encompassing all 40 strategies.

The results of the LLS use questionnaire were summarized in Table 4.2. The data revealed that below-average EFL college learners exhibited similar preferences for LLS usage. Specifically, the table indicated that the preferences for LLS are as follows, ranked from highest to lowest: social strategies ($M = 2.74$), compensatory strategies (M

= 2.71), affective strategies (M = 2.67), meta-cognitive strategies (M = 2.64), cognitive strategies (M = 2.57), and memory strategies (M = 2.44). This ranking illustrated that below-average learners preferred social and compensatory strategies more than others, while memory strategies was the least utilized.

The above findings indicated that underachieving learners paid less attention to certain methods and strategies, such as rote memorization, which was time-consuming and ineffective. These learners often disregarded key aspects of language learning, including listening and speaking practice, leading to inefficient English learning and a lack of engagement with language strategy instruction. This approach resulted in students acquiring only isolated pieces of knowledge when taught by the instructor, rather than developing a comprehensive understanding independently (Chakrabarty & Saha, 2014). Historically, many teachers had favored methods such as cramming and grammar translation, neglecting the importance of language learning strategy training and instruction.

4.2.2 (c) The Attitudes Toward LLS Instruction

To investigate the attitudes and willingness of below-average EFL learners in the vocational college toward LLS instruction, the selection of instructors, and the students' preferences for LLS training methods and other factors, the researcher included four distinct questions in the SILL questionnaire. These questions were designed to provide a comprehensive understanding of the learners' perspectives and to establish a solid foundation for the quasi-experiment. The results of questions S51 to S54 are presented in Figures 4.1 to 4.4, derived from the adapted SILL questionnaire.

S51. I believe that mastering LLS is crucial for our English learning.

S52. I want the instructor to mix different methods to teach LLS.

S53. I would like to attend if there is the free instruction on LLS.

S54. I will take LLS instruction if my current English teacher is the instructor.

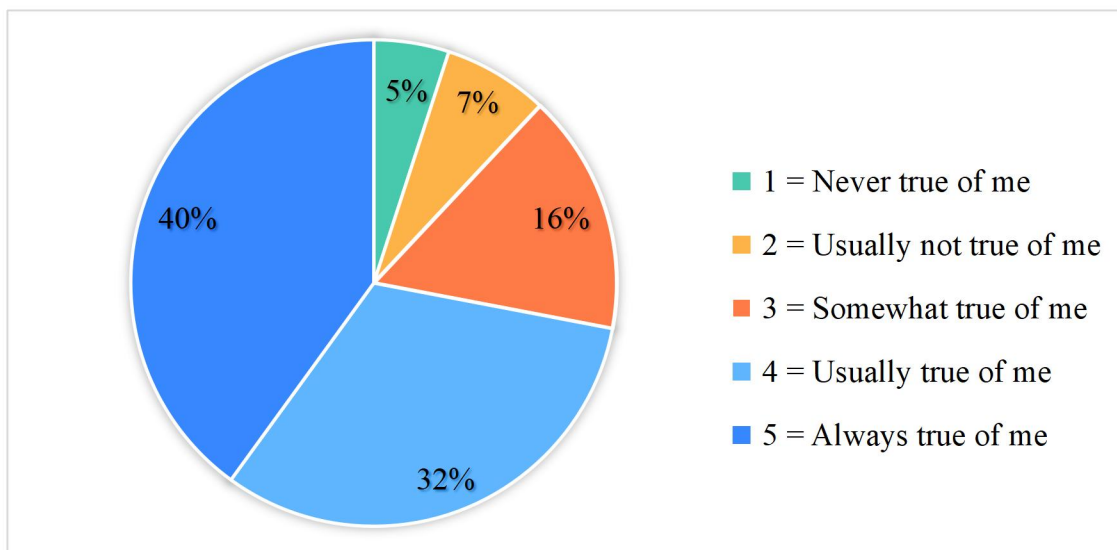


Figure 4.1 Results of “S51: I believe that mastering LLS is crucial for our English learning.”

According to the survey results displayed in Figure 4.1, 72% (40% + 32%) of the BA students believed that it was crucial for teachers to impart knowledge of LLS to students. This finding indicated that these students fully recognized the value of LLS for enhancing their English learning and were eager to receive quality LLS instruction from their teachers. Only 12% (5% + 7%) of the BA students did not consider LLS instruction important for learning English. Consequently, this research found that implementing LLS instruction was both feasible and necessary for improving the efficiency of learners who struggled with their English studies.

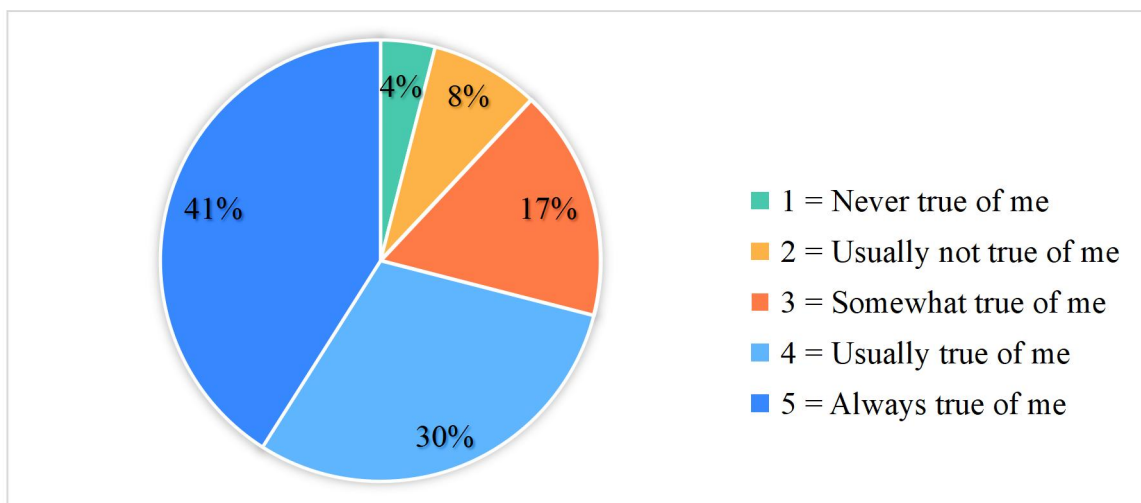


Figure 4.2 Results of “S52. I want the instructor to mix different methods to teach LLS.”

According to the survey results shown in Figure 4.2, 71% (41% + 30%) of the BA students preferred that teacher used a variety of teaching techniques to instruct LLS, while only 12% (4% + 8%) of students disagreed with this perspective. Therefore, to effectively teach LLS in the experimental class, the study incorporated five different teaching techniques: content-based LLS training in the classroom, thematic LLS training lectures, cooperative LLS learning, online training, and self-regulated LLS learning.

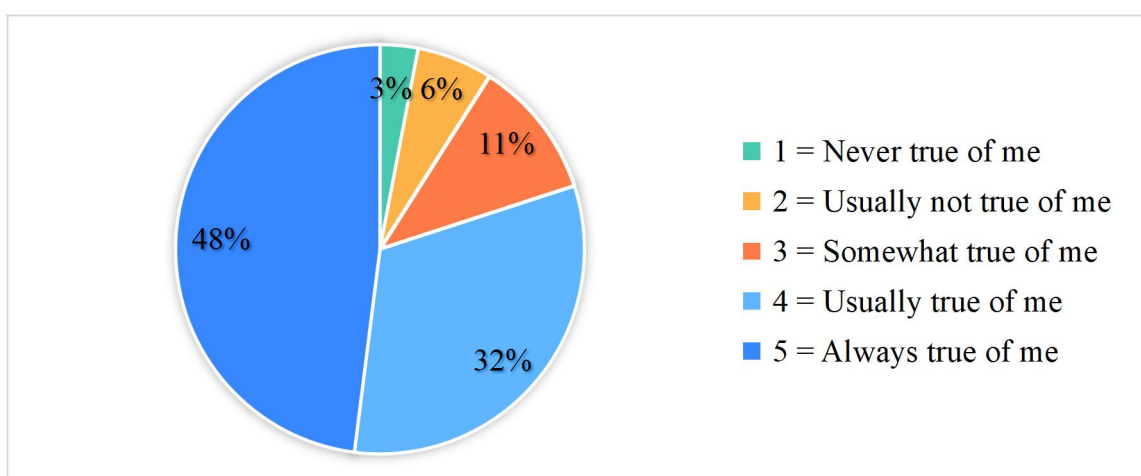


Figure 4.3 Results of “S53.If there is free instruction on LLS, I would like to attend.”

According to the survey results displayed in Figure 4.3, 80% (48% + 32%) of participants expressed a strong willingness to attend free LLS instruction, indicating a very positive attitude toward LLS. In contrast, 11% of participants demonstrated an indifferent attitude, while 9% (3% + 6%) exhibited a negative attitude. These data suggested that most participants were enthusiastic about LLS training and held a positive outlook. However, a small proportion showed an ambiguous attitude, reflecting a desire to improve their English without a corresponding willingness to make active efforts.

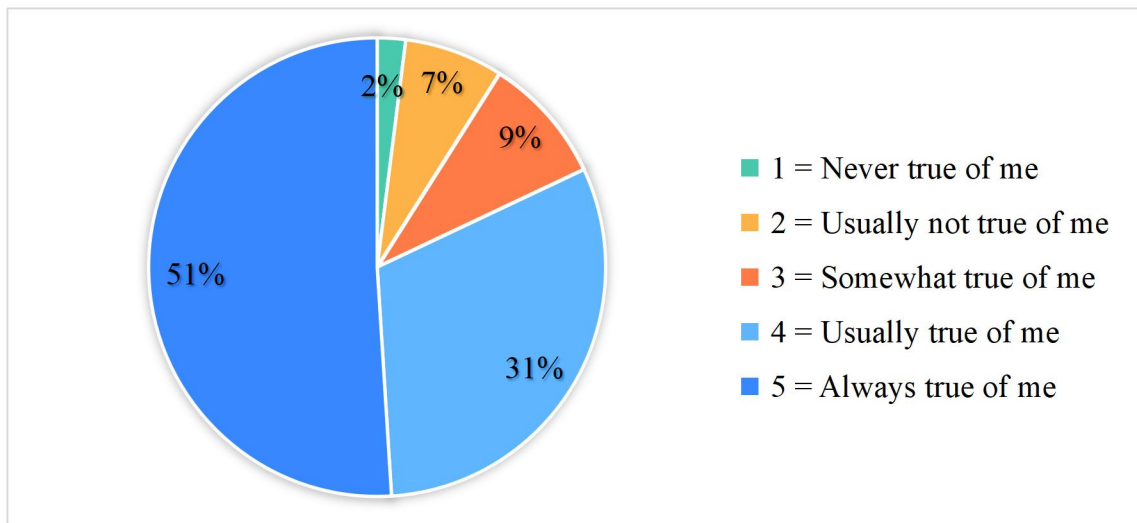


Figure 4.4 Results of “S54. I will take LLS instruction course if my current English teacher is the instructor.”

As shown in Figure 4.4, although 9% (2% + 7%) of students explicitly stated that they did not welcome the course teacher conducting LLS training, and another 9% were indifferent, 82% (51% + 31%) of the participants expressed clear support for it. In other words, the vast majority of students were eager and strongly desired their English teachers to instruct LLS. This favorable response indicated that the intervention program implemented by the current teacher was both feasible and well-received by the students.

4.2.3 Summary of Findings Related to RQ1

RQ1 was designed to investigate the preferences and frequencies of strategy use among below-average learners in a vocational college. The quantitative data revealed that the frequency of strategy use was not only average (2.63 points) but also leaned towards “usually not used”. Additionally, the standard deviation of 0.40 indicated that the dispersion of the survey data was relatively low, suggesting minimal variation among participants. The score of 2.63 thus reflected the true level of strategy use among all participants. In terms of preferences, BA learners favored using social strategies ($M = 2.74$), compensatory strategies ($M = 2.71$), affective strategies ($M = 2.67$), meta-cognitive strategies ($M = 2.64$), cognitive strategies ($M = 2.57$), and memory strategies ($M = 2.44$), listed from highest to lowest. BA learners showed a stronger inclination towards compensatory and social techniques, while memory techniques were the least utilized. Finally, according to the statistical data, most participants expressed a willingness to engage in an LLS instruction program, indicating a desire to learn and apply some learning strategies.

4.3 Findings and Analysis in Relation to RQ 2

RQ2. Is there any significant relationship between LLS instruction and the level of strategy use of below-average EFL learners in the Chinese vocational college?

To ensure the validity of the results, RQ2 was addressed using a mixed-methods approach. This involved a quantitative approach with the SILL questionnaire and a quasi-experiment, complemented by a qualitative approach using OSI questions to triangulate the data.

4.3.2 Results and Analysis of Quantitative Data

Specifically, the hypothesis posited that there was a statistically significant difference between the pre-test and post-test mean gain scores on the SILL instrument. This hypothesis was formulated by the researcher to address the research question concerning the impact of LLS instruction on EFL students' LSU. The level of strategy use was examined as the primary dependent variable in this study. To elucidate how LLS instruction influences EFL students' LSU, RQ2 was designed. The mean scores from the pre-test and post-test on the SILL were compared to assess whether the LLS training had a significant effect on the LSU of BA EFL students.

This section explores how LLS instruction helped below-average students become more adept at using learning strategies. The impacts of LLS training in this study were assessed from five perspectives: thematic lectures, strategy training integrated with in-class content, group learning, independent study, and online learning strategies. Additionally, the study demonstrated that the use of LLS was the most effective factor explaining variations in English scores among below-average learners, and that the degree of strategy use among less efficient students had some predictive value.

4.3.2 (a) A Macro Comparison of the Level of Strategy Use

A comparison of students' levels of strategy use in experimental classes was conducted before and after the intervention. This comparison included memory, cognitive, compensatory, metacognitive, affective, social strategies, and overall strategy use. The analysis revealed significant differences in all seven areas of strategy use

between the pre- and post-intervention phases. The research findings, which were detailed in Table 4.3, assessed the effect of the strategy training on the degree of strategy use among students in the experimental class.

A key finding in quantitative studies is the effect size; while the p -value indicates whether an effect exists, it does not provide information on the magnitude of the effect (Sullivan & Feinn, 2012). To address this, various statistical techniques offer a more precise estimate of treatment effects than relying solely on p -values. One such technique is Cohen's d , also known as the standard mean difference, which quantifies the size of differences between two interventions (McGough & Faraone, 2009). Cohen (1988) categorized effect sizes as “small effect” ($d = 0.2$ – 0.5), “medium effect” ($d = 0.5$ – 0.8), and “large effect” ($d > 0.8$), with d values typically ranging from -1.96 to 1.96 . Consequently, this study employed Cohen's d to describe the statistical significance between the two groups.

(ii) Comparison of the LSU Pretest and Posttest Results of Experiment Group

Table 4.3 Comparison of LSU Pretest and Posttest of the Experiment Group

Strategy	Pre-test		Post-test		Variation	Significance	
	Means	SD	Means	SD		T-value	ES Cohen's d
Memory	2.44	0.4291	3.04	0.41	0.60	-5.4757	-1.4203
Cognitive	2.57	0.4467	3.13	0.51	0.55	-6.0011	-1.1505
compensate	2.71	0.4521	3.29	0.46	0.68	-4.1125	-1.7508
Meta-cognitive	2.65	0.3697	3.28	0.43	0.64	-6.7473	-1.8687

Affective	2.68	0.3764	3.19	0.35	0.51	-7.093	-1.4311
Social	2.75	0.3739	3.28	0.40	0.53	-6.6314	-1.3713
Overall	2.63	0.4080	3.21	0.43	0.57	-7.3474	-1.3811

Note: SD=standard deviation; ES= effect size

As shown in Table 4.3, after one semester of the LLS intervention, learners in the experimental class exhibited a statistically significant increase in the use of memory, cognitive, compensatory, metacognitive, affective, and social strategies, as well as in the overall use of strategies. The differences between the two groups were statistically significant at the 0.01 level, with metacognitive strategies showing the greatest improvement, followed by social and compensatory strategies. Additionally, all test items demonstrated progress, with the improvement rate for each of the six strategies exceeding 0.50. This indicated a substantial enhancement in the degree of strategy use among learners in the experimental class following the LLS instruction. Furthermore, the effect sizes for all strategies, as indicated by Cohen's *d* values, were greater than 0.8, ranging from 1.15 to 1.88, signifying large differences between the experimental group's pre- and post-intervention scores.

Before the experiment, students in the experimental class employed all dimensions and total strategies within the range of "general use," as defined by Oxford's (1990) explanation of strategy use levels, with average use scores between 3.5 and 4.4. Following the experiment, the use level of compensatory strategies among these students reached the "normal use" level. Consequently, which indicated that the level of strategy use among students in the experimental class had significantly improved as a result of the LLS instruction.

Additionally, it was evident that participants' preferences for the use of strategies changed significantly after the intervention program. Before the experiment, the preferences of below-average learners for LLS were as follows: social strategies ($M = 2.75$), compensatory strategies ($M = 2.71$), affective strategies ($M = 2.68$), meta-cognitive strategies ($M = 2.65$), cognitive strategies ($M = 2.57$), and memory strategies ($M = 2.44$), in descending order. After the intervention, the preferences shifted to: compensatory strategies ($M = 3.51$), social strategies ($M = 3.48$), meta-cognitive strategies ($M = 3.39$), affective strategies ($M = 3.26$), cognitive strategies ($M = 3.13$), and memory strategies ($M = 3.04$), from highest to lowest. This change indicated that below-average EFL learners improved in their use of compensatory and social strategies, while memory strategies continued to be the least utilized.

(ii) Comparison of LSU Pre-test and Post-test Results of Control Group

Table 4.4 Comparison of LSU Pre-test and Post-test of the Control Group

Strategy	Pre-test		Post-test		Variation	Significance	
	Means	SD	Means	SD		T-value	ES Cohen's d
Memory	2.48	0.0273	2.51	0.0288	0.03	-0.3126	-0.3887
Cognitive	2.56	0.0605	2.59	0.0605	0.03	0.0836	0.1239
compensate	2.70	0.0320	2.74	0.0345	0.04	-0.1434	-0.4988
Meta-cognitive	2.61	0.0151	2.65	0.0153	0.04	-0.0689	-0.2632
Affective	2.66	0.0076	2.68	0.0076	0.02	0.0576	0.3816
Social	2.73	0.0186	2.75	0.0185	0.02	-0.1321	-0.5606
Overall	2.62	0.0092	2.65	0.0088	0.03	-0.1352	-0.3888

Note: SD=standard deviation; ES= effect size

The statistical findings presented in Table 4.4, based on the original SILL pretest and post-test data for the control group shown in Appendix N, revealed the following: 1) There was no significant difference in the levels of use of the six-dimensional strategies and the overall strategy between the control class before and after the experiment. All students in the control class failed within the “general use” category, with scores ranging from 2.5 to 3.4. 2) The variations in the use of memory, cognitive, compensatory, meta-cognitive, affective, and social strategies, as well as the overall strategy, were 0.03, 0.03, 0.04, 0.04, 0.02, 0.02, and 0.03, respectively. These differences indicated that changes before and after the experiment did not exceed 0.1, showing minimal change. Although there was an increase in the use of memory, meta-cognitive, compensatory, and social strategies, the magnitude of improvement was small, and these changes were not statistically significant (t -values of -0.3126, -0.1434, -0.0689, and -0.1321, respectively; the coefficient is considered significant if the t -value is greater than 1.96 or less than -1.96). Additionally, the effect sizes (ES) of the five strategies had Cohen’s d values of less than 0.5, ranging from 0.38 to 0.49, which fell into the small effect size range (0.2-0.5), indicating that there were minimal differences in the control group before and after the intervention.

(iii) Comparison of LSU Post-test of the Experimental and the Control Class

The study conducted a comparison of the levels of strategy use between the experimental and control groups following the LLS instruction and performed a significance test to determine whether the LSU of the experimental group was

significantly higher than that of the control group, as anticipated. The results of this comparison are presented in Table 4.5, which is based on the original SILL post-test data for both groups, as shown in Appendix O.

Table 4.5 Comparison of LSU Post-test of Control and Experiment Groups

Strategy	Experiment group		Control group		Variation	Significance	
	Means	SD	Means	SD		T-value	ES Cohen's d
Memory	3.04	0.4092	2.50	0.0288	0.53	4.7497	1.8372
Cognitive	3.13	0.5127	2.57	0.0605	0.55	6.3145	1.5149
compensate	3.29	0.4581	2.73	0.0345	0.56	4.1125	1.7177
Meta-cognitive	3.28	0.4285	2.64	0.0153	0.64	7.8404	2.1092
Affective	3.20	0.3491	2.68	0.0076	0.52	7.6148	2.1040
Social	3.28	0.3981	2.75	0.0185	0.53	8.7218	1.8878
Overall	3.21	0.4259	2.62	0.0088	0.59	9.7435	1.9454

Note: SD=standard deviation; ES= effect size

According to the statistics presented in Table 4.5, after the experiment, students in the experimental class demonstrated significantly higher levels of strategy use across all six dimensions—including memory strategies—compared to students in the control class. All differences were statistically significant at the 0.01 level. Notably, social strategies exhibited the greatest difference with a variation of 1.01 points, followed by cognitive and metacognitive strategies, which showed differences exceeding 0.80 points. Affective and memory strategies also showed differences greater than 0.50 points, with the smallest disparities. Furthermore, the average mean of strategy use among the

experimental group was higher by more than 0.5 points compared to the control group. The magnitude of these variations was substantial, and the differences were statistically significant, with t -values for the six strategies being 4.7497, 6.3145, 4.1125, 7.8404, 7.6148, and 8.7218, respectively. The coefficient was deemed significant when the t -value exceeded 1.96 or was less than -1.96. Additionally, the effect sizes for all strategies, as indicated by Cohen's d values greater than 0.8 and ranging from 1.17 to 2.10, underscored that there were large differences between the experimental and control groups following the intervention.

4.3.3 Analysis of Qualitative Data Through Thematic Analysis

To ensure the reliability and validity of the results for RQ2 and to understand learners' perceptions of LUS, the study also utilized qualitative data obtained through semi-structured interviews. The interview transcripts, totaling approximately 50,000 words, were organized for analysis. Rooted coding was employed to analyze the 20 interview records. Thematic analysis was used to compare code frequencies, identify theme co-occurrences, and graphically illustrate the relationships between key themes and sub-themes (Guest, MacQueen, & Namey, 2012).

4.3.3 a) Analysis of Key Themes of OSIs on RQ2

Thematic analysis was employed for data analysis. Five key dimensions related to the impact of LLS instruction on LSU emerged from the data (see the following Table 4.6). These dimensions are: the application of LLS instruction, the percentage of LLS instruction affecting LSU, attitudes toward the impact of LLS instruction on LSU, mastery of LLS, and the overall effect of LLS instruction on LSU. The themes within

these key dimensions were detailed below (Poulos & Mahony, 2008), with initial and significant codes highlighted against gray backgrounds.

Table 4.6 Key Dimensions: Perceptions of LLS Instruction on LSU

Key Themes	Original Summarized answers
Application of LLS instruction	<p>A01, A07, A15: The LLS emphasizes the importance of improving pronunciation, listening skills, and writing skills in order to enhance English listening abilities, as well as applying advanced words to the same words and improving memory and grasp in writing.</p> <p>A02, A10, A14, A16, A19: Before learning LLS, read the original text and searched for answers. After learning strategies, sort words like verbs, nouns, adjectives, and infinitives, then put them back into the original text. This helps me find the correct answer, using some strategies to help memorize English words.</p> <p>A03: LLS can be used in weak classes to improve English skills, reading abilities. Using root word affix methods can help analyze rare words and their meanings. By checking internet resources, students can identify related words and sentences, enhancing their understanding.</p> <p>A04, A06, A09, A12, A20: Use LLS to better understand and comprehend questions. For example, in reading, read the question first, find key words, and then find the corresponding answer. First, look for the keyword in the question and then look at the original text to locate the correct answer.</p> <p>A05: I used LLS, tracking progress in English, setting clear goals, and reading English articles and news simultaneously to enhance their skills.</p> <p>A08, A11, A17: Pre-reading, pre-judging, replying, and just a few of the LLS that can help us improve accurate listening in English.</p> <p>A13, A18: I utilized LLS, such as watching English movies, listening to dialogues, understanding the culture of English-speaking countries, and asking for pronunciation advice.</p>

Percent of LLS instruction on impacting LSU	<p>19 interviewees (95%) believed that LLS instruction definitely affected the level of strategy use.</p> <p>A01, A07, A20: Definitely affected, after learning LLS, at least 70%.</p> <p>A03, A15: There was an effect, the effect of LLS instruction on the level of strategy use is at least 60%..</p> <p>A04, A06, A09, A10, A14, A17: It had a great impact on me, at least 85%.</p> <p>A02, A05, A12, A13, A16: There was an impact, the effect is at least 80% for me.</p> <p>A08, A18, A19: It had a great impact on me, about 65%.</p> <p>A11: Teaching LLS had little effect on my level of strategy use, by 20% Because I've learnt these strategies before college and I'm already familiar with them, now there's a negative impact for me that I would lose interest on it.</p>
Attitudes of LLS instruction on LSU	<p>A01, A03: The instructor introduced LLS, which I initially doubted, but after personal practice, I found it effective and helpful. I can use LLS fluently now after learning it.</p> <p>A02, A07, A13, A17, A18, A20: The learning of LLS can significantly improve level of strategy use and accuracy rate, fallowing for a faster completion time and higher correct rate.</p> <p>A04, 06, A10, A15, A16, A19: There are still some positive effects on my strategy use. LLS instruction promoted the level of strategy use. Practice makes perfect.</p> <p>A05, A08, A09, A12, A14: Learning LLS positively impacts strategy use by identifying sentence patterns, decoding meanings, and replacing words with similar meanings. These strategies enhance clarity in English work and study.</p> <p>A11: There is no effect for me because I have learned strategies for many times in my senior middle school, I lost interest of it.</p>
Mastery of LLS	<p>A01, A07, A15, A17: Mastered LLS now. Utilizing LLS strategies can enhance my English learning abilities in the listening, reading, and writing sections of the CET-4 test.</p> <p>A02, A08: I can apply them and can use them correctly.</p> <p>A03, A05, A06, A09, A10, A13, A14, A16, A18, A19: Have mastered most aspects of the LLS, but struggles with English language differences, such as recitation, listening, sentence comprehension, and grammar, as I struggle to keep up.</p> <p>A04, A12, A20: Have made significant enhancements in LLS skills by understanding the basic general questions and using appropriate strategies. This has made answering questions easier and more accurate, although it may not be as significant as before.</p> <p>A11: I knew it all, but can't use it because I have learned it in my middle school.</p>
	<p>A01: The effect is positive, but short-term practice may not necessarily improve performance. For students struggling with memorization, the</p>

Effect of LLS instruction on improving LSU	<p>LLS may not be beneficial, especially if they lack the necessary skills.</p> <p>A02, A05: The instructor taught word strategies for improving vocabulary and memory efficiency, particularly in the word effect, which is more significant than traditional dead memory methods. It also can improve my English learning skills.</p> <p>A03, A10, A13, A16, A19: The effect is good for me English, which can improve my English skills because after all, this strategies I haven't learned done before.</p> <p>A04, A06, A07, A08, A15: The teacher's LLS instruction are designed to enhance effect in answering questions by providing a clear goal and strategy. This approach encourages relentless effort and self-discipline, enable individuals to answer questions correctly and achieve their goals.</p> <p>A09: It is effective in improving English skills. But strategies like finding native English speakers and reading English independently are not beneficial for struggling students, as they may be difficult to engage with.</p> <p>A11: The effect is not that effective for me.</p> <p>A12, A14, A17, A18, A20: LLS improves efficiency in English questions, making the timeline less long. It allows for more efficient use of time, and reduces error rates. As long as learners can use LLS wisely, it can improve our interest in English, because interest is always the best teacher, with interest, motivated to learn and it made performance improve.</p>
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4.3.2 (b) A Micro Comparison of LSU of the Experiment Class

To thoroughly verify and clarify the results of LSU variation in the experimental group, it is essential to integrate both macro-scale and micro-scale LSU data. To further investigate the effect of LLS instruction on the LSU of students in the experimental class and assess whether there was a significant difference between the pre-test and post-test for each specific strategy, the researcher compared the LSU of students before and after the treatment. This comparison began with the 40 specific strategy items and tested the significance of the differences. The findings of this study are presented in Table 4.7.

Table 4.7 A Micro Comparison of LSU Pre-test and Post-test of Experiment Class

Strategy	Pre-test		Post-test		Variation	Significance	
	Means	SD	Means	SD		T-value	ES Cohen's d

S1	2.28	0.4092	2.97	0.1288	0.69	-3.6497	-2.4335
S2	2.36	0.3127	2.93	0.2605	0.57	-3.0145	-1.9806
S3	2.50	0.4581	3.19	0.2345	0.69	-3.5125	-1.8961
S4	2.59	0.4285	3.26	0.3153	0.67	-3.4404	-1.7811
S6	2.41	0.3981	2.91	0.3185	0.50	-2.7218	-1.3869
S8	2.39	0.4193	2.89	0.1288	0.50	-2.8872	-1.6121
S9	2.47	0.3127	3.04	0.2605	0.57	-2.9286	1.9806
S10	3.19	0.4553	3.51	0.2345	0.32	-1.6614	-0.8836
S12	2.40	0.3321	2.95	0.2076	0.55	-2.8582	-1.9860
S13	2.63	0.3191	3.15	0.2185	0.52	-3.0194	-1.9015
S15	2.93	0.4076	3.45	0.1299	0.52	-2.4716	-1.7190
S17	2.30	0.4585	2.89	0.2345	0.59	-3.4981	-1.6202
S18	2.51	0.3265	3.13	0.3153	0.62	-3.6318	-1.9318
S19	2.58	0.3474	3.25	0.2076	0.67	-3.5871	-2.3413
S20	2.70	0.3971	3.25	0.2185	0.55	-3.1862	-1.7161
S21	2.70	0.3203	3.30	0.3099	0.60	-3.4982	-1.9039
S22	2.53	0.4089	3.41	0.2289	0.88	-3.8013	-2.6256
S23	2.51	0.3127	2.96	0.2675	0.45	-2.7832	-1.5465
S24	2.72	0.4581	3.27	0.2345	0.55	-3.0128	-1.5114
S25	2.58	0.4285	3.05	0.3158	0.47	-2.8410	-1.2486
S26	2.73	0.3458	3.13	0.2076	0.40	-1.9032	-1.4025
S27	2.88	0.3181	3.48	0.2180	0.60	-3.1758	-2.2004
S29	2.88	0.4092	3.61	0.1229	0.73	-3.5291	-2.4163
S30	2.58	0.3127	3.19	0.2605	0.61	-3.0835	-2.1196
S31	2.69	0.3583	3.38	0.2345	0.69	-3.3287	-2.2788
S33	2.91	0.2491	3.48	0.2076	0.57	-3.1734	-2.4859
S34	2.55	0.3681	3.19	0.1198	0.64	-3.6621	-2.3381
S36	2.56	0.4092	3.24	0.1288	0.68	-3.6891	-2.2417
S37	2.67	0.3127	3.29	0.2605	0.62	-3.594	-2.1544
S38	2.57	0.4581	3.38	0.2345	0.81	-3.9752	-2.2259
S39	2.75	0.4285	3.26	0.3153	0.51	-2.7648	-1.3557
S41	2.78	0.3211	3.24	0.1385	0.46	-2.4872	-1.8603
S42	2.65	0.4259	3.21	0.3518	0.56	-3.1765	-1.4337
S43	2.54	0.4092	2.91	0.1288	0.37	-2.2583	-1.2197
S44	2.72	0.3158	3.30	0.2605	0.58	-2.7931	-2.0036
S45	2.86	0.4611	3.39	0.2345	0.53	-3.0984	-1.4489
S47	2.63	0.3491	3.29	0.2076	0.66	-3.6872	-2.2980
S48	2.95	0.3981	3.22	0.1185	0.27	-1.6721	-0.9192
S49	2.60	0.4259	3.21	0.3103	0.61	-2.6371	-1.6371
S50	2.61	0.2874	3.21	0.1755	0.60	-2.6384	-2.5198

Note: SD=standard deviation; ES= effect size

According to the statistics presented in Table 4.7: variation in strategy use:

Before and after the experiment, students in the experimental class demonstrated no significant differences in the use of six specific strategy items, including S10 and S48. In contrast, the other 37 LSU changes exhibited significant differences. Focus of instruction: The three specific strategies without significant changes were not the primary focus of the LLS instruction. Conversely, the 37 strategies that were included in the LLS instruction scope showed significant differences before and after the experiment. Effect size: The effect size for all strategies had Cohen's d valued greater than 0.8, ranging from 0.9192 to 2.5198. This indicated that the experimental group displayed substantial differences in LSU before and after the treatment. Improvement in strategy use: after the experiment, the use level of 40 test strategy items showed improvement compared to before the experiment, with 32 items reflecting increases greater than 0.50.

In summary, the analysis of the impact of LLS instruction on enhancing the LSU of below-average learners demonstrated substantial improvements from both macro and micro perspectives. The observed difference of 0.5760 points in LSU before and after the experiment for students in the experimental class, alongside a 0.5860-point difference in LSU between the experimental and control classes after the intervention, confirmed the significant effect of LLS instruction in improving LSU for BA learners. This improvement was particularly evident in the use of cognitive, compensatory, metacognitive, and social strategies, which shifted from average levels before the experiment to higher levels after the intervention. These findings substantiated the second hypothesis of the study, which posited that LLS instruction effectively enhances the LSU of BA learners.

4.3.3 b) Analysis of Sub-Themes of OSIs on RQ2

The sub-themes within key dimensions were displayed below (Poulos & Mahony, 2008). Sub-theme coding of the study involved identifying and linking conceptual categories by thoroughly examining each category, exploring correlations, and analyzing codes within each group. The relationships between key themes and sub-themes were established through continuous comparative analysis. Table 4.8 presents the primary coding process and illustrates how the principal codes were developed.

Table 4.8 Coding Process and Results of Sub-themes of OSIs

Sub-theme	Original Summarized Answers of Sub-themes
reading & vocabulary	55% of the interviewees believed that after learning LLS, they can sort words and find key words in reading questions, using some strategies to help memorize English words in reading texts.
Speaking	10% of interviewees stated that they utilized LLS, such as watching English movies, understanding English culture, asking for advice to improve speaking ability.
Listening	15% of interviewees stressed that pre-reading, pre-judging, replying LLS can help to improve accurate listening in English.
Writing	15% of interviewees believed that in order to enhance English writing abilities, they apply advanced words to the same words and improve memory and grasp in writing.
Motivation	5% of interviewees stated that I used LLS, tracking progress in English, setting clear goals, and reading English articles and news simultaneously to enhance their skills.
Positive effect	<p>95% of interviewees believed that LLS instruction definitely affected the level of strategy use, as the effect is great. Specifically:</p> <p>10% of them stated the effect of LLS instruction on the level of strategy use is at least 60%.</p> <p>15% of them claimed that the effect of LLS instruction on the level of strategy use is at least 65%..</p> <p>15% of them claimed that the effect of LLS instruction on the level of strategy use is at least 70%.</p> <p>25% of them claimed that the effect of LLS instruction on the level of strategy use is at least 80%.</p> <p>30% of them claimed that the effect of LLS instruction on the level of strategy use is at least 85%.</p>

Negative effect	5% of interviewees state LLS had little effect on the level of strategy use who only mastered 20% because he has learned these strategies before college and already familiar with them, now there's a negative impact for him that he would lose interest on it.
Positive effects	40% of interviewees believe that there are still some positive effects on the strategy use level. LLS instruction promoted the level of strategy use. Practice makes perfect. 30% of interviewees believe that the learning of LLS can significantly improve level of strategy use and accuracy rate, and faster completion time and higher correct rate. 25% of interviewees stated that learning LLS positively impacts strategy use by identifying sentence patterns, decoding meanings, and replacing words with similar meanings.
Negative effects	25% of interviewees considered that there is no effect because he has learned strategies for many times in my senior middle school, so he lost interest of them.
Completely mastered	30% of interviewees stated they mastered LLS completely and can use them correctly. 50% of interviewees believed they have mastered most aspects of the LLS, but struggles with English language differences, such as recitation, listening, sentence comprehension, and grammar.
Partly mastered	15% of interviewees have made significant enhancements in LLS skills by understanding the basic general questions and using appropriate strategies. This has made answering questions easier and more accurate, although it may not be as significant as before.
Seldom mastered	5% of interviewees believe I knew it all, but can't use it because I have learned it in my middle school.
Positive effects	35% of interviewees stated The effect is great for English, which can improve learners' English skills because these strategies they haven't learned before. 25% of interviewees believed that LLS instruction improves English test performance by providing clear goals, strategies, and relentless effort, enabling correct answers and goal achievement. 25% of interviewees believed that LLS improves English question efficiency, reduces error rates, and increases interest in the subject, leading to improved performance if used wisely. 10% of interviewees found positive effects of LLS, but short-term practice may not improve performance, especially for struggling students and those lacking necessary skills.
Negative effects	5% of interviewees found that the impact and effect are not huge.

According to Table 4.8, the statistical description of participants' attitudes towards the five LLS instruction methods is detailed in Figure 4.5.

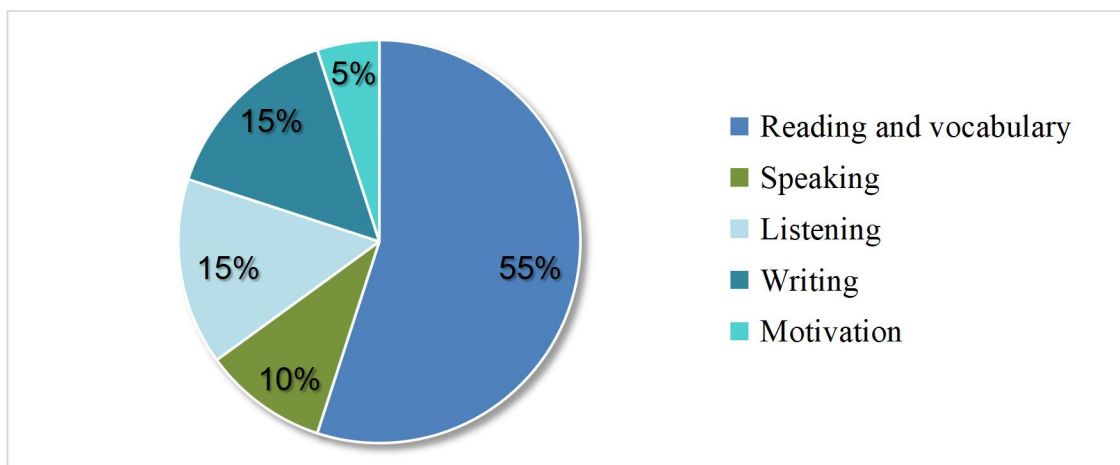


Figure 4.5 Specific LLS and its Use in Different Aspects

Based on Table 4.8 and Figure 4.5, 55% of interviewees indicated that they employed multiple LLSs for reading and vocabulary memorization; 15% used them for listening and writing, respectively; 10% applied them to English speaking; and 5% utilized them for motivational purposes. This suggested that learners who received LLS instruction could effectively use these strategies to enhance their English learning skills. The examples in Table 4.8 offer a summarized overview of these original insights.

A04, A06, A09, A12, A20: Using LLS can better understand and comprehend questions. For example, in reading, read the question first, find key words, and then find the corresponding answer. First, look for the keyword in the question and then look at the original text to locate the correct answer.

A05: I used LLS, tracking progress in English, setting clear goals, and reading English articles and news simultaneously to enhance their skills.

A08, A11, A17: Pre-reading, pre-judging, replying, and just a few of the LLS that can help us improve accurate listening in English.

A13, A18: Some LLSs were used, such as watching English movies, listening to dialogues, understanding the culture of English-speaking countries, and asking for pronunciation advice.

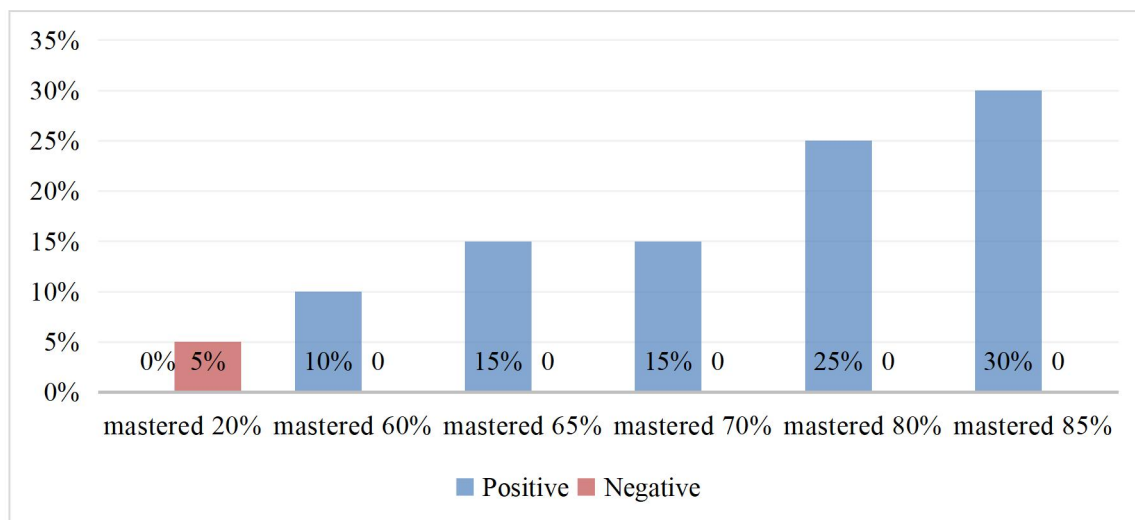


Figure 4.6 Degree of LLS Instruction on Affecting Level of Strategy Use

Based on the data presented in Table 4.8 and Figure 4.6, 95% of interviewees believed that LLS instruction had a substantial impact on the level of strategy use, indicating a significant effect. Specifically, 10% of the interviewees reported mastering 60% of LLS; 15% had mastered 65%; another 15% mastered 70%; 25% achieved mastery of 80%; 30% attained mastery of 85%; and 5% mastered 20%. These figures collectively suggested that LLS instruction effectively improved learners' levels of strategy use. The exception noted was an interviewee who had mastered only 20% of the LLS, attributed to prior extensive exposure to LLS during middle school, which led to a diminished interest and boredom with LLS instruction. The examples in Table 4.8 provided a summarized overview supporting these insights.

A04, A06, A09, A10, A14, A17: It had a great impact on them, the effect rate was at least 85%.

A02, A05, A12, A13, A16: There was an impact, the effect was at least 80%.

A11: Teaching LLS had little effect on my level of strategy use, by 20% Because I've learnt these strategies before college and I'm already familiar with them, now there's a negative impact for me that I would lose interest on it.

For the development of a model that effectively communicates these connections and the underlying logic, as illustrated in Table 4.9, it is essential to clarify the internal relationships between the core theme and its associated sub-themes.

Table 4.9 Relation Structure Between Key Theme and Sub-themes

Key theme	Sub-themes	Connotation of relation structure
Relation between LLS instruction and LSU	LLS instruction —→ improved English learning motivation	LLS instruction improved learners' English learning motivation.
	LLS instruction —→ increased effect on LSU	LLS instruction had greatly impact on the level of strategy use, the effect ranges from 60% to 85%.
	LLS instruction —→ had positive impact on attitudes of strategy use	LLS instruction enhanced learners' level of strategy and had positive impact on attitude of LLS.
	LLS instruction —→ improved the mastery of LLS	LLS instruction improved the mastery and proficiency of LLS, as most of them mastered most parts of LLS.
	LLS instruction —→ positive effect on improving English learning skills	LLS instruction had a positive effect on improving learners' English learning skill.

4.3.4 Summary of Findings Related to RQ2

In general, LLS instruction had a statistically significant impact on the LSU of below-average EFL learners. To triangulate various sources related to RQ2, the study analyzed the relationship between LLS instruction and LSU from three perspectives. First, qualitative analysis was conducted using thematic analysis of OSI data. The model of the relationship between LLS instruction and LSU revealed five key findings: (1) LLS instruction enhanced learners' motivation for using strategies; (2) LLS instruction had a substantial impact on LSU, with effects ranging from 60% to 85%; (3) LLS instruction positively influenced interviewees' attitudes toward strategy use; (4) LLS instruction improved learners' mastery and proficiency in LSU, with most participants mastering a

significant portion of LLS; and (5) LLS instruction had a beneficial effect on enhancing BA learners' English learning skills.

Finally, the macro quantitative findings revealed that following the LLS intervention program, learners in the experimental class showed a statistically significant increase in their use of memory, cognitive, compensatory, metacognitive, affective, and social strategies, as well as in their overall strategy use. Additionally, the micro quantitative analysis demonstrated that the difference between the two groups was statistically significant at the 0.01 level, with meta-cognitive strategies showing the most notable improvement. The effect sizes for all strategies were Cohen's *d* values greater than 0.8, ranging from 0.9192 to 2.5198, indicating large differences in strategy use between the experimental group before and after the intervention. Moreover, the use level of the 40 test items improved after the experiment, with 34 items showing an increase of more than 0.50.

4.4 Findings and Analysis in Relation to RQ 3

RQ3: Is there any significant relationships between LLS instruction and English academic achievement of below-average EFL learners in the Chinese vocational college? To enhance the validity of the findings, the data related to RQ3 was analyzed by triangulating both quantitative and qualitative methods. The details of this analysis were elaborated upon in the following sections.

4.4.1 Results of the Reliability Test of CET-4

To assess the reliability of the CET-4, a Cronbach's alpha (α) reliability test was conducted on the CET-4 reflections obtained from both the pilot study participants and

the main study participants. A minimum acceptable value of 0.70 is typically used for the reliability coefficient (Pallant, 2011). In this study, the Cronbach's α reliability of the CET-4 was determined to be $\alpha = 0.79$ during the piloting stage, $\alpha = 0.80$ during the pre-test stage, and $\alpha = 0.82$ during the post-test stage. These results indicated that the instrument was clear, readable, reliable, and suitable for the research objectives. The results of the Cronbach's alpha reliability test are presented in Table 4.10.

Table 4.10 The Results of the CET-4 Reliability Tests (Cronbach's α)

Stage	Domain	Cronbach's α	Items No.
1	CET-4 at pilot stage	0.79	57
2	CET-4 at pre-test	0.80	57
3	CET-4 at post-test	0.82	57

4.4.2 Results and Analysis of the Quantitative Data

A quasi-experimental study was conducted with two groups of 40 students each—an experimental group and a control group. Both groups participated in pre-tests and post-tests administered before and after the intervention program. This study compared the CET-4 test results of the experimental and control groups, analyzing the relationship between the quantity and quality of English learning strategies employed and the English test outcomes for each group. The results of CEFE of students in the experimental and control groups was also compared. The impact of LLS instruction on improving the EAA of below-average learners was then thoroughly examined by analyzing data from these three research studies.

4.4.2(a) CET-4 Test of Learners' English Academic Achievement

During the pre-test phase, CET-4 scores were utilized to assess the learners' academic English achievement. Both quantitative and qualitative data were analyzed to evaluate the impact of LLS instruction on participants' CET-4 and CEFE scores. Following the LLS instruction program, both the experimental and control classes took the CET-4 and CEFE tests. The significance of the differences between the test scores was analyzed, and the results are presented in Table 4.11. The original data of CET-4 for the pre-test and post-test of the experiment group are demonstrated in Appendix P.

Table 4.11 Comparison of CET-4 Pre-test and Post-test of Experiment Group

	Pre-test		Post-test		Variation	Significance	
	Means	SD	Means	SD		T-value	ES Cohen's d
Score of CET-4	341.50	24.1565	365.43	29.7079	23.93	-3.9519	-0.8827

Note: SD=standard deviation; ES= effect size

A key finding in quantitative studies is the effect size; while the *P* value indicates whether an effect exists, it does not provide information about the magnitude of the effect (Sullivan & Feinn, 2012). To obtain a more accurate estimate of treatment effects, numerous statistical techniques have been developed that go beyond reliance on *p* values. Among these, Cohen's *d*, also known as the standard mean difference, is widely used to assess the size of differences between two interventions (McGough & Faraone, 2009). Cohen (1988) classified effect size Cohen's *d* absolute values as "small ($d = 0.2-0.5$)," "medium ($d = 0.5-0.8$)," and "large ($d > 0.8$)," with *d* values typically ranging from -1.96 to 1.96. Therefore, this study employed effect size (ES) Cohen's *d* to describe the

statistical significance between the two groups.

As indicated in Table 4.12, following a semester of LLS instruction, learners in the experimental class exhibited a statistically significant increase in their English academic achievement, as measured by CET-4 scores. The difference between the two groups was statistically significant, with a t -value of -3.9519, which exceeded the critical thresholds of 2 and -2, confirming that the two groups were significantly different. The mean difference of 23.93 further underscored the substantial improvement in the EAA of learners in the experimental group after the intervention programme. Additionally, the effect size, represented by Cohen's d value of 0.8827, indicated a large difference in EAA between the experimental group before and after the intervention.

Table 4.12 Comparison of CET-4 Pre-test and Post-test of the Control Group

	Pre-test		Post-test		Variation	Significance	
	Means	SD	Means	SD		t -value	ES Cohen's d
Score of CET-4	342.15	18.0548	343.03	22.6450	0.88	-0.1911	-0.0427

Note: SD=standard deviation; ES= effect size

As shown in Table 4.12, learners in the control class did not exhibit any statistically significant improvement in their academic English achievement (CET-4 score) following the LLS instruction. The original data of CET-4 pre-test and post-test of the control group are demonstrated in Appendix Q. The difference between the two groups was statistically insignificant, with a t -value of -0.1911, which fell within the range of -2 to 2, indicating no meaningful difference before and after the experiment.

Additionally, the mean variation was minimal at 0.88, further suggesting that the control group's EAA showed negligible improvement after the intervention programme. Furthermore, the effect size, represented by Cohen's *d* value of -0.0427, was less than 0.2, signifying that the differences in the control class before and after the intervention were quite modest.

Table 4.13 Comparison of CET-4 post-test between experiment and control groups

	Experiment class		Control class		Variation	Significance		
	Means	SD	Means	SD		T-value	ES	Cohen's d
Score of CET-4	365.43	29.7079	343.03	21.5424	22.40	3.7926		0.8633

Note: SD=standard deviation; ES= effect size

According to Table 4.13, after receiving LLS instruction, learners in the experimental class demonstrated a statistically significant improvement in their academic English achievement (CET-4 score). The *t*-value was 3.7926, which exceeded the threshold of 2, indicating a statistically significant difference between the experimental and control groups. The substantial mean variation of 22.40 further highlighted the significant improvement in the experimental group's academic English achievement following the intervention programme. Moreover, the Cohen's *d* effect size was -0.8633, surpassing the 0.8 threshold, underscoring the considerable significance of the differences between the experiment group and control group after the intervention program.

4.4.2(b) CEFE Test of Learners' English Academic Achievement

To enhance the validity and quality of the data through a robust triangulation

process, this study also compared the English scores of the experimental class with those of the control class on the college English final exam (CEFE) at the end of the first and second semesters (post-intervention). The sample answer sheets for the CEFE results are displayed in Appendix R. This comparison aimed to demonstrate the effect of the strategy training in improving the English proficiency of students in the experimental class. The results, displayed in Table 4.14, illustrated the outcomes after the completion of the LLS instruction program. Both the experimental and control classes took the CEFE test, and the significance of the differences between their scores was analyzed and presented in Table 4.14.

Table 4.14 Comparison of CEFE Pre-test and Post-test of the Experiment Group

	Pre-test		Post-test		Variation	Significance	
	Means	SD	Means	SD		T-value	ES Cohen's d
Score of CEFE	68.72	7.3693	72.75	6.7814	4.02	-2.5419	-0.5684

Note: SD=standard deviation; ES= effect size

As shown in Table 4.14, after the LLS instruction, learners in the experimental class demonstrated a statistically significant increase in their English academic achievement (CEFE). The original data of CEFE for the Pretest and Posttest of the experiment group are demonstrated in Appendix S. The difference between the two groups was statistically significant, with a *t*-value of -2.5419, indicating that it was beyond the ± 2 threshold, which confirmed a significant difference before and after the intervention program. Furthermore, the mean variation was substantial at 4.02,

suggesting that the intervention program significantly improved the experimental group's English academic achievement. Additionally, the effect size (Cohen's *d*) was 0.5684, falling within the medium range (0.5 to 0.8), which further indicated that the experimental group showed moderate differences before and after the intervention program.

Table 4.15 Comparison of CEFE Pre-test and Post-test of the Control Group

	Pre-test		Post-test		Variation	Significance	
	Means	SD	Means	SD		t-value	ES Cohen's <i>d</i>
Score of CEFE	67.07	13.3395	67.97	12.0079	0.90	0.1920	-0.0709

Note: SD=standard deviation; ES= effect size

As shown in Table 4.15, learners in the control group exhibited no statistically significant improvement in their academic English achievement (CEFE score) following the LLS instruction. The original data of CEFE for the pre-test and post-test of the control group are demonstrated in Appendix T. The difference between the pre-test and post-test scores of the control groups was statistically insignificant, with a t-value of -0.1920, which is far below the critical threshold of 2. This low t-value clearly indicates that there was no meaningful change in the group before and after the experiment. Furthermore, the mean variation between the pre-test and post-test scores was minimal, at just 0.90. Additionally, the Cohen's *d* value was calculated at -0.0709, significantly lower than the benchmark of 0.2, which further confirms that the differences between the control class's pre-test and post-test scores were modest and not substantial enough to suggest any significant effect from the intervention.

Table 4.16 Comparison of CEFE Post-test of Experiment and Control Groups

	Experiment class		Control class		Variation	Significance	
	Means	SD	Means	SD		T-value	ES Cohen's d
Score of CEFE	72.75	9.0348	67.97	12.0079	4.78	2.4678	0.5518

Note: SD=standard deviation; ES= effect size

According to Table 4.16, after receiving LLS instruction, learners in the experimental class exhibited a statistically significant improvement in their academic English achievement (CEFE score). With a *t*-value of 2.4678, which exceeded the threshold of 2, the difference between the experimental and control groups was statistically significant, indicating a substantial disparity between the two groups. Additionally, the mean variation of 4.27 reflected a significant increase in the academic English achievement of the experimental group following the intervention program. Furthermore, the Cohen's *d* effect size was 0.5518, which was greater than 0.5, demonstrating the substantial significance of the differences between the two groups after the intervention program.

4.4.3 Analysis of the Qualitative Data Though Thematic Analysis

In this section of the chapter, thematic analysis was employed to examine the qualitative data from the OSI interviews. This analysis was used to triangulate the quantitative results and explore the effect of LLS instruction on English academic achievement.

4.4.3 a) Analysis of Key Themes of OSI on RQ3

Five key dimensions related to the effect of LLS instruction on English academic

achievement (EAA) emerged from the data analysis. These dimensions include: the application of LLS instruction, the extent of LLS instruction's impact on EAA, attitudes toward LLS instruction and its impact on EAA, mastery of LLS, and the overall effect of LLS instruction on EAA. The themes within these key dimensions were outlined below (Poulos & Mahony, 2008), with initial and significant codes highlighted in gray backgrounds. Table 4.17 presents the themes and codes derived from the original interview records, with key terms also highlighted in gray. This analysis aimed to elucidate the relationship between LLS instruction and EAA. Due to the word limit, only the summarized original statements and key themes are included, with significant codes marked in gray, as listed in Table 4.17.

Table 4.17 Key Dimensions: Perceptions of LLS Instruction on EAA

Key themes	Original Summarized Answers
Effects of LLS instruction on learners' EAA	<p>A01-A10; A12-A20: 95% interviewees stated LLS instruction definitely improved their English academic achievement.</p> <p>A01, A09: It improved my English grades, benefiting for exam, assisting me to understand exam questions, their types, format, and main direction.</p> <p>A02, A07, A14, A15, A17, A18, A19: There is a significant improvement on my English score, in the listening questions. As evidenced by the CET-4 results, where English listening scored 180 points; if had to learn it on my own, would not have been able to achieve this score.</p> <p>A03, A20: Proficiency in English has increased as a result of the instructor's teaching of some LLS and grammar.</p> <p>A04: I believe self-practise of LLS is important, then can get improvement. They believe that slow practice and focusing on questions will lead to better academic achievement.</p> <p>A05, A08, A10, A12: The LLS instruction has improved my English achievement, such as filling in blanks, reading for purpose, listening for key words, and translating essays.</p> <p>A06, A13, A16: The English grade has improved. Typically, the teacher has taught some strategies of vocabulary, using these methods, vocabulary has increased, and English grade has improved as a result.</p>

	<p>A11: I think LLS instruction has no significant improvement for my English achievement because middle school teacher has told before me about LLS, and taught me the similar strategies as my current instructor, so I don't feel like it is changed much. I feel like my English is under achieved is because vocabulary is poor.</p>
<p>Attitudes of LLS instruction On EAA</p>	<p>A01: It can improve my English grade quickly in a short period of time, The short-term improvement is the original of LLS.</p> <p>A02, A14, A16 : The LLS instruction has positive impact on method of English learning, as it provided a comprehensive approach to learning rather than just rote memorizing words and sentences. It also strengthened my English learning ability.</p> <p>A03, A07, A19: The effects are unquestionably positive. If I learn alone with poor foundation, it is definitely easy to give up, and then if I have strategy, and instructor supervise me, the results are better.</p> <p>A04, A08, A12, A13, A15: It has positive impact to my English academic achievement, as the instructor suggested using specific keywords for reading questions to accurately locate answers and save time. This strategy improves efficiency, accuracy and speed of CET-4 test, saves time.</p> <p>A05, A17, A18: LLS is positive for English grade, such as “writing notes and letters in English” can increase vocabulary”, and also, “when you read an English text, instead of looking it up in the dictionary word by word, you can guess the meaning of the word”.</p> <p>A09: I think the effect to English academic achievement varies from person to person. LLS has a positive impact when students learn it and use it properly, and a negative impact when some struggling students learn it and don't use it correctly. In addition, some strategies are more practical, while others are not useful.</p> <p>A10: I think it is a positive impact on English academic achievement, such as some of the reading and writing strategies.</p> <p>A11, A20: It has negative impact for English achievement because have studied all LLS systematically and used LLS in middle school, but after I got to college, just felt like it was because of the poor vocabulary, but grades didn't improve much.</p> <p>A12: It is beneficial that the instructor explained LLS to us systematically so that I know the specific strategies and understand it.</p>
	<p>A01, A10, A17, A20: Before learnt LLS, always read the entire text; instead, only needed to be familiar with the main ideas and key words, and then come to the questions, which made my reading accuracy enhanced. Before LLS was taught, it was all about the words, then the translation, then doing the questions.</p> <p>A02, A13, A16: most significant improvement has been in listening accuracy. If haven't mastered LLS, listening skills may be quite bad. However, with LLS, be able to grasp some simple words easily.</p> <p>A03, A19: After learning LLS, interest in English has increased, and</p>

<p>Comparison of EAA before and after the experiment</p>	<p>the importance of it has been recognized, awareness and motivation increased, which has boosted my English achievement.</p> <p>A04, A09, A18: LLS improved my ability to answer English questions accurately and effectively. They learned to memorize key words rather than blindly reading an article or text. This approach allows them to answer questions based on the key words rather than translating the meaning of the article.</p> <p>A05, A06, A08, A15: Before learned LLS, they had no problem-solving strategies at all, and usually just copied the reading text in the writing test. But after receiving the LLS instruction, some problem-solving strategies and English learning strategies acquired. It will be more proficient in writing essays. Besides, English grade is increased.</p> <p>A07, A12, A14: Before learning LLS, there is more rote memorize and drills, but after mastering LLS, English reading is better, and English grade is higher.</p> <p>A11: it is improved a bit. Before and after learning LLS, my English is no significant change because I had learnt it in middle school and it didn't help me much, truthfully.</p>
<p>Challenges and difficulties solved by LLS</p>	<p>A01, A04, A06, A09, A13, A16, A19, A20: The big challenge is that my vocabulary is very low and small, LLS was employed, such as go through the original text, and then determine the general meaning of it.</p> <p>A02, A11, A17: The main challenge is can't finish CET-4 test reading questions. To overcome this LLS was used, skimming the entire reading, finding key words, and returning to the original text to speed up reading.</p> <p>A03: The great difficulty for me is that I'm easy to give up learning English, lack of motivation, lack of confidence, consider English is boring. After learning LLS, my motivation is increased, it is much better than before.</p> <p>A05, A08, A10, A18: The main challenge is low vocabulary, when meet unfamiliar English words, break them down into familiar parts, determine their meaning and lexical properties, and decipher them, while also setting a study schedule.</p> <p>A07: The main challenge is writing a composition, after learning LLS, I can use a template and a focus on grammar and spelling. The inversion of sentences is also a crucial aspect of the essay structure, which is helpful to achieve CET-4 outcome.</p> <p>A12, A15: They struggle with listening due to a lack of practice before university. Now the instructor regularly teaches listening strategies, focusing on listening in class and drawing key words. This has improved ability to listen, increasing listening score in CET-4 test.</p> <p>A14: The big challenge is that my English speaking is poor, then I can use LLS to assist me, practicing pronunciation and conversation, and watching English TV or movies, aiming to improve my spoken English and English grade.</p>

Advice of LLS instruction on EAA	<p>A01, A07, A13, A17: The suggestion is to LLS to memorize more words and develop LLS skills, or infer unfamiliar words through associations, text comprehension, and overall text meaning. Do some intensive practice on LLS and English questions.</p> <p>A02: Listening to English dialogues and watching English movies and TV dramas can significantly improve listening accuracy, as they provide real dialogues in their native language.</p> <p>A03: To improve LLS effect for below-average students, it is essential to communicate with others, ask questions, and find a partner to cooperate and help learning. Blindly do questions can lead to give up.</p> <p>A04, A18, A19: Low-level English learners should focus on learning to classify words, use root words and suffixes for efficient memory, and accumulate grammatical phrases like subject-verb-object structure. Practice rather than relying on optical theory, and use these strategies to answer questions seriously. This will lead to improved vocabulary.</p> <p>A05, A06, A12, A14, A15, A20: To overcome fear of making mistakes in English learning, set some goals, encourage and motivate yourself, solving difficulties, rewarding yourself appropriately, and improving LLS.</p> <p>A08, A09, A10, A11, A16: Learners should practice LLS concepts with English questions and learning silks, namely, theory plus practice.</p>
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4.4.3 (b) Analysis of Sub-Theme of the OSIs on RQ3

The sub-themes within key dimensions were displayed below (Poulos & Mahony, 2008). Relationships between key themes and sub-themes were established through continuous comparison and iterative analysis. The coding process and the results of creating the sub-themes are detailed in Table 4.18 below, which illustrated the systematic approach used to organize and interpret the data.

Table 4.18 Coding Process and Results of Sub-themes of OSIs

Sub-themes	Coding of Sub-Themes
Positive perceptions	95% of interviewees stated LLS instruction definitely improved their English academic achievement, benefiting for exam, improving grammar, reading, listening, and vocabulary skills.
Negative perceptions	5% of interviewees indicated that LLS instruction has no significant improvement for his EAA because middle school teacher has taught LLS, similar strategies as current LLS, so he don't feel like it is changed much. He believes his English is under achieved is because vocabulary.

Positive perceptions	<p>85% of interviewees believe LLS instruction has an positive impact on their English academic achievement.</p> <p>LLS instruction has a short-term improvement;</p> <p>It strengthened English learning ability rather than rote memorizing words and sentences;</p> <p>It improved efficiency and accuracy of CET-4 test, saved time;</p> <p>It increased vocabulary by note-writing and guessing;</p> <p>It enhanced English reading and writing skills</p> <p>It provided a systematical comprehension of LLS.</p>
Neutral perceptions	<p>5% of interviewees believe I think the effect to English academic achievement varies from person to person. LLS has a positive impact when using properly, a negative impact when misusing. In addition, some strategies are practical, while others are not useful.</p>
Negative perceptions	<p>10% of interviewees state it has negative impact because I have studied all LLS systematically and used LLS in middle school, but after I got to college, just felt like it was due to the poor vocabulary, so grade didn't improve much.</p>
Positive perceptions	<p>95% of interviewees believe their English academic achievement has improved after LLS instruction.</p> <p>Before learning LLS, they learn English without strategy, but now use strategy in finishing questions, improving their accuracy and efficiency in English tests;</p> <p>After learning LLS, the most significant improvement is in listening accuracy, which can improve the ability to easily grasp simple words;</p> <p>It has significantly increased interest, awareness and motivation in English, boosted English grade.</p>
Negative perceptions	<p>5% of interviewee believed his English achievement is no significant change before and after learning LLS because he had learnt it in middle school and it didn't help him much in his college.</p>
Vocabulary	<p>60% of interviewees stated the big challenge is small vocabulary, as they can employ memory strategies to assist to memorize words.</p>
Reading	<p>15% of interviewees indicated the main challenge is can't finish CET-4 reading questions, then use LLS skimming and find key words.</p>
Motivation	<p>5% of interviewees stressed the main difficulty is lack of motivation, confidence, and interest, as they use social and affective strategies to increase motivation significantly.</p>
Writing	<p>5% of interviewees stressed the challenge is writing a composition, as they use meta-cognitive and affective strategies, which is helpful to achieve CET-4 grade.</p>
Speaking	<p>5% of interviewees indicated the big challenge is poor English speaking, then he used social strategies to practice oral English.</p>
Listening	<p>10% of interviewees believed the big challenge is poor listening due to a lack of practice, then he used metacognitive and social strategies to practice.</p>
LLS practice	<p>65% of interviewees suggested learners should develop LLS skills and</p>

Cooperation	English abilities, do intensive practice of LLS with English questions, namely, theory plus practice. 5% of interviewees advised it is essential to communicate with others, ask questions, and find a partner to cooperate by using social strategies. 30% of interviewees suggested to overcome fear of making mistakes in English learning, set a goal, encourage and motivate yourself, solving difficulties, rewarding yourself appropriately, and improving your affective strategies.
Motivation	

These codes represented the interviewees' perspectives and judgments regarding how LLS instruction impacts their academic achievement in English. It was evident that opinions varied among interviewees. While the majority believed that LLS had a positive effect on their academic performance, one participant felt it had a negative impact, and others thought the effect depended on the individual and the strategies used. This coding technique facilitated the classification of diverse viewpoints and details, providing a foundation for further analysis. Table 4.19 clarifies the internal relationships between the core theme and sub-themes, which is crucial for the development of the model as indicated.

Table 4.19 Relation Structure Between Key Theme and Sub-themes

Key theme	Typical relation structure	Connotation of relation structure
Relation between LLS instruction and English academic achievement	LLS instruction → improved English academic achievement	LLS instruction has significant impact on participants' English academic achievement.
	LLS instruction → had positive impact on English academic achievement	Most interviewees believed that LLS instruction had positive impact English academic achievement and efficiency and accuracy of CET-4 test.
	Before LLS instruction → accuracy and efficiency of tests improved after LLS instruction	Before LLS instruction, they learn English without strategy, but now they use LLS in finishing questions, improving their accuracy and efficiency in English tests.
	Challenges and difficulties → solved after LLS instruction	Participants can use LLS to solve some challenges and difficulties they met in English learning.

Advice on → improve effect of LLS on English academic achievement	Interviewees advised learners should practice using LLS on English tests, cooperative with others to learn, and use affective strategies to improve motivation.
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4.4.4 Summary of Findings Related to RQ3

To triangulate the data and enhance the validity of the findings, RQ3 was analyzed both quantitatively and qualitatively, as detailed in the following sections. Qualitative data from the OSI were analyzed through thematic analysis. Table 4.11 demonstrates that learners in the experimental class exhibited a statistically significant increase in their English achievement (CET-4 score) following LLS instruction. The *t*-value for the difference between the two groups was greater than 2, indicating a statistically significant difference. Additionally, the mean variation was substantial at 23.93, reflecting significant improvement in EAA among the experimental group. The effect size (Cohen ' s *d*) was greater than 0.8, specifically 0.8827, indicating a considerable difference between the pre-test and post-test scores for experimental group.

Based on Table 4.15, after the LLS instruction, the experimental class showed a statistically significant increase in EAA (score of CEFE). In contrast, Table 4.16 revealed that learners in the control group showed no statistically significant increase in their academic English achievement (CEFE score) following LLS instruction. The *t*-value for the control group was -0.3003, well below 2, indicating no significant difference before and after the intervention. In summary, learners in the experimental group demonstrated a statistically significant improvement in their academic English achievement (CEFE score), with a *t*-value of 2.4678.

Based on the quantitative and qualitative data analysis for RQ3, this study

developed a figure to illustrate the relationship between LLS instruction and EAA in Figure 4.7. This figure displays five findings: (1) LLS instruction significantly improved learners' EAA; (2) LLS instruction positively impacted English learning attitudes; (3) LLS instruction enhanced the accuracy and efficiency of English tests; (4) LLS addressed some challenges and difficulties in English learning; and (5) LLS instruction significantly influenced learners' motivation and cooperative learning. Overall, both quantitative and qualitative data indicated that LLS instruction had a substantial positive impact on English academic achievement, leading to improvements in CET-4 and CEFE scores for the experimental group. In contrast, no significant differences or improvements were observed among the participants in the control group.

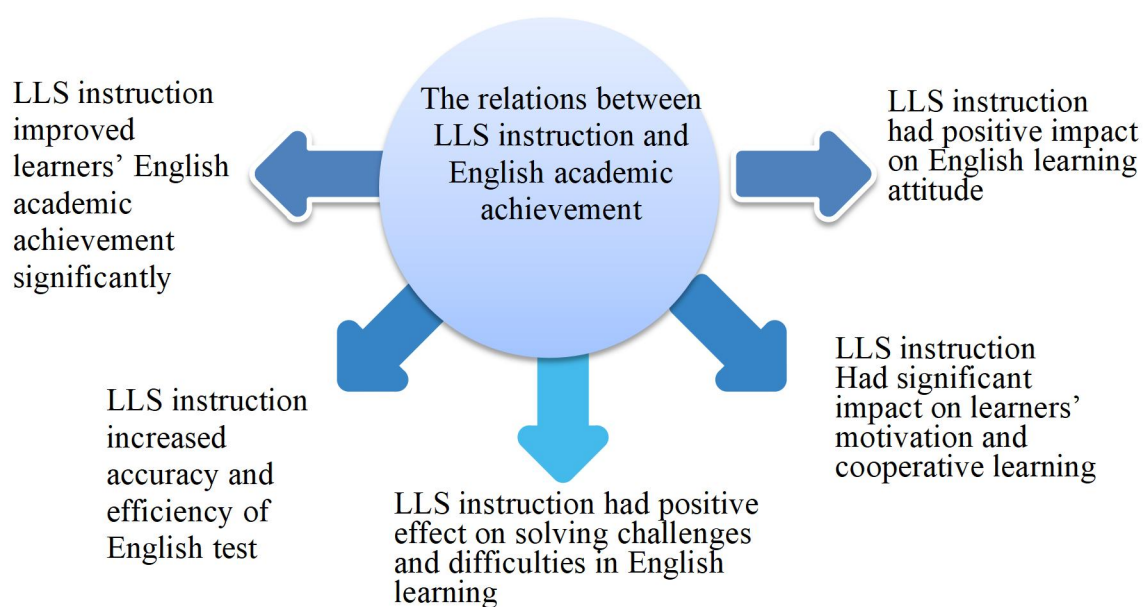


Figure 4.7 Relationships Between LLS Instruction and EAA

4.5 Findings and Analysis in Relation to RQ4

This section of the chapter presents the findings related to RQ4, which investigated the effective LLS instruction model for below-average EFL learners in

Chinese vocational colleges. The data gathered from the OSI interviews addressed this research question. The themes derived from participant interviews facilitated the development of a comprehensive profile of respondents' reflections on the intervention's application. Specifically, students' reflections were categorized into three main areas: 1) the analysis of OSIs through thematic analysis, 2) students' perceptions of the intervention program, and 3) the effective LLS instruction model. These three subsections were discussed in detail below.

4.5.1 Analysis Based on Thematic Analysis

The study utilized thematic analysis to examine the qualitative data pertaining to RQ4. During the rooted coding process, to ensure the reliability and validity of the research and to mitigate the influence of the researcher's personal bias, a combination of personal coding and expert review was employed. This approach aimed to enhance the objectivity and reliability of the coding process. The study summarized interview data based on multiple classification criteria, which involved the gradual refinement of concepts derived from the data. This process entailed using concise phrases or words to encapsulate the learners, events, concepts, and categories identified in the interview data.

4.5.1 (a) Analysis of Key Themes of OSI on RQ4

In the first interview record, the researcher identified concepts related to LLS training, analyzed the correlations and differences among these concepts, and then summarized several themes. The second interview was conducted based on issues identified during the coding process and the conceptual categories that had been established. This iterative process continued until the coder determined that the themes

and categories were sufficiently rich and that relevant concepts and categories were consistently repeated. At this point, further interviews were deemed unnecessary, and the coding process proceeded to the next stage. Table 4.20 illustrates the key themes and original summarized views from this study, with key codes highlighted in gray. The result was a compilation of effective LLS instruction methods, aimed at identifying an efficient LLS training model. Due to the word limit of the thesis, the study presented a summary of the original recorded responses accordingly.

Table 4.20 Key Dimensions: Perceptions of Efficient LLS Instruction Model

Key Themes	Original Summarized Answers
Traditional class VS. Class-based LLS instruction	<p>A01-A20: 100% interviewees preferred Class-based LLS instruction class to traditional class and stated that it is not a waste of time.</p> <p>A01, A17, A18, A20: They don't think class-based LLS instruction class is a waste of time. It can improve grades, benefit for exam, cultivate interest of English learning, enhance my self-confidence.</p> <p>A02 & A04: The traditional class's goal is to get a high score on exams, but class-based LLS instruction gives me opportunity to expand my vocabulary skills, my problem-solving skills, and ways of learning English.</p> <p>A03: The teacher taught some strategies, which both benefited good achievers, but also below-average learners.</p> <p>A05 & A11: Teaching with LLS allows us to learn English more effectively, and understand English and use English, which is more interesting and intriguing than the traditional classroom.</p> <p>A06 & A07: Traditional class is limited to English textbook, no strategies, no techniques. if instructor keep teaching traditional content, we will not get any progress and lose interests of English.</p> <p>A08, A09, A12, A14, A15: The current class is more interesting and engaging with LLS, which improves the interest in learning English and the efficiency of learning.</p> <p>A13, A19: They think the current class is better than the traditional class because the instructor taught LLS, as can improve problem-solving strategies.</p> <p>A16: I had a better understanding on LLS when the instructor teach me.</p>
	<p>A01: I don't think it is very helpful to me. The lecture was aimed to a large number of people, and can't take care of everyone's</p>

<p>Attitudes of lecture-based LLS instruction</p>	<p>problems. Some students could not understand the meaning of LLS. A02, A20: Lecture-based LLS instruction is really effective and beneficial because it will reinforce learning strategies. A03, A14: It is useful because it is easier to make students who are not so good at LLS understand, which is helpful for our English. A04, A05, A13, A15: It is beneficial, because some skills and strategies is helpful for our exam and CET-4. A06, A07, A17: it is beneficial because it can be more detailed and thorough explanation of instructor, which is much easier to understand. A08: I believe it is beneficial, which can significantly increase my English learning achievement if I combine LLS theory and practice. A09, A16: It is beneficial which can show the specific concepts of LLS, so that we can have a clear understanding of the strategy. A10: It is definitely very meaningful. Because the instructor was very strict, which made us understand all the strategies efficiently. A11, A12, A18, A19: It is beneficial that the instructor explained LLS to us systematically so that learners know the specific strategies and understand it.</p>
<p>Attitudes of group-based LLS instruction</p>	<p>A01: I think it is very effective because we can exchange our ideas of LLS, so that we can achieve a better mastery of LLS. A02, A07: The effect is not very productive, because the English level of us is not high, so I feel that the significance of group learning is not very big. A03, A05, A17: It is very effective because learners can discuss and learn from others instead of falling into difficulty and losing interest of English. A04: It is not effective because but I prefer teacher's instruction rather than discussing it with classmates. As long as I learn it by myself, it is my own understanding. A06, A10, A12, A13, A14, A16, A18, A19, A20: It is effective. Because if learners discuss in the group work, they have different opinions and discuss a variety of results. A08: It is not effective if you work in a group to learn LLS, because the efficient English learning is learning by yourself. A09, A15: The effect is not very big, because they are all below-average students who are not good at English, it is hard to have big improvement. So it is never as effective as a systematic lecture by an instructor. A11: It is not effective because we are all usually familiar with each other and it is easy to chat when we all gather around.</p>
	<p>A01, A07, A11, A17, A19, A20: The role of self-study on LLS is not beneficial. They are below-average learners, if let them study LSL independently, it is difficult to understand it. They have poor self-motivation and will lose interest on LLS and English.</p>

Attitudes of self-regulated LLS instruction	<p>A02, A04, A08, A10, A12, A13: The effect depends on their attitude towards English, which varies from person to person. If student is self-motivated, he can achieve good learning results; if not, the results will definitely not be good. But for the below-average students, if they learn LLS by themselves after class, like me, there is no supervision, it is very difficult to learn LLS by themselves. So, they feel that self-regulation LLS learning is suitable for this kind of students who have strong self-discipline.</p> <p>A03: It is not useful for us who are not good at English. For below-average maybe not very effective because they cannot understand LLS thoroughly by themselves.</p> <p>A04, A05, A06, A08, A14, A15, A16, A18: Self-study is very beneficial, if they review LLS after class, so that can have a better understanding of LLS, the English level will improve. After class revision by self-study will be remembered more firmly, to firmly master this knowledge point.</p>
Attitudes of online LLS instruction	<p>A01, A04, A05, A07, A12, A15, A17, A18, A20: It is similar to online class, as they think it is not beneficial, because especially for the students who are struggling and not self-disciplined, and then it is very difficult to carry out this online education.</p> <p>A02: I think it is effective because the College English course is only for two years, and after that, we need to find other ways to improve yourself, including some online classes and so on, and if you have a platform like that, it will definitely help to improve your English later.</p> <p>A03, A06, A08, A09, A10, A11, A13, A14, A16, A19: The effect depends on self-disciplined and motivation, which varies from person to person. While the effect of online LLS instruction will be not efficient and interesting for below-average learners, as they may be distracted by other things. If the instructor uploaded the recorded LLS video, and it is still more convenient, because do not understand the place can be repeated to watch at any time, and is more flexible and convenient for self-disciplined students.</p>
Ranking of the five LLS instruction methods	<p>A01, A02, A06, A09: First, classroom-based LLS instruction, second, lecture-based instruction, third, cooperative group learning, fourth, online instruction, and the fifth, after-school self-study LLS.</p> <p>A03: First, cooperative group learning is the most effective, second, classroom-based LLS instruction, third, lecture-based instruction, fourth, online training, fifth, self-study after class.</p> <p>A04, A05, A10, A11, A12, A14, A15, A17, A18, A19, A20: First, the classroom-based LLS instruction, the first need is to have the instructor teach LLS in person, because the instructor will also supervise us, and then teach LLS by use lecture-based instruction. Third, you can go to cooperative group learning, discuss and exchange some of their thoughts with each other to make progress</p>

	<p>together, and the fourth point is the need to go to the self-study LLS, then you can in your spare time, you feel that you still don't understand some of the places, there is a better way to improve their own, for the students who are struggling to learn, if you have enough self-control, you can also go to improve your English language skills on the online LLS instruction platform.</p> <p>A07, A08, A13: First, lecture-based instruction, second, classroom-based LLS instruction, third, cooperative group learning, fourth, after-school self-study, and the fifth, online instruction.</p>
Perceptions and advice on LLS Instruction	<p>A01, A07, A10, A11, A15 A16, A17, A18, A20: In the past, we memorize words by rote, but nowadays, through some strategies, we are able to associate a word to several meanings, we can achieve a good effect in memorizing words. I believe that combining LLS training with cooperative learning in groups and other methods would result in quicker learning while also achieving its own learning goals. A mix of instructional techniques is more efficient, and more reinforcing.</p> <p>A02: I consider that training for the below-average students should be based on lecture training and classroom since they need to be confident, they can pass the final exam and CET-4 without failing. It should to be their most basic necessities.</p> <p>A03: I think the most efficient way to instruct LLS is in a classroom setting, but a instructor cannot take care of every student, LLS should be reviewed and self-studied after class.</p> <p>A04: I feel that the teacher should explain the basic strategies to us clearly and then give us some time to practice them in class, and then talk about them again, which is more effective.</p> <p>A05, A13: They consider online training faces many challenges and drawbacks, such as teacher not recognizing students' learning effects, negatively impacting problem-solving skills and hindering teacher effectiveness.</p> <p>A06: The cooperative group learning LLS is helpful for me, but students may chat with other students. Online teaching has shortcomings, as teachers may not be able to address special needs. Self-study LLS is crucial for understanding and addressing any forgotten information. It is essential to review and micro-review regularly to avoid forgetting and ensure effective communication with teachers and classmates.</p> <p>A08: Online teaching can be beneficial for below-average students who may be motivated to learn independently. Thematic training can improve performance and classroom content. Group cooperation can be beneficial, especially for gifted and mixed students. Combining different levels of students can be beneficial.</p> <p>A09: Teaching should consider the needs of the students while considering their self-control. Additionally, some of the strategies are not feasible for below-average students to utilize; for instance,</p>

guessing what someone is going to say next when we are unable to comprehend let alone guess.

A12: The knowledge of the students cannot be expanded in class; it is simply too limited. Though there isn't enough time, knowledge is expanded outside of the classroom. We're only talking about the LLS when it comes to lecture-based training. It is impossible for below-average students to use this strategy. After learning LLS, but they have no idea how to put them into practise.

A14: The effect of online teaching varies from person to person. It is impossible for an online teacher to pay attention to every student, and those who are not motivated by themselves and are not engaged in English may not pay attention. Afterwards, how much self-study each person does varies. While some students may not comprehend the LLS very well or have low self-consciousness and don't return to self-study, others may actively learn it, apply it to practice, and develop themselves through the LLS.

A19: It is impossible to account for individual variances due to the insufficiency of the subject matter or course material. Even when the subject is occasionally taught, the ability to accept it varies.

4.5.1 (b) Analysis of Sub-Themes of OSIs on RQ4

To determine the relationships between the key themes and sub-themes, a process of continuous comparison is employed. The sub-themes within key dimensions are presented below (Poulos & Mahony, 2008). Sub-theme coding is a method for identifying and connecting conceptual categories, which involves a thorough examination of each category and an exploration of correlations and codes within each group. Relationships between key themes of language learning strategy instruction and sub-themes of the mixed LLS instruction model (five LLS instruction methods) were established through this ongoing comparison. Table 4.21 illustrates the coding of sub-themes of LLS instruction model and the process by which sub-themes were created.

Table 4.21 Coding Process and Results of Sub-themes on RQ4

Sub-theme	Coding results of Sub-theme
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Traditional class	It is limited to English textbook, no strategies, no techniques and students will get limited progress and lose interests of English.
Perceptions of Class-based LLS instruction	<p>100% of interviewees believe class-based LLS instruction is effective and not a waste of time, which can improve grades and problem-solving strategies, benefit for exam and CET-4, cultivate interest of English learning, enhance my self-confidence, expand my vocabulary skills, problem solving skills, and English learning efficiency.</p> <p>Preparation phase: the instructor identified the learners' existing learning strategies for current task and exams.</p> <p>Awareness raising: The instructor improved students' awareness of LLS in class.</p>
Positive perceptions	95% of interviewees believe it is really effective and beneficial for English learning because it will reinforce LLS; easier to make students understand LLS; benefit to exam and CET-4; increase my English learning achievement; combine LLS theory and practice; explain LLS to us systematically.
Negative perceptions	<p>5% of interviewees state it is not very helpful to me, which was aimed to a large number of people, and can't take care of everyone's problems. Some students could not understand the meaning of LLS.</p> <p>Presentation phase: the instructor demonstrated and explained new LLS, and asked students to utilize, using selective attention, self-monitoring, and note-taking.</p> <p>Guided practice: The instructor supervised students for individual exercises in class.</p>
Positive perceptions	65% of interviewees believe it is very effective and beneficial because we can exchange our ideas of LLS, discuss and learn from others, ignore losing interest so that can achieve a better mastery of LLS.
Negative perceptions	<p>35% of interviewees believe the effect is not very productive and effective, because the English level of below-average learners prefer teacher's instruction rather than discussing with classmates and easily to chat with classmates.</p> <p>Practice stage: students used new LLS, the instructor encouraged independent LLS use through group discussion, English exams, report planning.</p>
Positive perceptions	40% of interviewees state is very beneficial, reviewing LLS after class improves English level, as self-study reinforces knowledge and reinforces learning.
Neutral perceptions	30% of interviewees believe the effect of English language learning depends on a student's attitude. Self-motivation leads to good learning results, while below-average students struggle with self-regulation LLS learning without supervision. Self-regulation LLS learning is suitable for these students with strong self-discipline.
Negative perceptions	35% of interviewees find self-studying LLS challenging and not beneficial due to below-average learning abilities and poor self-motivation, affecting interest in English and LLS.

	Independent practice phase: learners independently do some exercises by using LLS.
Positive perceptions	5% of interviewees believe the two-year English course is effective, but additional online classes and platforms are needed for long-term improvement.
Neutral perceptions	50% of interviewees believe the effect of online LLS instruction depends on self-discipline and motivation. Online instruction may be less efficient for below-average learners, but uploaded videos are more convenient and flexible for self-disciplined students.
Negative perceptions	45% of interviewees believe it was comparable to their online course, which would be particularly challenging for students who were failing and lacked discipline. Independent practice phase: learners independently do some exercises by using LLS.
Perceptions Of the priority of the five LLS methods	20% of interviewees think that classroom-based LLS training should come in first, followed by lecture-based, cooperative group learning, online instruction, after-school self-study, and online instruction. 5% of interviewees believe cooperative group learning should be the first, followed by classroom-based LLS instruction, lecture-based instruction, online training, and self-study after class. 55% of interviewees state that: First, the instructor must teach LLS in the classroom because she can supervise us; lecture-based instruction should be employed to teach LLS; they can participate in cooperative group learning, share your ideas and opinions with others; we should engage in independent study to review. Fifth, BA learners should have enough self-control and work on LLS online. 15% of interviewees believe lecture-based instruction should be the first, followed by classroom-based LLS instruction, cooperative group learning, after-school self-study, and online instruction.
Mixed methods	50% of interviewees believe combining LLS instruction with the five the methods can improve exam confidence and English achievement. This efficient and reinforcing model is more effective than rote memorization and cramming.
Classroom-based Practice	10% of interviewees think classroom instruction is efficient, but instructors cannot handle every student; self-study and review needed. They recommend clear explanation, practice, and discussion of basic strategies for effective teaching and learning.
Online instruction	10% of interviewees find online training challenges like teacher inability to recognize learning effects, negative problem-solving skills, and hindering effectiveness; not a substitute for in-person instruction.
Group learning	5% of interviewees find cooperative group learning LLS helpful, but online teaching may not address special needs. Self-study LLS is crucial for understanding forgotten information and effective communication with teachers and classmates.
Online	5% of interviewees believe online teaching benefits below-average

teaching	students, improves performance, and enhances classroom content; group cooperation, especially for gifted and mixed students, is beneficial.
Students' variety	<p>5% of interviewees suggest adjusting teaching to meet students' needs and considering self-control, while some strategies are unfeasible for below-average students.</p> <p>5% of interviewees believe students' knowledge cannot be expanded in class due to limited time. Lecture-based training, specifically LLS, is difficult for below-average students to apply, as they lack practical experience.</p> <p>10% of interviewees consider online teaching's effect varies from person to person, as it is impossible to cater to every student. Self-study varies, with some students struggling with the LLS, while others actively learn and develop through it. Insufficiency of course materials can account for individual variances, and acceptance of course varies.</p>

According to Table 4.21, the statistical description of participants' attitudes toward the five LLS instruction methods is detailed in Figure 4.8. This figure visually represented the distribution of attitudes and perceptions.

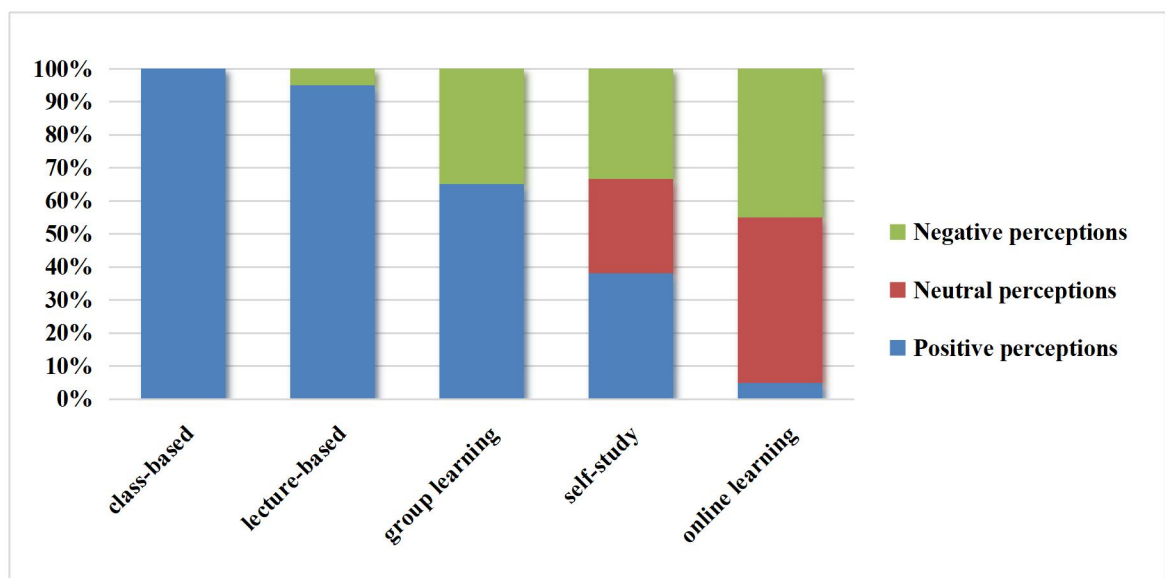


Figure 4.8 Percent of Attitudes Towards the Five LLS Instruction Methods

Based on Table 4.21 and Figure 4.8, 100% of interviewees from groups A01 to A20 expressed positive perceptions, indicating that class-based LLS instruction was more effective than traditional classroom methods and was not time-consuming. This

instructional approach was demonstrated to enhance academic performance and problem-solving skills, better prepare students for exams including the CET-4, and cultivate greater interest in English learning. Additionally, it has been shown to boost self-confidence, expand vocabulary, and improve various learning abilities. During the preparation phase, the instructor assessed the learners' existing strategies for current tasks and evaluations, thereby increasing their awareness of LLS. The summarized examples provide definitive evidence supporting these viewpoints.

A01, A17, A18, A20: Class-based LLS instruction is not a waste of time. It can improve learners' grades, benefit for exam, cultivate interest of English learning, enhance their self-confidence.

Intuitively, 95% of interviewees perceived the lecture-based LLS instruction method as highly effective and beneficial for English learning. They noted that this approach strengthens understanding of LLS, facilitates comprehension, and supports exam preparation, including for the CET-4. Additionally, it indicated that integrating LLS theory with practice and presenting LLS systematically enhanced English learning achievements. The following examples illustrate these positive perceptions. However, 5% of interviewees felt that the method was designed for a broad audience and did not adequately address individual concerns. The original summarized examples provided further substantiate these viewpoints.

A04, A05, A13, A15: It is beneficial, because some skills and strategies is helpful for English exams and CET-4.

A01: I don't think it is very helpful to me. The lecture was aimed to a large number of people, and can't take care of everyone's problems. Some students could not understand the meaning of LLS.

Additionally, 65% of interviewees found group learning to be highly beneficial and valuable for their English studies. They appreciated the opportunity to discuss and learn from peers, which helped maintain their interest and facilitated the exchange of opinions about LLS. This collaborative environment was perceived as instrumental in better mastering LLS. In contrast, 35% of interviewees felt that the group learning approach was less effective, particularly for students with below-average English proficiency who tend to favor direct teacher instruction over class discussions and informal conversations. The following original summarized examples provide substantial evidence supporting these differing perspectives.

A06, A10, A12, A13, A14, A16, A18, A19, A20: It is effective because if they discuss in group work, they are discussed in groups they can have different opinions and a variety of results.

A09, A15: The effect is not very big, because they are all below-average students who are not good at English, it is hard to have big improvement. So it is never as effective as a systematic lecture by an instructor.

According to 40% of interviewees, self-studying after class significantly enhanced English proficiency by reinforcing learning and consolidating information. Additionally, 30% of participants believed that a student's attitude plays a crucial role in the effect of English study. Students with strong self-control and self-motivation were likely to achieve better learning outcomes. Conversely, 35% of interviewees found self-studying LLS challenging and ineffective due to poor self-motivation and average learning abilities, which adversely affected their interest in both English and LLS. The perspectives were supported by the following original summarized examples.

A01, A07, A11, A17, A19, A20: The role of self-study on LLS is not beneficial. Due to it is difficult for below-average learners to understand LLS. They have poor self-motivation and possibly lose interest on LLS and English.

A02, A04, A08, A10, A12, A13: The effect depends on their attitude towards English, which varies from person to person. If student is self-motivated, he can achieve good learning results; if not, the results will definitely not be good.

A04, A05, A06, A08, A14, A15, A16, A18: Self-study is very beneficial, if they review LLS after class, so that they can have a better understanding of LLS, their English level will improve.

Finally, 5% of interviewees felt that the two-year English course was insufficient and that additional online learning and platforms were necessary for long-term progress. 50% of participants emphasized that motivation and self-discipline were crucial for the effect of online LLS teaching. While uploaded videos offer convenience and flexibility for self-disciplined students, online training might be effective for BA learners. According to 45% of interviewees, online courses might be particularly challenging for students who were struggling and lack discipline, reflecting the limitations of online learning. These views were supported by the following original summarized examples.

A01, A04, A05, A07, A12, A15, A17, A18, A20: Online LLS instruction is not beneficial, because especially for the students who are struggling and not self-disciplined, and then it is very difficult to carry out this online teaching.

A02: It is effective because I need to find other ways to improve myself, including some online classes and so on, and if I have a platform like that, it will definitely help to improve my English later on.

A03, A06, A08, A09, A10, A11, A13, A14, A16, A19: The effect depends on self-disciplined and motivation, which varies from person to person. However, it will be not efficient for below-average learners, as they may distracted by other things. If the instructor uploaded the recorded LLS video, and it is convenient and flexible

Clarifying the internal relationships between the key themes and sub-themes is

crucial for model development and conveys these relationships, as detailed in Table 4.22.

Table 4.22 Relation Structure Between Key Theme and Sub-themes

Key theme	Typical relation structure	Connotation of relation structure
Efficient LLS instruction model	Class-based → preparation → Awareness raising	The instructor identified the learners' existing LLS for current task and exams, raising their LLS awareness in class.
	Lecture → presentation → Guided practice	The instructor presented concepts of LLS, guiding learners to practice individually.
	Group learning → Independent practice	The instructor held mixed-level group learning for learners, leaving them practice and discuss independently.
	Self-study → Independent practice → Self-evaluation	The instructor required learner's self-study and practice individually, assessing their LLS use through self-evaluating and English tests.
	Online learning → review → independent practice	After evaluation, learners reviewed online LLS materials and then practice individually.

The researcher conducted a thorough investigation of expert coding results within English education-related sectors, revealing no new categories. The results indicated that the category coding and theoretical framework employed in this paper are robust, accurate, and effectively align with the actual circumstances.

Additionally, the study explored the prioritization of the LLS instruction program through OSI questions, reflecting perceptions related to the priority of LLS training methods for BA students. Specifically, Table 4.22 indicated that 50% of learners believed that combining LLS education with a mixed-method LLS instruction model significantly enhances confidence and EAA. Meanwhile, 10% of interviewees considered classroom-based instruction effective, though they noted that self-study and review were necessary due to time constraints in class. A clear description, practice, and discussion of fundamental LLS practices were highlighted by 5% of interviewees. 10%

of respondents felt that online training presented challenges, such as teachers being unable to assess learning outcomes, poor problem-solving abilities, and limited efficacy, making it an inadequate substitute for in-person instruction. Cooperative group learning in LLS was deemed useful by 5% of respondents, though it might not address individual needs as effectively as online instruction. Understanding and engaging in productive discussions with teachers and students largely depend on self-study in LLS. Summarized examples are provided below to illustrate these findings.

A01, A07, A10, A11, A15 A16, A17, A18, A20: Combining LLS training with cooperative learning in groups and other methods would result in quicker learning while also achieving its own learning goals. A mix of instructional techniques is more efficient, and more reinforcing.

A09: LLS teaching should better suit the needs of the students while considering their self-control. Additionally, some of the strategies are not feasible for below-average students to utilize; for instance, guessing what someone is going to say next when we are unable to comprehend let alone guessing.

4.5.2 The Efficient LLS Instruction Model

Based on the qualitative data analyzed through thematic analysis and quantitative data presented in Section 4.3.2, this study analyzed the OSI manuscripts and the results of the SILL from the LLS intervention program to develop an effective model for teaching LLS to below-average EFL students. The study also revised and refined the LLS instruction model originally presented in Figure 3.10 in Section 3.7.4, aligning it with the findings from RQ4. This refined model adopted a learner-centered approach to LLS instruction. The effect of various LLS instruction methods—class-based teaching, lecture-based instruction, group-based learning, self-study, and online LLS learning—is critically examined. This study provided a comprehensive analysis of the impact of these

five LLS instruction methods within the intervention program and further explores and compared the results from the SILL for below-average vocational learners. The specific details of these five LLS instruction methods were analyzed in the following section.

Regarding class-based LLS instruction, the macro and micro results from SILL, as presented in Section 4.3.2, indicated that the experimental students underwent metacognitive strategy training through a classroom-based approach during the preparation stage. The findings revealed that this approach significantly enhanced the application of these strategies among BA learners. Specifically, post-intervention data showed that the students' use of metacognitive strategies in item S31 ("I notice my English mistakes and use that information to help me do better") and S38 ("I think about my progress in learning English") both reached a score of 3.38, signifying a "usually used" level. Improvements were observed at 0.69 and 0.81 points, respectively. Thus, the classroom-based LLS instruction method proved to be the most effective for BA vocational learners, a conclusion that aligned with the qualitative findings from OSI detailed in Section 4.5.1.

The experimental class received lecture-based training focused on memory and compensatory strategies, and the results demonstrated that this method significantly enhanced the use of LLS among BA vocational learners. Post-treatment data showed that the students' use of strategies S27 ("I read English without looking up every new word") and S29 ("If I can't think of an English word, I use a word or phrase that means the same thing") reached scores of 3.48 and 3.19, respectively, both categorized as "usually used", with improvements of 0.60 and 0.73 points, respectively. Consequently,

the lecture-based LLS instruction method proved to be effective for BA vocational learners, aligning with the qualitative findings from OSI in Section 4.5.1, which ranked lecture-based LLS instruction as the second efficient method after class-based method.

In the group-learning cognitive and social strategies instruction, the experimental class was divided into seven groups based on their English proficiency. This division allowed the instructor to provide targeted guidance tailored to each group's needs, while also enabling students to identify their own gaps in strategy use and receive guidance from higher-level peers within their group. The study found that this approach led to more focused support and effective mutual learning among BA students. After the intervention, the use levels of cognitive and social strategies among the experimental students were 3.13 and 3.28 points, respectively, with changes of 0.55 and 0.53 points, both reaching the level of "usually used."

Furthermore, affective strategies were learned by experimental learners for self-regulated LLS learning, serving as a significant complement to other LLS instruction methods, particularly for students with high self-efficacy. After the intervention, the use of affective strategies among the experimental students was measured at 3.19 points, with a change of 0.51 points, indicating that it reached the level of "sometimes used." This method was also identified as the fourth most effective LLS instruction approach, consistent with the qualitative results from OSI in Section 4.5.1. Following the implementation of these four LLS instruction methods, learners assessed their mastery of LLS. If the average mean score exceeded 3.4, indicating that strategies were "usually used", training was considered complete. If the average score was below this threshold,

learners were provided with additional online LLS materials for further learning.

Many respondents emphasized that while online LLS instruction was flexible and convenient, its effects largely depended on learners' motivation and self-discipline, as highlighted in individual in-depth interviews. Examples from the respondents' summarized feedback are presented below:

[A03, A06, A08, A09, A10, A11, A13, A14, A16, A19] The effect depends on self-disciplined and motivation, which varies from person to person. While the effect of online LLS instruction will be not efficient and interesting for below-average learners, as they may distracted by other things. If the instructor uploaded the recorded LLS video, and it is still more convenient, because do not understand the place can be repeated to watch at any time, and is more flexible and convenient for self-disciplined students.

In summary, based on both quantitative and qualitative results from SILL and OSI, this study revised and enhanced the previous LLS instruction model presented in Figure 3.10 (Section 3.7.4) and developed a new and efficient LLS instruction model for BA vocational learners, as illustrated in Figure 4.9. According to the results in Table 4.21, 55% of interviewees agreed that LLS instruction initially was delivered in the classroom during the preparation stage. The second stage involved lecture-based instruction on LLS. In the third stage, learners engaged in cooperative group learning to share their thoughts and opinions. Fourth, students undertook unbiased revisions of LLS strategies. Finally, BA students practiced LLS online. This LLS instruction model offered a clear implementation framework for LLS training at the macro level. The detailed efficient LLS instruction model is depicted in Figure 4.9.

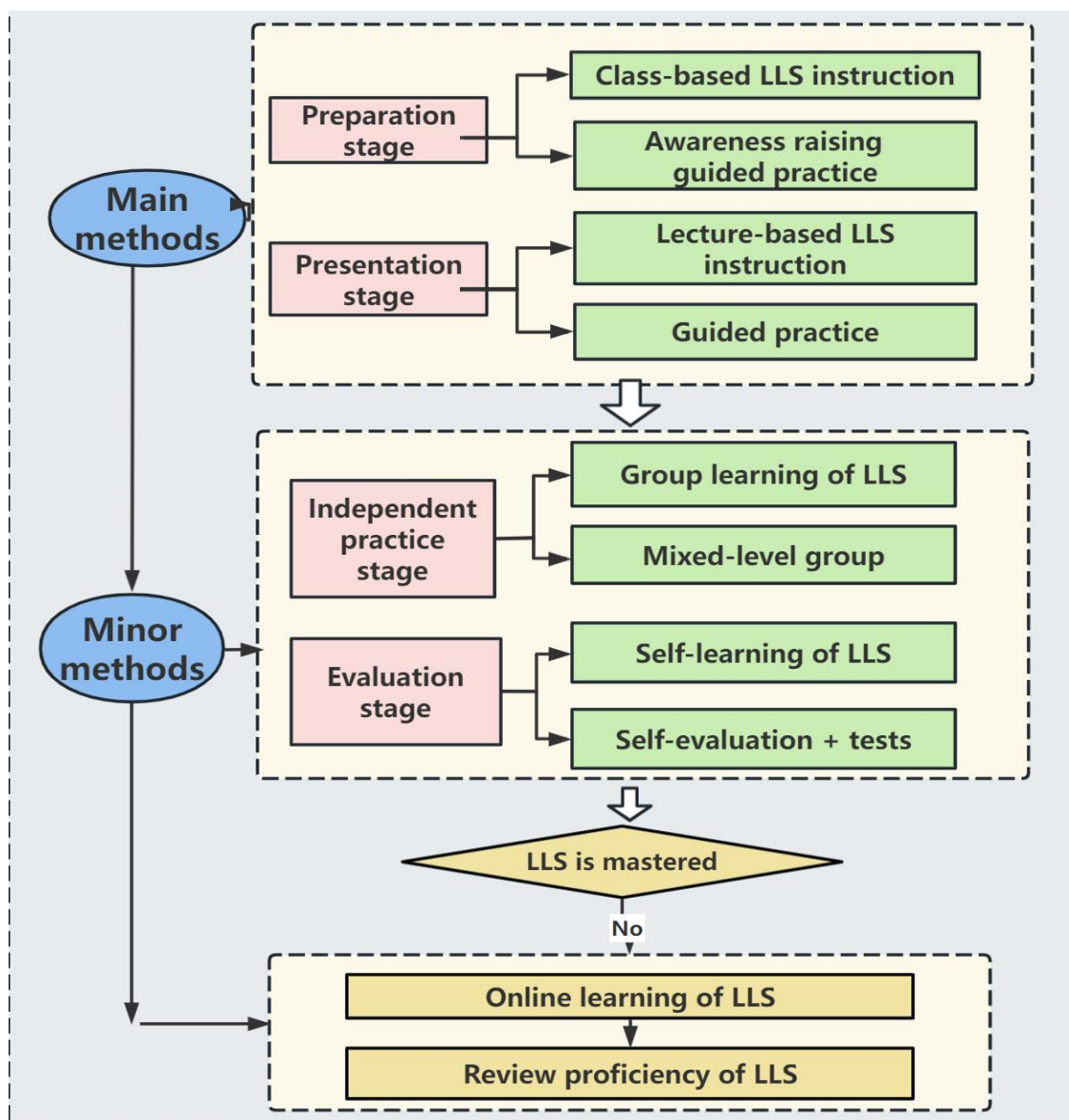


Figure 4.9 The Efficient LLS Instruction Model for Below-average EFL Learners

Based on Figure 4.9, the LLS instruction model encompassed both primary and secondary methods. The two primary LLS instruction approaches are as follows: At the preparation stage, the instructor assessed the students' current LLS usage for ongoing tasks and assessments, increased their LLS awareness in English classes, and facilitated guided practice in the classroom. During the lecture-based LLS instruction phase, the instructor guided students through individual practice while presenting LLS topics at the

presentation stage. There are three secondary LLS instruction methods: First, during the independent practice stage, the teacher engaged students in mixed-level group learning, allowing them to practice and discuss strategies among themselves. Second, students were instructed to practice and self-study independently, with their LLS usage evaluated through English tests and self-evaluations using SILL. Lastly, if learners did not master LLS, they could review online LLS resources in independent practice.

4.5.4 Summary of Findings Related to RQ4

RQ4 was analyzed from three aspects: 1) Data analysis of OSIs through thematic analysis; 2) Students' perceptions of the intervention program, which included feedback on the practicality of the program, the priority of LLS training methods for BA students, the application of LLS in EFL classrooms, and students' attitudes toward the intervention program and LLS; and 3) The efficient LLS instruction model. This model consisted of two primary LLS instruction methods: In the preparation phase, the instructor assessed students' current LLS usage for tasks and exams, enhanced their LLS awareness in English class, and provided guided practice. In the lecture-based LLS instruction phase, the instructor guided students through individual practice while presenting LLS themes. Additionally, there were three secondary LLS training methods: During the independent practice stage, the teacher facilitated mixed-level group learning, allowing students to practice and discuss strategies independently. The teacher then assigned tasks and encouraged self-study while evaluating students' LLS use through English examinations and self-evaluations. If learners did not achieve mastery of LLS, they could access online resources and engage in independent practice.

4.6 Conclusion

The research questions were addressed through both quantitative and qualitative methods, with qualitative data analyzed using thematic analysis. The results demonstrated a significant relationship between LLS instruction, strategy use, and English academic achievement, suggesting that LLS instruction enhanced both LSU and EAA among BA students. The investigation also explored how students utilized LLS in their English learning, revealing that they frequently preferred and employed these strategies. Students were encouraged to apply LLS during their English studies and while answering English-language questions in LLS instruction lessons. Additionally, an effective LLS instruction model was developed based on the quasi-experiment and semi-structured interviews. Consequently, the study's objectives were achieved.

In the following chapter, the main results associated with each research question are discussed individually in the light of prior empirical evidence in the field of LLS, EAA, and LSU in EFL academic learning.

CHAPTER 5

CONCLUSION

5.1 Introduction

This chapter is dedicated to presenting an overall discussion of the results in relation to the research questions concerning the effects of LLS instruction on below-average EFL learners' English academic achievement (EAA) and the level of strategy use (LSU) at the vocational college. The findings were supported and contextualized through a discussion of relevant previous research. Additionally, the chapter explores the implications of this study for vocational college EFL/ESL practitioners, offering insights into effective LLS instruction models. Contributions, implications and recommendations for future research are also provided, highlighting potential areas for further investigation.

5.2 Summary of the Findings

To investigate the effect of LLS instruction on BA EFL learners' English academic achievement and level of strategy use in the vocational college, this study employed a mixed-method research methodology, encompassing a quasi-experiment, a questionnaire survey, and semi-structured interviews. The quasi-experiment, which included pre- and post-tests, aimed to examine the relationship between improved EAA and LLS instruction in EFL college English lessons. Initially, SILL questionnaires were administered to EFL BA students to explore the frequency and preference of LLS use. The results revealed that BA learners preferred using social strategies ($M=2.74$), compensatory strategies ($M=2.71$), affective strategies ($M=2.67$), metacognitive

strategies (M=2.64), cognitive strategies (M=2.57), and memory strategies (M=2.44), in descending order of preference. Memory strategies were used the least by BA students, while compensatory and social strategies were generally employed more frequently.

Next, the results of the pre-test and post-test from the experiment demonstrated that LLS instruction had positive effects on below-average EFL learners' EAA. The average CET-4 and CEFE scores of the experimental group significantly exceeded those of the control group in the post-test.

In addition, an analysis of the relationship between LLS instruction and the LSU of BA learners revealed the following: From both macro and micro perspectives of LSU, there was a difference of 0.5760 points in the comparison of LSU for students in the experimental class before and after the experiment. Furthermore, there was a difference of 0.5860 points in the cross-sectional comparison of LSU between the experimental and control classes after the experiment. This difference, which exceeded 0.5 points, indicated that LLS instruction significantly improved the LSU of below-average learners. Research has demonstrated a notable correlation between LLS instruction, LSU, and EAA, suggesting that LLS instruction had the potential to enhance both LSU and EAA for BA students. The study also examined how students utilized LLS for studying English, revealing that they used it regularly and preferred it. During the LLS instruction lessons, students were encouraged to apply LLS in learning English and responding to English-language questions. Additionally, the quasi-experiment and semi-structured interviews provided the basis for developing an effective LLS instruction model.

Moreover, OSI was conducted with 20 experimental students who participated in

the one-semester intervention program to clarify the increase in their academic English test scores and explore learners' perceptions of the LLS instruction model and the efficient LLS instruction model. For QR4, the efficient LLS instruction model comprised both primary and secondary methods. Specifically, the two main LLS instruction approaches were as follows: During the preparation stage, the instructor assessed the students' existing LLS for the current tasks and tests, enhanced their LLS awareness in English class, and facilitated guided practice. During the lecture-based LLS instruction phase, the instructor directed students to practice individually while presenting LLS topics. There were three supplementary LLS instruction methods: In the independent practice stage, the instructor involved students in mixed-level group learning, allowing them to practice and converse autonomously. Additionally, students were instructed to self-study and practice on their own while their LLS use was evaluated through English tests and self-assessments. Following evaluation, learners who did not achieve mastery of LLS accessed online LLS resources and engaged in individual online practice.

Overall, learners perceived LLS instruction positively, recognizing its benefits for strategy use. The instruction notably improved the mastery and level of LLS use, with most participants achieving proficiency in various LLS components. Furthermore, LLS instruction had a positive effect on enhancing participants' English learning skills. The findings aligned with previous research (e.g., Oxford, 2014; Habók, Magyar, & Molnár, 2022; Gavriilidou & Papanis, 2009), reinforcing the effectiveness of LLS instruction in educational contexts. The study also highlighted the potential for LLS instruction was a valuable tool in enhancing language learning outcomes.

5.3 Discussion on Research Questions

The second step in the discussion section is to provide interpretations, namely, to explain their relevance and significance, identify correlations, discuss results in relation to hypotheses, and contextualize them with previous research (McCombes, 2020). This study revealed that LLS instruction significantly improved BA college learners' LSU and EAA. The findings confirmed the theory that LLS is teachable and beneficial for EFL learners during their learning process.

Specifically, after the LLS intervention program, learners in the experimental class showed a statistically significant increase in the use of memory, cognitive, compensatory, metacognitive, affective, and social strategies, as well as in the overall use of strategies. This was supported by both quantitative and qualitative data analyses, which revealed substantial increases in students' CET-4 and CEFE scores following LLS instruction. Additionally, the study found that BA EFL learners benefited from LLS instruction and the mixed training model, among other factors, contributing to improvements in English academic achievement and level of strategy use. The results are discussed in terms of the following aspects: the preferences and frequency of LLS used by BA EFL learners; the relationship between LLS instruction and LSU; the impact of LLS instruction on EAA; and the efficient LLS instruction model.

5.3.1 The preferences and frequency of LLS used by BA EFL learners

RQ1: What are the preferences and frequency of LLS used by below-average EFL learners in the Chinese vocational college?

RQ1 was formulated to investigate the preferences and frequency of strategy use among BA learners in the vocational college. The quantitative data revealed that the frequency of strategy use was not only average (2.63 points) but also tended to be categorized as “usually not used”. The score of $M = 2.63$ represented the true LSU of all participants, and the standard deviation (SD) of 0.40 indicated minimal dispersion in the survey data, suggesting little variation among individuals. Regarding preferences, BA learners favored social strategies ($M = 2.74$), compensatory strategies ($M = 2.71$), affective strategies ($M = 2.67$), metacognitive strategies ($M = 2.64$), cognitive strategies ($M = 2.57$), and memory strategies ($M = 2.44$), in descending order. Memory strategies were the least utilized by BA students, while compensatory and social strategies were used more frequently. This suggested that students might find compensatory and social strategies more immediately applicable or beneficial in their language learning context. The preference for these strategies over memory strategies indicated a potential gap in the students’ approach to language learning that could be addressed through targeted training. Finally, based on statistically significant quantitative data, most participants expressed willingness to engage in an LLS training program to acquire additional strategies. However, a possible explanation for this result was supported by the belief stated by Amerstorfer (2016) et al., which suggested that learners’ motivation to participate in LLS training may stem from their inadequacy in current strategy use.

These conclusions were also supported by Amerstorfer (2016), who found that BA learners used memory strategies the least ($M = 2.22$) and preferred metacognitive and affective strategies equally (both 3). The results of this study aligned with those of Prastik (2023) and Hong-Nam and Leavell (2007), who reported that bilingual learners’

preferences ranged from highest to lowest, with metacognitive strategies being favored ($M = 3.30$), followed by compensation strategies, cognitive strategies, affective strategies, social strategies, and memory strategies as the least preferred. According to Sheu (2018), more competent learners reported using more cognitive and sociocultural strategies than their less competent counterparts. They highly valued formal classroom education, considering the active interactions and rigorous language courses to be particularly beneficial for their development.

Similar to the findings of Lai (2009), the use of strategies was significantly influenced by proficiency level, with more proficient learners employing a broader range of strategies. The most frequently used methods were meta-cognitive and cognitive strategies, while memory strategies were utilized less often. All strategies used ranged from ($M = 3.4$) to ($M = 2.50$). The study's results aligned with previous research, which found that both groups of undergraduates effectively used compensation, social, and metacognitive strategies, while memory strategies were the least employed (Qi & Chen, 2014; Jiao, Ganapathy & Chang, 2023). Although memory strategies were practical for BA learners, especially for memorizing vocabulary, such as using new English words in sentences for better retention, they were used less frequently. Students' preferences and the frequency of LLS use were attributed to their awareness of these strategies, as facilitated by their English teachers.

The interpretation for the results of RQ1 was explored from both instructor and student perspectives. From the teacher's viewpoint, many students mentioned in interviews that "the biggest difficulty in learning English is the inability to remember

words.” This suggested that some teachers might lack a strong sense of strategy in their instruction and did not guide students in mastering memory strategies, leading to their under-use. At the student level, BA students initially employed LLS infrequently ($M=2.63$), which aligned with Hypothesis 1 of the study, indicating a low awareness of strategies and limited English proficiency that restricts their use of LLS (Qi & Cao, 2014). Interviews revealed that some students perceived the S6 strategy as requiring excessive effort, stating, the S6 strategy requires too much effort to make word cards, leading them to avoid using it. Additionally, students rarely used the S8 strategy to review their homework after class due to “too much homework, lack of time,” and “lack of interest in English.”

5.3.2 The Relationships Between LLS Instruction and LSU

RQ2. Is there any relationship between LLS instruction and the level of strategy use of below-average EFL learners in the Chinese vocational college?

RQ2 was examined through three approaches: First, the OSI data were analyzed through thematic analysis. The model illustrating the relationship between LLS instruction and LSU was developed based on the following five findings: LLS instruction improved interviewees’ motivation for English learning; LLS instruction significantly impacted LSU, with effects ranging from 60% to 85%; LLS instruction enhanced participants’ LSU; LLS instruction improved mastery of LLS, with most participants mastering a substantial portion of the strategies; and LLS instruction positively affected participants’ English learning skills. These findings were consistent with previous research (Habók, Magyar & Molnár, 2022; Alfian & Rossetto, 2016).

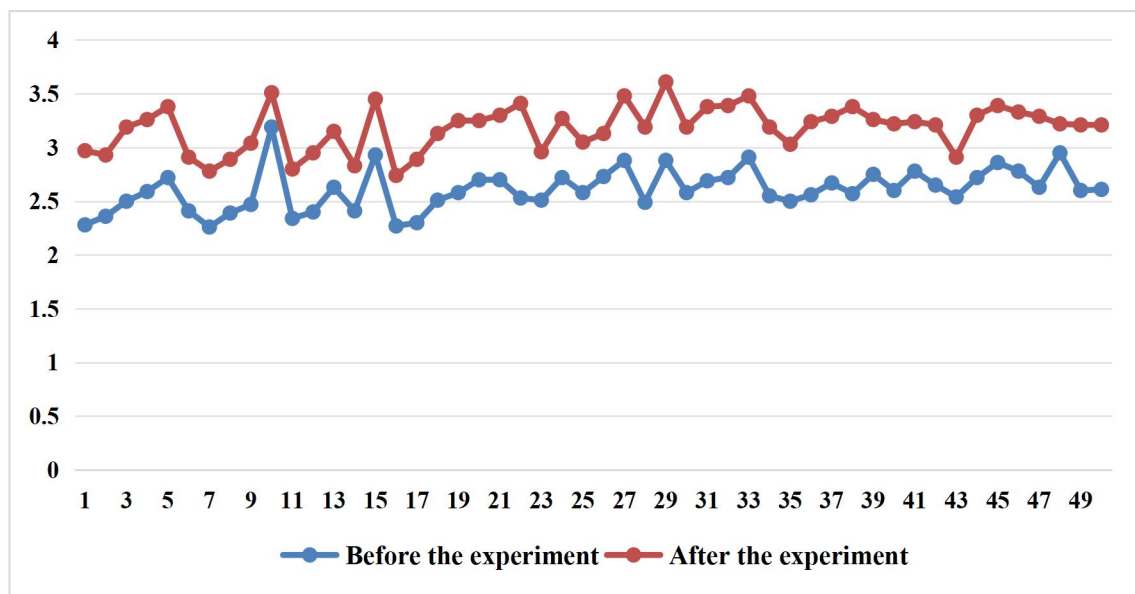


Figure 5.1 Micro Comparison of LSU Post-test of the Experiment Class

Figure 5.1 displays a micro-comparison of the post-test mean scores of LSU. The mean values for the experimental group exhibited a parallel trend, fluctuating by nearly the same amount before and after the intervention program. Notably, after the LLS instruction, the experimental group experienced significant improvements and increases in LSU, while the LSU of students in the control class did not change significantly. This confirmed the validity of experimental Hypothesis 2. The results of RQ2 clearly indicated that LLS training has had a cascading effect, significantly enhancing BA learners' LSU and cultivating a strong sense of strategic awareness. The observed improvements in strategy use reflected the effects of the LLS instruction, demonstrating its success in fostering greater engagement with learning strategies. These findings aligned with prior research by Gavriilidou and Papanis (2009), which also reported substantial gains in strategy use among EFL learners following targeted strategy instruction. The consistency with previous studies underscored the robustness of the current study's outcomes.

Moreover, the macro quantitative findings revealed that following the LLS intervention program, learners in the experimental class demonstrated a statistically significant increase in the use of memory, cognitive, compensatory, metacognitive, affective, and social strategies, as well as an overall increase in the use of total strategies. Additionally, the micro quantitative findings indicated that the difference between the two groups was statistically significant at the 0.01 level, with the metacognitive strategy showing the greatest improvement. The effect sizes for all strategies were substantial, with Cohen's *d* values exceeding 0.8 and ranging from 0.9192 to 2.5198, reflecting large differences before and after the intervention. After the experiment, the use levels of the 40 test items improved, with 32 items showing increases greater than 0.50.

In general, an analysis of the relationship between LLS instruction and the level of strategy use among BA learners revealed the following: From both macro and micro perspectives, the difference of 0.5760 points in the level of strategy use among students in the experimental class before and after the intervention, and the 0.5860-point difference in the cross-sectional comparison between the experimental and control classes after the intervention, demonstrated that LLS instruction significantly improved the LSU of below-average learners. This effect was notably significant. Specifically, students in the experimental class exhibited improvements in the use of cognitive, compensatory, metacognitive, and social strategies, with their use shifting from an average level before the experiment to a level of usual use afterward. This also supported the validity of Hypothesis 2, confirming that LLS training effectively enhanced the strategy use of below-average BA learners.

Additionally, Khan and Khan (2018) emphasized the importance of integrating LLS instruction into the curriculum and classroom practices to foster broader use of learning strategies. They suggested incorporating activities into regular lessons that focused on and necessitated the application of specific methods. Furthermore, Griffiths and Oxford (2014) argued that LLS could be taught effectively, enabling students to use strategies to engage actively and fluently in the learning process. Training students in these strategies enhanced their proficiency and frequency of LLS use. Effective programs such as Strategies-Based Instruction (SBI) and the Cognitive Academic Language Learning Approach (CALLA) have been shown to be beneficial (O'Malley & Chamot, 1990). Yan and Kim (2023) found that CMM-based schema strategy instruction improved undergraduates' meta-cognitive awareness of schema strategies in reading. Thus, the findings of RQ2 aligned with these conclusions, demonstrating a significant relationship between LLS instruction and the level of strategy use.

As the experiment instructor played a critical role in shaping students' comprehension of learning objectives and task instructions, practice was essential to the LLS intervention program. In the semi-structured one-on-one interviews, many respondents highlighted the significance and impact of LLS instruction. A summary of their responses is presented below:

Before learning LLS, they read the original text and searched for answers. After learning strategies, such as, they can sorted words like verbs, nouns, adjectives, and infinitives, then put them back into the original text. This helps them find the correct answer, using some strategies to help memorize English words. [A02, A10, A14, A16, A19]

5.3.3 The Relationships Between LLS Instruction and EAA

The impact of LLS instruction on EAA was examined using both quantitative and qualitative methods to triangulate the data and enhance the validity of the conclusions. Details of this analysis are presented in the following sections. The qualitative data from OSI were analyzed through thematic analysis.

In addition, learners in the experimental class exhibited a statistically significant increase in EAA (CET-4 score) following LLS instruction based on Table 4.11. The *t*-value for the difference between the two groups was greater than 2, indicating a statistically significant difference. Moreover, the mean variation was high at 23.93, reflecting a significant improvement in EAA among EFL learners in the experimental group following the intervention program. The effect size (Cohen's *d*) values > 0.8 , specifically 0.8827, confirmed a substantial difference between the pre- and post-intervention scores of the experimental group. According to Table 4.14, after LLS instruction, learners in the experimental class showed a statistically significant increase in their English academic achievement (CEFE). Conversely, learners in the control group did not exhibit a statistically significant increase in EAA (both CEFE and CET-4 scores) following LLS instruction based on Table 4.15. The *t*-value for the control group was -0.3003, indicating no significant difference before and after the experiment.

In summary, LLS instruction significantly improved learners' EAA, enhancing their English learning attitudes, accuracy and efficiency in English tests, motivation, and cooperative learning. Specifically, after the intervention program (LLS instruction), the experimental group showed notable improvements in EAA, while the EAA of students

in the control class did not change significantly, thus confirming experimental hypothesis 3. The results of RQ3 clearly indicated that LLS instruction has created a cascade effect, effectively boosting BA learners' English academic achievement. This has fostered a heightened sense of English learning awareness among them, underscoring the success and notable outcomes of the LLS instruction. These findings were consistent with Rao (2016), who found that strategy instruction positively impacted students' English proficiency, with higher-level students using strategies more frequently than lower-level students.

The findings of RQ3 aligned with Habók and Magyar's (2018) results, which demonstrated that LLS had a significant impact on foreign language grades, academic achievement, and learner attitudes. Similarly, Habók, Magyar, and Molnár (2022) found that students' levels of strategy use, which ranged from low to moderate, were statistically significant predictors of foreign language achievement. Yang (2007) emphasized the need for integrating LLS training into junior college English classes to enhance students' English language proficiency. Zare and Nooreen (2013) found a positive correlation between reading comprehension achievement and the use of reading strategies among Malaysian ESL learners. Ismaiel and Asmari (2017) reported statistically significant differences between the experimental and control groups. These results stressed the importance of LLS instruction in strengthening vocabulary, reading skills, and overall English achievement.

The findings of RQ3 in this study were also consistent with several previous studies that found a significant positive relationship between the use of language

learning strategies and academic achievements. Those studies indicated that students who use strategies less frequently tended to make slower progress (Ofiaz, 2019; as cited in Griffiths & Oxford, 2014; Habók, Magyar & Molnár, 2022). The implications of RQ3 served as empirical support for the use and instruction of LLS, highlighting their effectiveness in enhancing below-average EFL learners' English achievement. Specifically, this emphasized the need to promote and integrate LLS instruction to help EFL students improve both their academic performance and strategy use.

5.3.4 The Efficient LLS Instruction Model

The results of RQ4 of this study provided significant insights into the efficacy of the learner-centered, mixed-method approach known as the efficient LLS instruction model. This model integrated class-based teaching, lecture-based instruction, group-based learning, self-learning, and online LLS instruction methods, demonstrating a comprehensive strategy for enhancing language learning. The subsequent discussion clarified the significance of these findings, highlighted key correlations, and interpreted the results in relation to the hypotheses. Additionally, it situated these findings within the context of existing research, offering a nuanced understanding of their implications for future LLS instruction practices.

This study conducted semi-structured interviews and an experimental intervention program, analyzing qualitative data through thematic analysis. It developed an efficient model for teaching LLS to below-average EFL students and provided detailed implementation instructions. The model involves: (1) teaching LLS in the classroom during the preparation phase, (2) using a lecture-based method for instruction,

(3) engaging students in cooperative group learning activities, (4) encouraging objective revision of LLS, and (5) recommending online practice and additional exercises for below-average learners. The LLS instruction implementation path thus offered a robust framework for strategy instruction. The study hypothesized that a mixed-method LLS instruction paradigm would significantly enhance learners' overall EAA and LSU, a hypothesis validated by marked improvements in both academic achievement and strategy use. Specifically, the results confirmed that integrating in-person and online LLS learning modalities positively impacted learning outcomes. The varied instructional strategies, catering to different learning preferences and styles, were particularly beneficial to the students.

The learner-centered mixed-method LLS instruction approach, integrating class-based teaching, lecture-based instruction, group-based activities, self-learning, and online LLS methods, was highly effective. This approach encompassed both primary and secondary methods of instruction. Specifically, the primary methods included: (1) determining students' current LLS levels for assignments and tasks during the preparation phase, enhancing their LLS awareness in class, and facilitating guided practice; and (2) guiding individual practice while presenting LLS topics during the lecture-based instruction stage. The secondary methods involved: (1) engaging students in mixed-level group work during the independent practice phase, allowing them to interact and practice independently; (2) instructing learners to study and practice on their own, with assessments through English tests and self-assessments; and (3) for those who did not master LLS, providing access to online materials for further review before solitary practice.

The findings of RQ4 aligned with several studies in the field. Griffiths and Oxford (2014) highlighted that, from a cognitive perspective, strategies were not only teachable and learnable but also crucial for active participation in the learning process. Moreover, effective strategy instruction models, such as CALLA, SBI, Grenfell & Harris's model, and TCLTSP, underscored the importance of identifying success factors within any strategy instruction model and program (Griffiths & Oxford, 2014). Chamot and Harris (2019) explored LLS instruction from various angles, examining different models while considering students' needs, learning environments, specific language abilities, resources, instructor roles, and classroom implementation methods. Dao (2020) found that effective interaction in LLS instruction fostered positive emotions and enhances peer assessment. Trendak (2019) addressed issues and implementation challenges in LLS instruction models, with findings consistent with those of this study. Sun and Zhang (2021) emphasized that to support students in learning LLS, teachers must employ a range of pedagogical approaches and methods.

The efficient LLS instruction model presented in this study was corroborated by previous research. Chamot advocated for flipped classroom models to enhance LLS instruction effectiveness, recommending web-based LLS instruction prior to in-person language lessons, especially for below-average students (as cited in Cohen & Griffiths, 2015). Chamot and Harris (2019) outlined a range of exercises for effective strategy teaching, including raising awareness, modeling, practicing, and assessing strategies, which aligned with the CALLA stages. Their findings provided a robust theoretical and practical framework, supported by extensive exercises and resources for LLS instruction. Cohen and Weaver (2005) addressed issues in Strategies-Based Instruction (SBI), a

learner-centered approach integrating language learning exercises with regular classroom education. They developed SBI activities in reading, vocabulary, grammar, and speaking practice, along with relevant frameworks. Mahmood (2021) explored concepts for online instruction and lectures, highlighting strategies to enhance remote teaching and factors influencing its effectiveness. This study built upon these foundational works by integrating various successful elements into a cohesive model specifically tailored for below-average EFL learners, thereby addressing identified gaps and leveraging proven instructional strategies.

Overall, the effective LLS instruction model for below-average students aligned well with the findings of earlier studies in EFL contexts (Cohen & Griffiths, 2015; Chamot & Harris, 2019; Mahmood, 2021 et al.). The study not only formulated an effective model tailored for BA students but also offered comprehensive guidance on its application. This model integrated insights from prior research and combined key elements from various successful strategy instruction methods, ensuring a robust framework for enhancing LLS effectiveness among students with lower proficiency levels. The model's alignment with established research underscored its practical value and potential for broader application in similar educational settings.

5.4 Implications of the Present Study

The findings of the current study can be regarded as having several pedagogical implications for LLS use and instruction. Considering pedagogical implications, the findings offered practical recommendations for practitioners, policymakers, and educators, aiding in the improvement of LLS instruction and practices in the EFL field.

Additionally, the study's insight into effective strategy integration and the development of tailored instructional models provided valuable guidance for refining existing teaching approaches and enhancing overall educational outcomes for below-average learners.

First, the findings of the current study provided empirical justification for LLS use and instruction. Specifically, they stressed the necessity of incorporating LLS into instructional practices to enhance EFL students' English academic achievement and strategy use. Consequently, these findings suggested that instructors and curriculum developers need to re-evaluate and modify English language teaching methods to prioritize LLS instruction. It is crucial for educators to focus on BA EFL learners by designing effective strategies to engage them in LLS, which will help improve their English academic achievement and strategy use. This approach enabled EFL students to better supervise, control, and regulated their learning process, ultimately leading to more effective language acquisition.

Implications for EFL teachers and learners: From a pedagogical perspective, the findings of the current study's efficient LLS instruction model were validated by researchers such as Griffiths and Oxford (2014), Chamot and Harris (2019), and Mahmood (2021). The LLS instruction models developed in this study may complement existing models, such as Cohen's (1990) SSBI model, Chamot's (2005) CALLA model, Grenfell & Harris's (1999) and the TCLTSP models by Gao, He, and Zeng (2017). Specifically, these studies highlighted that strategies were both teachable and learnable. They also emphasized the importance of mixed LLS instruction models that catered to learners' diverse needs, environments, and language abilities. This included considering

available resources, instructor roles, and the methods used, thereby underscoring the necessity for adaptable and comprehensive strategy instruction in EFL contexts.

According to the findings of this study, policymakers and practitioners may recognize the crucial role of LLS instruction in enhancing teaching practices. Specifically, the study provided empirical evidence that effective LLS instruction positively impacted the English academic achievement of below-average learners. Additionally, these findings aligned with the objectives of USM and the Sustainable Development Goals (SDGs) as outlined by Munirah and Normaliza (2019). This research contributed to EFL education by offering insights into how BA EFL learners can improve their language skills in authentic contexts. Moreover, it introduced a fresh perspective that may attract the attention of EFL and ESL practitioners, encouraging them to address and resolve the challenges faced by BA learners in English learning. This effort represented a positive pedagogical advancement, potentially fostering more independent language learning among students.

Third, implications for LLS researchers: The present study provided substantial evidence supporting the significant positive relationship between LLS instruction and both college learners' LSU and EAA (Habók, Magyar, & Molnár, 2022; Oflaz, 2019; as cited in Griffiths & Oxford, 2014). These findings not only enhanced the existing research on LSU and EAA but also offered EFL/ESL pedagogical researchers new avenues for future investigations (Griffiths & Incecay, 2016). The experimental research on LLS is primarily grounded in college English teaching. Consequently, the LLS instruction model and implementation path developed in this study may serve as

valuable references for college English teaching reforms, particularly in the context of EFL BA learners. Moreover, given that LLS improved learners' English learning skills, these findings may also provided useful insights for curriculum designers seeking to refine LLS content for vocational college English courses (Thomas, Bowen, & Reynolds, 2021).

In conclusion, the findings of the present study provided compelling evidence that the LLS instruction was effective in significantly enhancing BA EFL learners' LSU, as well as their EAA. This demonstrated that the LLS instruction model developed in the study not only facilitated learners' strategy use and academic performance but also contributed to their long-term engagement and success in English language learning.

5.5 Recommendations for Potential Future Research and Pedagogy

Although LLS research had yielded significant results over more than thirty years, numerous issues remain that require urgent exploration. This study focused specifically on pressing problems within the domain of LLS instruction, particularly at vocational colleges in China. It aimed to address three key issues that need further investigation to advance the field of LLS instruction effectively.

First, there is an urgent need to strengthen research on LLS for below-average EFL learners. Addressing how to assist BA learners in overcoming difficulties in English learning and eliminating their status as “outcasts” is a pressing challenge for English educators. To achieve this, future research must expand on LLS specifically for below-average EFL learners, with a particular emphasis on strategy instruction. Longitudinal studies that cover all stages of English education are essential for guiding

many BA English learners out of their learning struggles. Consequently, the study of LLS instruction for BA EFL learners was poised to become a significant trend in LLS research.

Based on the findings, educational policymakers should integrate LLS instruction into curriculum design, mandating its inclusion in college and university English language curricula. It is crucial that curriculum guidelines emphasize effective strategies for vocabulary acquisition, comprehension, and language use. Additionally, policymakers should incorporate LLS instruction into English assessment frameworks by developing tools to measure its impact on students' language proficiency. Utilizing assessment data can help refine and enhance LLS instruction models and teaching practices. Furthermore, fostering LLS learning environments is essential; policymakers should encourage the creation of spaces where students can share and practice various language learning strategies, and promote peer-assisted learning and group activities that reinforce LLS instruction.

Moreover, exploring LLS instruction modes within an internet environment offers several advantages. Online LLS instruction can extend access to strategy training beyond a limited audience, providing opportunities for broader participation. Compared to traditional methods, online platforms can deliver more targeted and extensive strategy information, allowing for personalized and scalable training. Additionally, online instruction offers greater flexibility in terms of time and location, enabling learners to engage with the material at their convenience without being restricted to specific physical locations. Economically, online instruction can be more cost-effective, reducing

the need for substantial human and material resources and offering long-term benefits compared to conventional training models. Consequently, further research into web-assisted LLS instruction is likely to advance its development and implementation. For instance, online LLS materials such as instructional videos on platforms like YouTube via <https://www.youtube.com/watch?v=xF6L4LeOFk8>, including those developed by the Oxford Language Institute, offer valuable resources for learners.

Finally, exploring the impact of LLS instruction on various influencing factors is essential. Existing LLS research has demonstrated that learners' awareness of LLS and their strategy use are affected not only by individual factors such as motivation, learning style, attitude, ability, philosophy, and personality, but also by external factors including instructors, pedagogies, teaching materials, and assessment methods (Ehrman & Oxford, 2003). However, most studies had primarily focused on the effects of LLS instruction on enhancing learners' performance and achievement, often neglecting these other influential factors. Future research are recommended to uncover the interactions and relationships among these factors, providing a more comprehensive understanding of how different elements impact learners' strategy use (Ehrman & Oxford, 1990).

The present study yielded positive results, consistent with findings from some previous research. Thus, this pedagogical method warranted further investigation in different contexts. For example, the strategy-based approach could be tested with larger samples of foreign language learners. Additionally, examining the effect of this approach with low-proficiency learners before initiating mixed-method strategy instruction is recommended, as it is likely to be most beneficial for lower-proficiency

students (Vandergrift & Tafaghodtari, 2010). Furthermore, future research could enhance result accuracy by employing additional forms of triangulation, such as think-aloud protocols or student diaries. This study may provide the opportunities for global LLS teaching reform and innovation.

5.6 Limitations of the Study

The study was designed with a rigorous research framework, but its scope was constrained by both internal and external factors. The results reflected a compromise of these factors, highlighting specific research limitations (Macaro, 2005). The limitations of this study can be summarized in four key aspects: research participants, research scope, research instruments, and research duration.

The participants in this study were limited to students from Xi'an Traffic Engineering College in China. Consequently, the findings may be specific to this context and may not be generalizable to EFL students with different educational backgrounds, native languages, or cultural settings. Additionally, the results may not extend to other educational institutions, such as elementary schools, given that the study focused on EFL or ESL learners from a vocational college, despite some similarities in teaching contexts.

Considering the limitations of research capabilities and conditions, this study focused exclusively on the effect of LLS instruction on improving the LSU and EAA of below-average EFL learners. It did not examine other potentially influential factors such as learners' motivation, perception, learning style, or other individual variables. Therefore, from the perspective of research scope, the study had certain limitations.

Future research should address these aspects to provide a more comprehensive understanding of how LLS instruction interacts with various individual and contextual factors to influence language learning outcomes.

The instrument used in this study, the *Strategy Inventory for Language Learning* (SILL) developed by Oxford (1990), is a widely utilized tool for investigating strategy use but is not the only available instrument. Consequently, the SILL may not encompass all effective language learning strategies employed by EFL learners. Thus, the language learning strategies examined in this research were limited to those included in the SILL.

From the perspective of research duration, the study involved a one-semester strategy instruction program. Due to research constraints, it was not possible to track the students' LSU in the experimental class after the intervention concluded. Consequently, the long-term benefits of LLS instruction on learners' future English learning, as well as the duration of its effects on their LSU and English academic achievement, remain unclear.

Overall, the conclusions of the study offered an objective understanding of the relationships between variables within specific conditions, instruments, content, and participant groups. However, these conclusions had inherent limitations and were influenced by contextual factors that may affect their applicability. Future research is necessary to assess the representativeness and generalizability of these findings, as they were constrained by the specific conditions and limitations of this study.

5.7 Conclusion

The conclusion should be concise and engaging, clearly answering the research questions, summarizing the research process, making recommendations for future studies, and highlighting the study's contributions (McCombes & George, 2022). This study employed a mixed-methods approach, incorporating a quasi-experiment, questionnaire surveys, and semi-structured interviews to provide empirical evidence on the effects of LLS instruction on below-average EFL learners in vocational colleges. It emphasized the impact of LLS instruction on learners' strategy use (LSU) and English academic achievement (EAA). The results from the SILL survey revealed a total mean score of 2.63 for strategy use among 442 undergraduates, indicating "usually not used" strategies. Specifically, meta-cognitive and cognitive strategies were the most frequently utilized, while memory strategies were used less often. These findings were consistent with previous research indicating that compensation, social, and metacognitive strategies were used effectively, whereas memory strategies were less effective (Qi & Chen, 2014; Jiao, Ganapathy & Chang, 2023; Hong-Nam & Leavell, 2007).

The study provided empirical evidence that LLS instruction enhanced the language strategy use (LSU) and English academic achievement (EAA) of vocational BA learners. The results aligned with previous research and suggested that a mixed model of LLS instruction was particularly beneficial for below-average EFL learners. Additionally, LLS instruction was found to improve learners' English learning motivation, attitudes towards strategy use, mastery of LLS, and the accuracy and efficiency of English tests, as well as overall English learning skills. These findings corroborated earlier studies (e.g., Oxford, 2014; Habók, Magyar & Molnár, 2022; Alfian

& Rossetto, 2016; Zare & Nooreen, 2013). The research underscored the significance of LLS instruction in teaching practice, demonstrating its positive impact on the EAA of BA learners. Furthermore, the study's results aligned with the goals of USM and the SDGs, contributing to EFL education by offering insights into effective strategies for enhancing the English language learning of vocational BA students.

Finally, the study employed both qualitative data, analyzed through thematic analysis, and quantitative data to develop a mixed-method LLS instruction model for EFL vocational BA learners. This model incorporated five LLS instruction methods and several stages: presentation, raising awareness, guided practice, independent practice, and evaluation. The findings aligned with those of previous research (e.g., Cohen & Griffiths, 2015; Chamot & Harris, 2019; Mahmood, 2021). The LLS instruction model and implementation framework proposed in this study may provide valuable references for reforms in college English teaching theory, offering new theoretical perspectives on effective LLS instruction models. Future research can explore LLS instruction across various factors, including learners' awareness, motivation, learning styles, attitudes, abilities, and philosophies. Additionally, future studies should focus on online LLS teaching approaches and their impact on below-average learners.

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APPENDIX A: LANGUAGE LEARNING STRATEGY CATEGORIES SYSTEM

(Adopted from Oxford, 1990)

Oxford (1990) Language Learning Strategies	Direct Strategies	Memory- strategies	Building mental linkage	Grouping
				Associating/ elaborating (e.g., acronyms)
				Placing new words into a context
			Using Images and sound	Via images (e.g., mental pictures of words)
				Semantic mapping
				Applying keywords
				Representing sounds in memory (e.g., rhyming)
			Reviewing carefully	Reviewing structure
		Cognitive strategies	Employing action	Employing physical response or sensation (total physical response)
				Mechanical techniques (e.g., flashcards)
			Practicing	Reorganizing and applying formulas and patterns
				Repeating
				Regular practicing with sounds and writing
				Recombining and using fixed collocations
			Receiving & sending Information	Practicing authentic
				Gaining the idea quickly
			Reasoning and analysis	Using resources to receive and deliver messages
				Deductively reasoning
				Analyzing expressions
				Comparative analysis for across languages
			Establishing rules for input & output	Translating information
				Transforming information
				Taking note
Oxford (1990) Language Learning Strategies		Compensatory	Guessing intelligently	Summarizing information
				Highlighting
				Using language clues
				Using other clues
				Switching to native language
				Asking for help

		strategies	Overcoming limitations in speaking and writing	Using non-verbal means (mime or gesture)
				Avoiding communication partially or totally
	Indirect Strategies	Metacognitive strategies	Establish learning point	Choosing a familiar topic
				Using similar expressions
				Creating new words
			Schedule and plan your studies	Using circumlocutions or synonyms
				Overview and contact known material
				Concentrating
		Affective strategies	Evaluate learning	Listening first, delay speaking
				Searching how to learn language strategies
				Confirming target
			Reduce anxiety	Determining purpose of language task
				Making plan
				Looking for practice opportunities
			Encourage yourself	organizing
				Self-assessment
				Self-monitoring
			Know your emotional state	Relax, breathe deeply and meditate
				Listening to music
				Using laughter
		Social strategies	Inquire to others	Affirming yourself
				Active risk taking
				Rewarding yourself
			Cooperate with others	Pay attention to body signals
				Compare with emotion checklist
				Write diary
		Empathy for others	Discuss with others	Discuss with others
				Ask to understand or verify
				Request correction
				Collaborate with peers
				Work with fluent speakers of the language
				Cultural understanding
				Pay attention to feelings and thoughts of others

APPENDIX B: STRATEGY INVENTORY FOR LANGUAGE LEARNING (ENGLISH VERSION)

Version 7.0 (ESL/EFL) which adapted from Oxford (1990 & 2003),

-ELL Student Form : Descriptive Statistics by Individual Items

Dear Students:

Hello!

I am a doctoral candidate at the school of languages, literacies and translation, University of Science Malaysia. The purpose of this questionnaire is to understand the current situation and related information of the use of English learning strategies, so as to be able to carry out English teaching in a targeted manner. For this reason, please answer carefully. This questionnaire is filled out in anonymous form. All test items are multiple-choice questions. Please mark “√” in the corresponding blank space after each test question. Multiple choices or missing choices will be regarded as invalid questionnaires. The estimated time to answer the questionnaire is about 25 minutes. Thank you for your cooperation.

● Gender: Male ☐ Female ☐

● Age: _____

● English college entrance examination results: _____

1= Never or almost never true of me

2=Usually not true of me

3=Somewhat true of me

4= Usually true of me

5= Always or almost always true of me

Strategies	1	2	3	4	5
Part A: Memory Strategy					
S1. I think of relationships between what I already know and new things I learn in English.					
S2. I use new English words in a sentence so I can remember them.					
S3. I connect the sound of a new English word and an image or picture of the word to help me remember the word.					
S4. I remember a new English word by making a mental picture of a situation in which the word might be used.					
S5. I use rhymes to remember new English words.	Not accessible for Chinese learners				
S6. I use word cards to memorize words.					
S7. I physically act out new English words.	Not accessible for Chinese learners				

S8. I review English lessons often.					
S9. I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign.					
Cognitive Strategy					
S10. I say or write new English words several times.					
S11. I try to talk like native English speakers.	Not piratical for Chinese learners				
S12. I practice the sounds of English.					
S13. I use the English words I know in different ways.					
S14. I start conversation in English.	Not suitable for Chinese learners				
S15. I watch English language TV shows spoken in English or go to movies spoken in English.					
S16. I read for pleasure in English.	Not piratical for Chinese learners				
S17. I write notes, messages, letters, or reports in English.					
S18. I first skim an English passage (read over the passage quickly) then go back and read carefully.					
S19. I look for words in my own language that are similar to new words in English.					
S20. I try to find patterns in English.					
S21. I find the meaning of an English word by dividing it into parts that I understand.					
S22. I try not to translate word-for-word.					
S23. I make summaries of information that I hear or read in English.					
Compensation Strategy					
S24. To understand unfamiliar English words, I make guesses.					
S25. When I can't think of a word during a conversation in English, I use gestures.					
S26. I make up new words if I do not know the right ones in English.					
S27. I read English without looking up every new word.					
S28. I try to guess what the other person will say next in English.	Not piratical for Chinese learners				
S29. If I can't think of an English word, I use a word or phrase that means the same thing.					
Metacognitive Strategy					
S30. I try to find as many ways as I can to use my English.					
S31. I notice my English mistakes and use that information to help me do better.					
S32. I pay attention when someone is speaking English.	Not useful for Chinese learners				
S33. I try to find how to be a better learner of English.					
S34. I plan my schedule so I will have enough time to					

study English.					
S35. I look for people I can talk to in English.	Not piratical for Chinese learners				
S36. I look for opportunities to read as much as possible in English.					
S37. I have clear goals for improving my English skills.					
S38. I think about my progress in learning English.					
Affective Strategy					
S39. I try to relax whenever I feel afraid of using English.					
S40. I encourage myself to speak English even when I am afraid of making a mistake.	Not piratical for Chinese learners				
S41. I give myself a reward or treat when I do well in English.					
S42. I notice if I am tense or nervous when I am studying or using English.					
S43. I write down my feelings in a language learning diary.					
S44. I talk to someone else about how I feel when I am learning English.					
Social Strategy					
S45. If I do not understand something in English, I ask the other person to slow down or say it again.					
S46. I ask English speakers to correct me when I talk.	Not piratical for Chinese learners				
S47. I practice English with other students.					
S48. I ask for help from English speakers.					
S49. I ask questions in English.					
S50. I try to learn about the culture of English speakers.					
Attitude of language learning strategy instruction					
S51. I would like to learn about English learning strategies if I have the opportunity.					
S52. I want the teacher to mix together the material from textbook with some language learning strategies.					
S53. If there is free training on English learning strategies (learning methods), I would like to attend.					
S54. I would like to take language learning strategy instruction if my current English teacher is the trainer.					

APPENDIX C: STRATEGY INVENTORY FOR LANGUAGE LEARNING
(CHINESE VERSION, Adapted from Oxford, 1990)

《语言学习策略调查问卷》

亲爱的同学们：

你们好！

我是马来西亚理科大学语言学院的博士生，本次问卷调查旨在了解大家英语学习策略使用的现状及相关信息，以便能够有针对性地进行英语教学，为此，请大家务必认真做答。本次问卷采用无记名形式填写，所有测试项目均为选择题，请大家在每个测试题后面相应的空白处打“√”，多选或漏选均视为无效问卷。问卷的预计答题时间为 25 分钟左右，很感谢大家的配合。

●性别：男 ☐ 女 ☐

●年龄： _____

●英语高考成绩： _____

英语学习策略调查问卷：

1=完全不符合， 2=基本不符合， 3=有时符合， 4= 基本符合， 5= 完全符合

策略编号及内容	1	2	3	4	5
记忆策略 7 个					
S1. 学新东西时我会联想到已学过的知识。					
S2. 我用新学的单词造句，以加深记忆。					
S3. 我把英语单词的发音与其相关的形象或图形联想，以帮助记忆。					
S4. 我借助想象使用某个英语单词的可能状况，来记忆那个单词。					
S6. 我使用单词卡来背英语单词。					
S8. 我时常复习英语功课。					
S9.我靠英语单词或短语出现在书上、黑板上或路标上的位置来记忆					
认知策略 11 个					
S10. 我通过重复读、写来记忆单词。					
S12. 我经常练习英语的发音。					
S13. 我通过多种方式来练习使用我学过的英语单词。					
S15. 我经常看一些英语电视节目或电影。					
S17. 我用英语写笔记、书信或报告。					

S18. 我先很快浏览英文段落，然后再回头仔细阅读。					
S19. 我看到英语单词时会想一想中文里哪一个字有类似的意思。					
S20. 我尝试找出英语的固定句型。					
S21. 我把一个英语生字分解成几个我认得的部分，以找出它的意义。					
S22. 我避免逐字翻译。					
S23. 我将我听到的和读到的英语信息做成摘要笔记。					
补偿策略 5个					
S24. 我遇到不熟悉的英语单词时我会猜测它的意思。					
S25. 在英语会话中，若我想不起某个词，我会使用手势或动作来表达。					
S26. 当我不知道适合的英语单词时，我会自己造字来表达。					
S27. 在阅读英语文章时，我不是每一个字都去查字典。					
S29. 当我想不出某个英语单词时，我会使用意义相通的词。					
元认知策略 7个					
S30. 我会找各种方式来运用我所学的英语。					
S31. 我会留意自己的英语错误，并据此改进					
S33. 我试着找出如何学好英语的方法。					
S34. 我会订立作息表，以便自己有足够的时间学习英语。					
S36. 我会寻找机会多阅读英文。					
S37. 我有明确的目标来提高自己的英语技能					
S38. 我会考察自己学习英语的进展。					
情感策略 5个					
S39. 每当我感到害怕使用英语时，我会设法使自己心情放松。					
S41. 每当我在英语学习中表现良好时，我会奖励自己。					
S42. 每当我学习或使用英语的时候，我会注意自己是否紧张。					
S43. 我在语言学习记录本上写下自己的学习心得。					
S44. 我会和别人讨论自己学习英语的感受。					

社会策略 5个					
S45.我有听不懂的地方，我会要求对方说慢一点或重说一遍。					
S47.我与其他同学一起练习英语。					
S48.我会向英语说的好的人求助。					
S49.我会向别人发问以澄清及证实英语上的问题。					
S50. 我试着了解英语国家的文化。					

Q51 如果有机会的话我愿意学习英语策略相关知识。

单选题 本题选项:

- 1: 完全不符合我的情况
- 2: 通常不是我的情况
- 3: 有时候是这样的
- 4: 通常是这样的
- 5: 完全符合我

Q52 我希望老师在课堂上讲解课本内容的同时穿插讲一些英语学习策略知识。

单选题 本题选项:

- 1: 完全不符合我的情况
- 2: 通常不是我的情况
- 3: 有时候是这样的
- 4: 通常是这样的
- 5: 完全符合我

Q53 如果有免费的英语学习策略（学习方法）培训，我愿意参加。

单选题 本题选项:

- 1: 完全不符合我的情况
- 2: 通常不是我的情况
- 3: 有时候是这样的
- 4: 通常是这样的
- 5: 完全符合我

Q54 我愿意想要参加语言学习策略培训，如果由我现在的英语老师作为培训者。

单选题 本题选项:

- 1: 完全不符合我的情况
- 2: 通常不是我的情况
- 3: 有时候是这样的
- 4: 通常是这样的
- 5: 完全符合我

APPENDIX D: OUTLINE OF SEMI-STRUCTURED INTERVIEW (ENGLISH VERSION)

Outline of the semi-structured Interview of the Study

Topics of Interview	Outline of main content
Basic Information	Age, Gender, Years of learning English, Score of College entrance exam
RQ 1 To what extent does language learning strategy instruction affect English learning achievement on below-average EFL learners in the Chinese vocational college?	<p>* 1. The English course is over for this semester, do you think your English learning achievement has improved? Why?</p> <p>* 2. How do you perceive the impact of language learning strategy instruction on your English learning achievement?</p> <p>* 3. In what ways have language learning strategies helped you improve your English language skills as a below-average EFL learner in a Chinese vocational college?</p> <p>* 4. Can you provide specific examples of how language learning strategy instruction has influenced your learning experience and outcomes in English?</p> <p>* 5. How do you compare your English learning achievement before and after receiving language learning strategy instruction?</p> <p>* 6. Have you encountered any challenges or difficulties in applying the language learning strategies taught to you in your English learning process?</p> <p>* 7. What recommendations or suggestions would you offer to improve the effectiveness of language learning strategy instruction for below-average EFL learners in Chinese vocational colleges?</p>
RQ2. To what extent does language learning strategy instruction affect the level of strategy use on below-average	<p>* 1. Can you describe the specific language learning strategies that you have learned and how you have implemented them in your English language learning journey?</p> <p>* 2. To what extent do you believe that language learning strategy instruction has influenced your level of strategy use.</p> <p>* 3. Can you provide examples of how the instruction on language learning strategies has impacted your strategy use?</p> <p>* 4. After a semester of learning English, do you now know how to use LLS when you are learning English?</p>

EFL learners in the Chinese vocational college?	* 5. How do you perceive the effectiveness of language learning strategy instruction in improving your ability to use various strategies to enhance your English language skills?
	*6. Which specific strategies do you believe have greatly assisted you in learning English after a year of training in English strategies?
	*7. After undergoing a semester of English course, which specific strategies have you acquired and incorporated into your English learning?
RQ4 Which language learning strategy instruction method is efficient for below-average EFL learners in the Chinese vocational college?	* 1. Do you believe that the current classroom, supplemented with some language learning strategy teaching, is a waste of time? Given the choice, would you prefer the current classroom setup or a traditional classroom? Please explain it.
	* 2. Do you believe that implementing a lecture-style method for strategy instruction is beneficial? If so, please explain it.
	* 3. Do you believe that strategy training for group learning is effective? If so, please explain it.
	* 4. Do you consider thematic activity-based strategy instruction to be beneficial? If so, please explain it.
	*5. Would you like to be trained in learning strategies via the internet if there was a powerful web-assisted teaching platform? Why?
	*6. Do you believe self-directed strategy instruction to be beneficial? If so, please explain it.
	*7.What do you think are the shortcomings of the strategy training? Can you list the most beneficial LLS instruction methods?

APPENDIX E: OUTLINE OF SEMI-STRUCTURED INTERVIEW (CHINESE VERSION)

访谈主题	主要内容大纲
基本信息	年龄，性别，学习英语的年限，高考成绩
RQ 1 在中国职业学院的低水平英语学习者中，语言学习策略教学对英语学习成绩有何影响的程度如何？	<ol style="list-style-type: none">1. 这学期的英语课结束了，你认为你的英语学习成绩有所提高吗？为什么？2. 你如何评估语言学习策略教学对你的英语学习成绩的影响？3. 作为一个中国职业学院的低水平英语学习者，语言学习策略以何种方式帮助你提升了英语语言能力？4. 你能举具体例子说明语言学习策略教学如何影响了你在英语学习中的体验和成果？5. 在接受语言学习策略教学之前和之后，你如何比较你的英语学习成果？6. 在你的英语学习过程中，你遇到了哪些挑战或困难，以应用所学的语言学习策略？7. 对于中国职业学院的低水平英语学习者，你有哪些建议或建议，以提高语言学习策略教学的效果？
RQ2. 在中国职业学院的低水平英语学习者中，语言学习策略教学对策略运用水平有何影响的程度如何？	<ol style="list-style-type: none">1. 你能描述一下你学到的具体语言学习策略以及你在英语学习过程中如何运用它们吗？2. 在你看来，语言学习策略教学在多大程度上影响了你的策略运用水平？3. 你能提供一些例子来说明语言学习策略教学对你的策略运用产生了怎样的影响吗？4. 经过一个学期的学习，你现在是否知道在学习英语时如何运用语言学习策略？5. 你如何看待语言学习策略教学在提高你运用各种策略增强程度如何？

英语语言能力方面的效果？

6. 在经过一年的英语策略培训后，你认为哪些具体策略在帮助你学习英语方面起到了重要作用？

7. 在经历了一个学期的英语课程后，你学到了哪些具体策略并将其应用到了英语学习中？

1. 你是否认为当前的课堂教学，辅以一些语言学习策略教学，是浪费时间吗？如果给你选择的机会，你更喜欢现在的课堂设置还是传统的课堂？请解释一下你的看法。

RQ4 在中国职业学院中，对于英语成绩较低的学习者来说，哪种语言学习策略教学方法更有效？

2. 你认为采用讲座式的策略教学方法是否有益？如果是的话，请解释一下。

3. 你认为面向小组学习的策略培训是否有效？如果是的话，请解释一下。

4. 你认为基于主题的活动式策略教学是否有益？如果是的话，请解释一下。

5. 如果有一个强大的网络辅助教学平台，你是否愿意通过网络接受学习策略的培训？为什么？

6. 你认为自主学习策略教学是否有益？如果是的话，请解释一下。

7. 你认为策略培训存在哪些不足之处？你能列出最有益的语言学习策略教学方法吗？

APPENDIX F: THE SAMPLE OF COLLEGE ENGLISH TEST-4 (PRE-TEST)

March 2023 (Pre-test)

2023 年 3 月大学英语四级考试真题 (第 1 套)

Part I Writing (30 minutes)

Directions: *In this task, you are to write an essay on **the role of physical exercise in achieving success at college**. You will have 30 minutes for the task. You should write at least 120 words but no more than 180 words.*

Part II Listening Comprehension (25 minutes)

Section A *Directions: In this section, you will hear three news reports. At the end of each news report, you will hear two or three questions. Both the news report and the questions will be spoken only once. After you hear a question, you must choose the best answer from the four choices marked A), B), C) and D). Then mark the corresponding letter on Answer Sheet 1 with a single line through the centre.*

Questions 1 and 2 are based on the news report you have just heard.

1. A) Part of its dam wall collapsed. B) It released a lot of harmful gases.
C) It was destroyed by an earthquake. D) Some miners were trapped underground.
2. A) It posed a safety threat to the miners. B) It caused damage too heavy to assess.
C) It brought the mine's operations to a halt. D) It was followed by two more earthquakes

Section B *Directions: In this section, you will hear two long conversations. At the end of each conversation, you will hear four questions. Both the conversation and the questions will be spoken only once. After you hear a question, you must choose the best answer from the four choices marked A), B), C) and D). Then mark the corresponding letter on Answer Sheet 1 with a single line through the centre.*

Questions 8 to 11 are based on the conversation you have just heard.

8. A) She has been attending some group classes.
B) She has registered for two new gym classes.
C) She became a member of the gym two months ago.
D) She is entitled to a discount on all the gym exercises.

Section C *Directions: In this section, you will hear three passages. At the end of each passage, you will hear three or four questions. Both the passage and the questions will*

be spoken only once. After you hear a question, you must choose the best answer from the four choices marked A), B), C) and D). Then mark the corresponding letter on Answer Sheet 1 with a single line through the centre.

Questions 16 to 18 are based on the passage you have just heard.

- 16. A) Whether a country's educational level is linked to women's rights.
- B) Whether women's rights are making good progress around the world.
- C) Whether a country's protection of women's rights is related to its public health.
- D) Whether women's rights are more often overlooked in less-developed countries.

Part III

Reading Comprehension

(40 minutes)

Section A

Directions: In this section, there is a passage with ten blanks. You are required to select one word for each blank from a list of choices given in a word bank following the passage. Read the passage through carefully before making your choices. Each choice in the bank is identified by a letter. Please mark the corresponding letter for each item on **Answer Sheet 2** with a single line through the centre. You may not use any of the words in the bank more than once.

Researchers, writing in the journal *Heart*, pooled data from 23 studies and found that social isolation or feelings of loneliness were tied to an increased risk of coronary heart disease (冠心病) and strokes.

The studies included data from 181,006 men and women ages 18 and over. There were 4,628 coronary events and 3,002 strokes in follow-up periods 26 from three to 21 years. Three of the papers 27 loneliness, 18 looked at social isolation and two included both. Social isolation and loneliness were determined with questionnaires; the researchers depended on medical records and death 28 for determining coronary events and strokes.

The scientists found that loneliness and social isolation increased the 29 risk of having a heart attack or a death from heart disease by 29 percent, and the risk of stroke by 32 percent. There were no 30 between men and women.

"People have tended to focus from a policy point of view on 31 lonely people to make them more 32," said the lead author, Nicole K. Valtorta, a research fellow at the University of York in England. "Our study 33 that if this is a risk factor, then we should be trying to prevent the risk factor in the first place."

The authors 34 that this was a review of observational studies and did not 35 cause and effect.

A) acknowledge	F) establish	K) produces
B) certificates	G) formats	L) ranging
C) connected	H) measured	M) relative
D) demonstrates	I) narrow	N) submitting
E) differences	J) permanent	O) targeting

Section B

Directions: *In this section, you are going to read a passage with ten statements attached to it. Each statement contains information given in one of the paragraphs. Identify the paragraph from which the information is derived. You may choose a paragraph more than once. Each paragraph is marked with a letter. Answer the questions by marking the corresponding letter on **Answer Sheet 2**.*

The hidden costs colleges don't want you to know about

- A) This fall, thousands of college students from across the country will begin their undergraduate studies at colleges around the nation. They will inevitably pack too much to fit in their tiny dorm
36. Students' financial aid remains unchanged even when tuition rises.
37. Students may not be able to enjoy their state benefits when they go to college out of the state.
38. The financial aid the author receives is supposed to cover all her college expenses.
39. When the person who damages dorm facilities is not identified, students are required to share the cost.
40. Though it is difficult and embarrassing, students should make inquiries about what fees they have to pay and why.
41. Today, many Americans have to go to college on student loans.
42. Receiving education in a private university in the nation's capital may change the author's future life and that of her family's.
43. Students may no longer be qualified for financial aid if they perform poorly in school or if their family income has increased.
44. In addition to tuition, college students have to pay extra fees for the courses they take.
45. Some schools charge students a fee to their student accounts for using credit cards to pay bills.

Section C

Directions: *There are 2 passages in this section. Each passage is followed by some questions or unfinished statements. For each of them there are four choices marked A), B), C) and D). You should decide on the best choice and mark the corresponding letter on **Answer Sheet 2** with a single line through the centre.*

Passage One

Questions 46 to 50 are based on the following passage.

To write his 2010 book, *The 5-Factor World Diet*, nutritionist Harley Pasternak traveled to the healthiest countries around the world to learn more about what made their meals extra nourishing.

He noted that Japanese people ate a wonderful variety of seaweeds, and that Chinese people tried to include at least five different colors in every meal. Pasternak also came away with some valuable observations about how different the North American way of life was, compared with many other countries.

Part IV

Translation

(30 minutes)

Directions: *For this part, you are allowed 30 minutes to translate a passage from Chinese into English. You should write your answer on **Answer Sheet 2**.*

在中国农历中，立秋(Start of Autumn)意味着夏天的结束和秋天的开始。立秋带来的首先是天气的变化，气温逐渐下降。人们看到树叶开始变黄飘落时，知道秋天已经来临，这就是所谓的“一叶知秋”。但此时酷热的天气并未完全结束，高温通常还会持续一段时间，被称为“秋老虎”。立秋对农民意义重大，这时各种秋季作物迅速生长、开始成熟，收获的季节即将到来。

APPENDIX G: THE SAMPLE OF COLLEGE ENGLISH TEST-4 (POST-TEST)

June 2023 (Post-test)

2023 年 6 月大学英语四级考试真题 (第 1 套)

Part I Writing (30 minutes)

Directions: Suppose the student union of your university is organizing an online discussion on interpersonal relationships. You are to write an essay on ways to maintain a warm and friendly relationship with your classmates and on the benefits of such a relationship. You will have 30 minutes for the task. You should write at least 120 words but no more than 180 words.

Part II Listening Comprehension (25 minutes)

Section A

Directions: In this section, you will hear three news reports. At the end of each news report, you will hear two or three questions. Both the news report and the questions will be spoken only once. After you hear a question, you must choose the best answer from the four choices marked A), B), C) and D). Then mark the corresponding letter on Answer Sheet 1 with a single line through the centre.

Questions 1 and 2 are based on the news report you have just heard.

- | | |
|--------------------------------------|--|
| 1. A. A man was taken to a hospital. | B. A man was bitten by a snake. |
| C. A man fell off his toilet seat. | D. A man kept a 4-foot snake as a pet. |
| 2. A. Who owned the snake. | B. How the snake was captured. |
| C. Whether the snake was infected. | D. Where the snake had been taken. |

Questions 3 and 4 are based on the news report you have just heard.

Section B Directions: In this section, you will hear two long conversations. At the end of each conversation, you will hear four questions. Both the conversation and the questions will be spoken only once. After you hear a question, you must choose the best answer from the four choices marked A), B), C) and D). Then mark the corresponding letter on Answer Sheet 1 with a single line through the centre.

Questions 8 to 11 are based on the conversation you have just heard.

- | | |
|-----------------------------------|------------------------------------|
| 8. A. He is a famous writer. | B. He is a psychologist. |
| C. He is a host for a TV program. | D. He is a primary school teacher. |

Section C

Directions: In this section, you will hear three passages. At the end of each passage, you will hear three or four questions. Both the passage and the questions will be spoken only once. After you hear a question, you must choose the best answer from the four choices marked A), B), C) and D). Then mark the corresponding letter on **Answer Sheet 1** with a single line through the centre.

Questions 16 to 18 are based on the passage you have just heard.

Questions 16 to 18 are based on the passage you have just heard.

16.A. He wants to see it again.
superstar himself.

C. He longs to become a

D. He feels as inspired as other audience members.

B. He desires more in life.

Part III Reading Comprehension (40 minutes)

Section A

Directions: In this section, there is a passage with ten blanks. You are required to select one word for each blank from a list of choices given in a word bank following the passage. Read the passage through carefully before making your choices. Each choice in the bank is identified by a letter. Please mark the corresponding letter for each item on **Answer Sheet 2** with a single line through the centre. You may not use any of the words in the bank more than once.

You probably haven't taken the time to think of all the work that went into creating the shirt on your back. I mean, how hard it could be to create fabric and 26 it into a shirt shape. Don't machines do all that? Well, creating fabric from cotton, which is the most 27 clothing material, is actually a process that involves a lot of water, 2,700 liters per shirt to be 28. Take a look at the video below from *National Geographic* for some more mind-blowing 29 about cotton clothing production.

Clean water is 30 becoming one of the most sought-after resources in the world. Given how large the 31 and cotton industries are, they take up a lot of our fresh water demands across the world, according to *The Huffington Post*. The video from *National Geographic* was created to spread 32 of how environmentally harmful cotton is. But the situation can be made better. Through better water management and farming practices, water usage in cotton production can be cut down by 33 40 percent.

Called "Better Cotton", this environmentally conscious product will save millions of liters of water a year simply from 34 the demands of cotton production. Cotton doesn't have to go, since it is, after all, one of the most useful cash crops across the globe. However, as water supplies 35, farmers and consumers need to be more conscious of the effect that these products have on the environment as a whole.

A. abstracts	F. increasingly	K. reducing
B. abundant	G. intense	L. sew
C. awareness	H. mend	M. shrink
D. conscience	I. nearly	N. statistics
E. exact	J. reckoning	O. textile

Section B

Directions: In this section, you are going to read a passage with ten statements attached to it. Each statement contains information given in one of the paragraphs. Identify the paragraph from which the information is derived. You may choose a paragraph more than once. Each paragraph is marked with a letter. Answer the questions by marking the corresponding letter on **Answer Sheet 2**.

The Spoken Web

- A. We're growing more used to chatting to our computers, phones and smart speakers through voice assistants like Amazon's Alexa, Apple's Siri and Microsoft's Cortana. Blind and partially sighted people have been using text-to-speech converters for decades.
- B. Out of these assistants, Siri is the most well-known. The assistant uses voice inquiries and a natural-language user interface (界面) to answer questions. The software adapts to users' individual language usages, searches, and preferences, with continuing use.
- C. Some think voice could soon take over from typing and clicking as the main way to interact online.

Section C

Directions: There are 2 passages in this section. Each passage is followed by some questions or unfinished statements. For each of them there are four choices marked A), B), C) and D). You should decide on the best choice and mark the corresponding letter on **Answer Sheet 2** with a single line through the centre.

Passage One

Questions 46 to 50 are based on the following passage.

The United States is facing a housing crisis: Affordable housing is inadequate, while luxury homes abound (充裕), and homelessness remains a persistent problem. Despite this, popular culture and the housing industry market happiness as living with both more space and more amenities (便利设施). Big houses are advertized as a reward for hard work and diligence, turning housing from a basic necessity into a luxury.

This is reflected in our homes. The average single-family home built in the United States before 1970 was less than 1,500 square feet in size. By 2016, the average size of a new, single-family home was 2,422 square feet. What's more, homes built in the 2000s were more likely than earlier models to have more of all types of spaces: bedrooms, bathrooms, living rooms, dining rooms, recreation rooms and garages.

Part IV

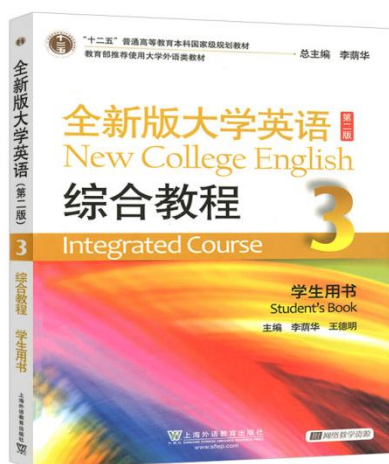
Translation

(30 minutes)

Directions: For this part, you are allowed 30 minutes to translate a passage from Chinese into English. You should write your answer on **Answer Sheet 2**.

中国政府一直大力推行义务教育(compulsory education), 以使每个儿童都享有受教育的机会。自 1986 年《义务教育法》生效以来, 经过不懈努力, 实现了在全国推行义务教育的目标。如今, 在中国, 儿童年满六周岁开始上小学, 从小学到初中一共接受九年义务教育。从 2008 年秋季学期开始, 义务教育阶段学生无需缴纳学费。随着一系列教育改革举措的实施, 中国义务教育的质量也有显著提高。

APPENDIX H: THE COVER PAGE AND CONTENT OF THE TEXT



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Unit 1 Changes in the Way We Live 2a			
Part I Listening Task Listening Practice 3	Part II Reading Task Text A Mr. Doherty Builds His Dream Life 4	Part III Home Reading Task Text B American Family Life: The Changing Picture 23	Part IV Comprehensive Language Practice Speaking Practice: Group Discussion 30 Essay Writing: Recent Changes in Chinese Family Life 30
Unit 2 Civil-Rights Heroes 32a			
Part I Listening Task Listening Practice 33	Part II Reading Task Text A The Freedom Givers 34	Part III Home Reading Task Text B Rosa Parks: the Mother of the American Civil Rights Movement 53	Part IV Comprehensive Language Practice Speaking Practice: Speech Contest 60 Essay Writing: The Civil-Rights Movement in the U.S. 60
Unit 3 Security 62a			
Part I Listening Task Listening Practice 63	Part II Reading Task Text A The Land of the Lock 64	Part III Home Reading Task Text B Why I Bought a Gun 80	Part IV Comprehensive Language Practice Speaking Practice: Group Discussion 88 Practical Writing: Writing Memos 88
Unit 4 Imagination and Creativity 92a			
Part I Listening Task Listening Practice 93	Part II Reading Task Text A Was Einstein a Space Alien? 94	Part III Home Reading Task Text B Anecdotes about Einstein 111	Part IV Comprehensive Language Practice Speaking Practice: Group Discussion 118 Essay Writing: The Role of Imagination in the Advancement of Science and Technology 118
Test Yourself (Units 1 — 4) 120			
Unit 5 Giving Thanks 136a			
Part I Listening Task Listening Practice 137	Part II Reading Task Text A Writing Three Thank-You Letters 138	Part III Home Reading Task Text B The Power of Gratitude 155	Part IV Comprehensive Language Practice Speaking Practice: Group Discussion 161 Practical Writing: Writing Thank-You Letters 161

APPENDIX I: TRAINING PLAN OF THE INSTRUCTOR TRAINING

Day	Date	Duration	Content	Materials
Saturday	23/4/2023 morning	2 hours	General concepts and discussion about the intervention programme schedule are presented	Handouts from Oxford (1990) of language learning strategy (see Appendix D)
Saturday	23/4/2023 afternoon	2 hours	An LLS instruction lesson is modelled by researchers	
Sunday	24/4/2023 morning	2 hours	Details of language learning strategies are taught	
Sunday	24/4/2023 afternoon	2 hours	Further discussion and evaluation of the LLS	

APPENDIX J: PERSONAL INFORMATION AND QUALIFICATIONS OF THE EXPERT PANEL

Teacher's Name	Gender	Research Domain & rank	Teaching Experience	Contact information
1. Chang Hongjing	Female	Lecturer of applied linguistics and translation	More than 9 years in teaching different English language courses at Chinese universities	vickychang@student.usm.my
2. Hu Renqing	Female	Professor of English Translation	12 years in teaching EFL at the research site	827623980@qq.com
2. Men Dongmei	Female	Professor of applied linguistics	15 years in teaching English language courses in Chinese universities	dongmei@student.usm.my
4. Wei Binbin	Female	Associate professor in English teaching and linguistic	12 years in teaching different English language courses at Chinese universities	binbin2023@student.usm.my
5. Zhao Xin	Female	Associate professor in English teaching and applied linguistics	10 years in teaching different English language courses at Chinese universities	zhaoxin@ncst.edu.cn

APPENDIX K: EXPERT JUDGMENT FORMAT

(Adapted from Roebianto, Savitri & Aulia, et al., 2023)

Instruction — The questionnaire aims to evaluate the content validity of the items developed. Please provide an analysis based on the following descriptions:

- Assess the relevancy level of each item with a 1-4 scale, where 1 indicates that the item is not at all relevant, and 4 indicates that the item is very relevant. The space for comments on revision (if necessary) is provided in the sheet.
- The analysis of clarity level follows the same 1-4 scale procedure.
- Decide the categorization of each item based on the factor. Definition and description of each factor have been provided. If items do not belong to the factors described, a separate note explaining which factors are measured by the items can be provided.
- Lastly, assess the comprehensiveness of all items and determine whether items should be revised or removed.

Thank you for your participation.

<i>Theoretical definition</i>	<i>Relevancy</i>	<i>Clarity</i>	<i>Factor</i>
Explaining the construct measured by the questionnaire, the conceptual definition, and the operational definition of the constructs.	1. The item is not relevant. 2. The item needs major revision. 3. The item needs minor revision. 4. The item is relevant.	1. The message of the item is not clear. 2. The item needs major revision. 3. The item needs minor revision. 4. The message of the item is clear.	Provide lists and definitions of the factors. 1 = factor 2 = factor 3 = factor 4 = other (write the factor)
Item	Relevancy score	Clarity score	Factor

APPENDIX L: EXPERT JUDGMENT FORMAT SAMPLE OF SILL

Description of Each Strategy Items	Relevancy score (相关性)	Clarity score (清晰性)	Comprehensiveness (可理解性)
记忆策略			
S1. 学新东西时我会联想到已学过的知识。			
S2. 我用新学的单词造句，以加深记忆。			
S3. 我把英语单词的发音与其相关的形象或图形联想，以帮助记忆。			
S4. 我借助想象使用某个英语单词的可能状况，来记忆那个单词。			
S6. 我使用单词卡来背英语单词。			
S8. 我时常复习英语功课。			
S9. 我靠英语单词或短语出现在书上、黑板上或路标上的位置来记忆			
认知策略			
S10. 我通过重复读、写来记忆单词。			
S12. 我经常练习英语的发音。			
S13. 我通过多种方式来练习使用我学过的英语单词。			
S15. 我经常看一些英语电视节目或电影。			
S17. 我用英语写笔记、书信或报告。			
S18. 我先很快浏览英文段落，然后再回头仔细阅读。			
S19. 我看到英语单词时会想一想中文里哪一个字有类似的意思。			
S20. 我尝试找出英语的固定句型。			
S21. 我把一个英语生字分解成几个我认得的部分，以找出它的意义。			
S22. 我避免逐字翻译。			
S23. 我将我听到的和读到的英语信息做成摘要笔记。			
补偿策略			
S24. 我遇到不熟悉的英语单词时我会猜测它的意思。			
S25. 在英语会话中，若我想不起某个词，我会使用手势或动作来表达。			
S26. 当我不知道适合的英语单词时，我会自己造字来表达。			
S27. 在阅读英语文章时，我不是每一个字都			

去查字典。

S29. 当我想不出某个英语单词时，我会使用意义相通的词。

元认知策略

S30. 我会找各种方式来运用我所学的英语。

S31. 我会留意自己的英语错误，并据此改进

S33. 我试着找出如何学好英语的方法。

S34. 我会订立作息表，以便自己有足够的时间学习英语。

S36. 我会寻找机会多阅读英文。

S37. 我有明确的目标来提高自己的英语技能

S38. 我会考察自己学习英语的进展。

情感策略

S39. 每当我感到害怕使用英语时，我会设法使自己心情放松。

S41. 每当我在英语学习中表现良好时，我会奖励自己。

S42. 每当我学习或使用英语的时候，我会注意自己是否紧张。

S43. 我在语言学习记录本上写下自己的学习心得。

S44. 我会和别人讨论自己学习英语的感受。

社会策略

S45. 我有听不懂的地方，我会要求对方说慢一点或重说一遍。

S47. 我与其他同学一起练习英语。

S48. 我会向英语说的好的人求助。

S49. 我会向别人发问以澄清及证实英语上的问题。

S50. 我试着了解英语国家的文化。

APPENDIX M: A SAMPLE OF CONSENT FORM

Consent Form

I Chang Yunan, agree to participate in the research entitled "THE EFFECT OF LANGUAGE LEARNING STRATEGY INSTRUCTION ON BELOW-AVERAGE EFL LEARNERS IN A CHINESE VOCATIONAL COLLEGE" which is being conducted by Ms. Jiao Chen (E-mail: jiaochen@student.usm.my; phone: +86 15202991981). I understand that this participation is entirely voluntary and that I can withdraw my consent and data at any time. In addition, the results of my participation may be identified as mine, returned to me, removed from the experimental records, or destroyed.

The following points have been explained to me:

1. The purpose of the research is to provide knowledge about the language learning strategy instruction on below-average Undergraduates. The benefit I may obtain from performing this study is to better understand the strategies students employ to cope with the academic English achievement.
2. I agree to fill out two self-reported surveys. One is about academic listening anxiety and the other is about language strategy awareness while learning English. The questionnaires will take about 20-25 minutes to complete each one. Both will be given to the participants to work on them during the class time and to return to the researcher. In addition, I also agree to participate in a 25 to 40 minutes semi-structured interview to be conducted one week after the intervention program.
3. From what has been explained to me, I do not think that I will encounter any undue risk discomfort or stress from participating in this research.
4. The surveys and semi-structured interview of this research will be confidential and will not be released in any individually identifiable form without my proper consent unless required by law. However, I understand that the surveys, dissertation and information obtained from the participants may be presented with the individual participants of the research. Audio recording will be used to help the researcher analyse students' reflections on the research questions. These recordings will be kept in the presence of the researcher until the analysis is completed. At that time, unless the participants give written permission for further use, the recordings will be erased.
5. The researcher will answer any further questions about the research, either now or during the course of the project.
6. I have received a copy of this Consent Form.

Signature of Researcher

Jiao Chen

Date: 15-04-2013

Signature of Participant

Chang Yunan

*please sign both copies. Keep one and return the other to the researcher

APPENDIX N: SILL STATISTICS COMPARISION OF THE CONTROL CLASS

Strategy No.	Pre-test		Post-test		Variation	Scores	
	Means	SD	Means	SD		Min. of scores	Max. of scores
S1	2.26	0.3127	2.38	0.4585	0.12	1	5
S2	2.34	0.4553	2.33	0.3265	-0.01	1	5
S3	2.51	0.3321	2.58	0.3474	0.07	1	5
S4	2.58	0.3191	2.56	0.3971	-0.02	1	5
S6	2.42	0.4076	2.41	0.3203	-0.01	1	5
S8	2.39	0.4585	2.37	0.4089	-0.02	1	5
S9	2.46	0.3265	2.49	0.3127	0.03	1	5
S10	3.18	0.3474	3.28	0.4581	0.10	1	5
S12	2.41	0.3971	2.41	0.4285	0.00	1	5
S13	2.64	0.3203	2.65	0.3458	0.01	1	5
S15	2.78	0.4089	2.81	0.3181	0.03	1	5
S17	2.33	0.3127	2.32	0.4092	-0.01	1	5
S18	2.53	0.4581	2.52	0.3265	-0.01	1	5
S19	2.58	0.4285	2.55	0.3474	-0.03	1	5
S20	2.71	0.3458	2.73	0.3971	0.02	1	5
S21	2.68	0.3181	2.72	0.3203	0.04	1	5
S22	2.53	0.4092	2.55	0.4089	0.02	1	5
S23	2.52	0.3127	2.55	0.3127	0.03	1	5
S24	2.70	0.3583	2.73	0.4581	0.03	1	5
S25	2.58	0.2491	2.59	0.4285	0.01	1	5
S26	2.74	0.3681	2.74	0.3458	0.00	1	5
S27	2.86	0.4092	2.87	0.3181	0.01	1	5
S29	2.87	0.3127	2.99	0.3211	0.12	1	5
S30	2.58	0.4581	2.66	0.4259	0.08	1	5
S31	2.69	0.4285	2.77	0.4092	0.08	1	5
S33	2.72	0.3211	2.73	0.3158	0.01	1	5
S34	2.54	0.4259	2.53	0.4611	-0.01	1	5
S36	2.56	0.4092	2.65	0.3491	0.09	1	5
S37	2.67	0.3158	2.68	0.3981	0.01	1	5
S38	2.55	0.4611	2.76	0.4259	0.21	1	5
S39	2.74	0.3491	2.76	0.2874	0.02	1	5
S41	2.78	0.3981	2.77	0.3203	-0.01	1	5
S42	2.63	0.4259	2.66	0.4089	0.03	1	5
S43	2.54	0.2856	2.55	0.3127	0.01	1	5
S44	2.71	0.3158	2.71	0.4581	0.00	1	5
S45	2.85	0.4615	2.84	0.4285	-0.01	1	5
S47	2.64	0.3491	2.65	0.3458	0.01	1	5
S48	2.94	0.3845	2.94	0.3181	0.00	1	5
S49	2.61	0.4259	2.61	0.3211	0.00	1	5
S50	2.63	0.2472	2.62	0.2874	-0.01	1	5

APPENDIX O: SILL POST-TEST COMPARISION BETWEEN TWO GROUPS

Strategy No.	Control group		Experiment group		Variation	Scores	
	Means	SD	Means	SD		Min. of scores	Max. of scores
S2	2.38	0.4585	2.97	0.1288	0.59	1	5
S2	2.33	0.3265	2.93	0.2605	0.60	1	5
S3	2.58	0.3474	3.19	0.2345	0.61	1	5
S4	2.56	0.3971	3.26	0.3153	0.70	1	5
S6	2.41	0.3203	2.91	0.3185	0.50	1	5
S8	2.37	0.4089	2.89	0.1288	0.52	1	5
S9	2.49	0.3127	3.04	0.2605	0.55	1	5
S10	3.28	0.4581	3.51	0.2345	0.23	1	5
S12	2.41	0.4285	2.95	0.2076	0.54	1	5
S13	2.65	0.3458	3.15	0.2185	0.50	1	5
S15	2.81	0.3181	3.45	0.1299	0.64	1	5
S17	2.32	0.4092	2.89	0.2345	0.57	1	5
S18	2.52	0.3265	3.13	0.3153	0.61	1	5
S19	2.55	0.3474	3.25	0.2076	0.70	1	5
S20	2.73	0.3971	3.25	0.2185	0.52	1	5
S21	2.72	0.3203	3.30	0.3099	0.58	1	5
S22	2.55	0.4089	3.21	0.2289	0.66	1	5
S23	2.55	0.3127	2.96	0.2675	0.41	1	5
S24	2.73	0.4581	3.27	0.2345	0.54	1	5
S25	2.59	0.4285	3.05	0.3158	0.46	1	5
S26	2.74	0.3458	3.23	0.2076	0.49	1	5
S27	2.87	0.3181	3.48	0.2180	0.61	1	5
S29	2.99	0.3211	3.61	0.1229	0.62	1	5
S30	2.66	0.4259	3.19	0.2605	0.53	1	5
S31	2.77	0.4092	3.38	0.2345	0.61	1	5
S33	2.73	0.3158	3.48	0.2076	0.75	1	5
S34	2.53	0.4611	3.19	0.1198	0.66	1	5
S36	2.65	0.3491	3.24	0.1288	0.59	1	5
S37	2.68	0.3981	3.29	0.2605	0.61	1	5
S38	2.76	0.4259	3.38	0.2345	0.62	1	5
S39	2.76	0.2874	3.26	0.3153	0.50	1	5
S41	2.77	0.3203	3.24	0.1385	0.47	1	5
S42	2.66	0.4089	3.21	0.3518	0.55	1	5
S43	2.55	0.3127	3.01	0.1288	0.46	1	5
S44	2.71	0.4581	3.30	0.2605	0.59	1	5
S45	2.84	0.4285	3.39	0.2345	0.55	1	5
S47	2.65	0.3458	3.29	0.2076	0.64	1	5
S48	2.94	0.3181	3.22	0.1185	0.28	1	5
S49	2.61	0.3211	3.21	0.3103	0.60	1	5
S50	2.62	0.2874	3.21	0.1755	0.59	1	5

APPENDIX P: CET-4 STATISTICS COMPARISION OF EXPERIMENT CLASS

Student No.	Pre-test	Post-test	Variation	Scores	
	Means	Means		Passing score	Max. of score
E1	340	358	18	425	710
E2	338	355	17	425	710
E3	316	330	14	425	710
E4	337	354	17	425	710
E5	329	451	22	425	710
E6	343	352	9	425	710
E7	340	364	16	425	710
E8	336	360	24	425	710
E9	328	340	12	425	710
E10	316	437	21	425	710
E11	337	356	19	425	710
E12	356	363	7	425	710
E13	343	365	22	425	710
E14	341	364	23	425	710
E15	333	354	21	425	710
E16	345	368	23	425	710
E17	316	336	20	425	710
E18	341	360	19	425	710
E19	325	343	18	425	710
E20	365	373	8	425	710
E21	374	375	1	425	710
E22	331	345	14	425	710
E23	361	383	22	425	710
E24	314	335	21	425	710
E25	355	366	11	425	710
E26	430	352	22	425	710
E27	348	460	12	425	710
E28	341	354	13	425	710
E29	356	365	9	425	710
E30	329	347	18	425	710
E31	334	351	17	425	710
E32	340	361	21	425	710
E33	318	340	22	425	710
E34	352	364	12	425	710
E35	339	349	10	425	710
E36	335	344	9	425	710
E37	342	351	9	425	710
E38	324	343	19	425	710
E39	351	374	23	425	710
E40	363	475	12	425	710

APPENDIX Q: CET-4 STATISTICS COMPARISION OF CONTROL CLASS

Student No.	Pre-test	Post-test	Variation	Scores	
	Means	Means		Passing score	Max. of score
C1	332	339	7	425	710
C2	357	361	4	425	710
C3	343	348	5	425	710
C4	341	347	6	425	710
C5	333	343	10	425	710
C6	345	342	3	425	710
C7	316	317	1	425	710
C8	341	344	3	425	710
C9	325	329	4	425	710
C10	365	362	3	425	710
C11	374	373	-1	425	710
C12	331	336	5	425	710
C13	361	363	2	425	710
C14	315	319	4	425	710
C15	355	358	3	425	710
C16	430	434	6	425	710
C17	348	353	5	425	710
C18	341	349	8	425	710
C19	358	361	3	425	710
C20	329	336	7	425	710
C21	334	344	10	425	710
C22	340	345	5	425	710
C23	319	327	8	425	710
C24	352	354	2	425	710
C25	339	342	3	425	710
C26	335	343	8	425	710
C27	344	347	3	425	710
C28	324	328	4	425	710
C29	351	356	5	425	710
C30	363	364	1	425	710
C31	334	338	4	425	710
C32	345	348	3	425	710
C33	342	351	9	425	710
C34	336	342	6	425	710
C35	328	332	4	425	710
C36	316	323	7	425	710
C37	337	339	2	425	710
C38	329	332	3	425	710
C39	343	343	0	425	710
C40	340	349	9	425	710

APPENDIX R: SAMPLES OF ANSWER SHEET OF COLLEGE ENGLISH FINAL EXAM (CEFE)

西安交通工程学院考试答题纸 (B)

2022 - 2023 学年第二学期 科目: 大学英语 A4

题号	一	二	三	四	五	六	七	八	九	十	总分
得分	10	25	32	7							76
阅卷人	俞	余	俞	俞							俞
核分人	俞	余	俞	俞							俞

得分 10 **Part I Writing (15 scores)**

It is reported that people who do exercises every day can live longer than don't do that. So it is important for us to do some exercises. In this essay, I'll show you how to do exercises correctly at college.

First, you can jog-jog every morning when you wake up before having breakfast. After jogging, drink some warm water. Second, it is a good idea that have a rest in one hour pass your lunch, ~~because~~ because when you wake up in afternoon you'll be energetic. Third, you are allowed to do some sports with your room-mates, such as play basketball or play football, after doing sports, you should take a shower because it can make you feel comfortable.

Totally, we should do some sports everyday, which can make us energetic for a whole day. Now, do exercises with your room-mates!

10

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得分 25 **Part II Listening Comprehension (25 scores)**

Section A (7*1=7 scores)

1. C 2. D 3. A 4. D 5. B 6. A 7. C 8

Section B (8*1=8 scores)

8. C 9. B 10. D 11. A 12. B 13. B 14. A 15. C 8

Section C (10*1=10 scores)

16. A 17. A 18. D 19. C 20. B 21. C 22. D 23. D 24. B 25. A 10

得分 32 **Part III Reading Comprehension (50 scores)**

Section A (10*2=20 scores)

26. E 27. A 28. A 29. E 30. K 31. G 32. H 33. F 34. B 35. M 10

Section B (10*1=10 scores)

36. B 37. H 38. G 39. D 40. H 41. A 42. C 43. E 44. I 45. J 6

Section C (10*2=20 scores)

46. B 47. A 48. D 49. C 50. A

51. A 52. C 53. D 54. C 55. B 16

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得分 9 **Part IV Translation (10 scores)**

Start of Spring represents the begining of spring in Chinese lunar calendar. After Start of Spring, the days become longer, the weather gets warmer, every thing ~~become~~ begin to recover, and the earth is full of life. It is often said that "the whole year's work depends on the spring", and the farmers ^{start} begin to planting seeds at this time, making foundation for the harvest of whole year. As early as 3,000 years, Chinese people have been holding celebrations at ~~this day~~ ~~the~~ Start of Spring ~~to~~ Welcome Spring have been an ~~important~~ folk custom for hundred years. In warm spring with flowers blooming, people often go for an outing, and ~~enjoy~~ enjoy the beautiful scenery of spring.

西安交通工程学院考试答题纸 (B)

2022 - 2023 学年第二学期 科目: 大学英语 A4

题号	一	二	三	四	五	六	七	八	九	十	总分
得分	7	23	22	9							81
阅卷人	余	郭	郭	郭							郭
核分人	余	郭	郭	郭							郭

得分 7

Part I Writing (15 scores)

The Role of Physical Exercise in Achieving Success at College
Nowadays, the topic of physical exercise is attached great importance by the society. College students in particular should strengthen physical exercise. Now, let's list the benefits of taking exercise.

On the one hand, sports play an important role in our life. If we want to have a healthy body, we should take exercise often. Doing exercise can strengthen our physical and have a good spirit. When we under pressure, we can take exercise to relax our mood.

On the other hand, example play basketball, play football, or play ping-pong can develop our unity spirit. Not only good for our physical healthy, but also benefit of our memory when we learn time. If we not do exercise, our body become worse. It is often said that "Life lies on the movement." Keeping doing exercise are good for us.

Being a college student, we can't ignore taking

二二 日六 月《大学英语 A4》答题纸 第 1 页 共 4 页

exercise. Let's play sports!

得分 23

Part II Listening Comprehension (25 scores)

Section A (7*1=7 scores)

1. C 2. D 3. A 4. D 5. B 6. A 7. C 7

Section B (8*1=8 scores)

8. C 9. B 10. D 11. A 12. B 13. B 14. A 15. D 7

Section C (10*1=10 scores)

16. A 17. A 18. D 19. C 20. B 21. C 22. D 23. C 24. B 25. A 9

得分 42

Part III Reading Comprehension (50 scores)

Section A (10*2=20 scores)

26. E 27. M 28. D 29. F 30. N 31. I 32. H 33. L 34. B 35. A 16

Section B (10*1=10 scores)

36. B 37. H 38. G 39. D 40. F 41. A 42. C 43. E 44. I 45. I 6

Section C (10*2=20 scores)

46. B 47. A 48. D 49. C 50. A 20

51. A 52. L 53. D 54. B 55. D

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得分 9

Part IV Translation (10 scores)

Start of Spring means the beginning of Spring in the Chinese lunar calendar. After start of Spring, the days become longer, the weather gets warmer, everything becomes to recover and the earth is full of vitality. It is often said that "The whole year's work depends on a good start in Spring." and farmers begin planting seeds at this time to lay the foundation for a good harvest throughout the whole year. As early as 3000 years ago, Chinese people begins to have been holding celebrations. Welcoming Spring has been an important folk custom for hundreds of years. In the warm spring days with flowers blossoming, people often go for an outing and enjoy beautiful scenery of Spring.

西安交通工程学院考试答题纸 (B)

2022 - 2023 学年第二学期 科目: 大学英语 A4

题号	一	二	三	四	五	六	七	八	九	十	总分
得分	7	25	34	7							73
阅卷人	余	郭	郭	郭							郭
核分人	余	郭	郭	郭							郭

得分 7

Part I Writing (15 scores)

Nowadays, as the increasing level of life for everyone, more and more people begin to pay attention to the physical exercise. As far as I am concerned it is a great point. And I can share some advises to the college students.

In the first place, you should have a good habit that go to bed early in your life. It can keep your head open. In the second place, it is very important for everyone to do exercise. You can running, swimming or play football. It can help you are full of power. In addition, I think we should call on more people to do the role of physical exercise in achieving success at college.

In conclusion, keep moving, keep to do exercise, join us to do more physical exercise. Let's be better absolutely.

得分 25

Part II Listening Comprehension (25 scores)

Section A (7*1=7 scores)

1. C 2. D 3. A 4. D 5. B 6. A 7. C 7

Section B (8*1=8 scores)

8. C 9. B 10. D 11. A 12. B 13. B 14. A 15. C 8

Section C (10*1=10 scores)

16. A 17. A 18. D 19. C 20. B 21. C 22. D 23. D 24. B 25. A 10

得分 34

Part III Reading Comprehension (50 scores)

Section A (10*2=20 scores)

26. F 27. M 28. D 29. C 30. K 31. F 32. G 33. D 34. B 35. A 12

Section B (10*1=10 scores)

36. D 37. I 38. I 39. J 40. F 41. A 42. B 43. C 44. E 45. C 2

Section C (10*2=20 scores)

46. B 47. A 48. D 49. C 50. A 20
51. A 52. C 53. D 54. B 55. D

得分 7

Part IV Translation (10 scores)

Start of Spring represents the beginning of Spring in the Chinese lunar calendar. After Start of Spring, the days become longer, the weather gets warmer and everything begins to recover, and the earth is full of happiness. The people saying "a plant of a year in the spring", farmer begin to plant seed in this time, to do the celebr for all years. Chinese begin to celebrate the activity in Start of Spring 3000 years ago. Welcome the Spring is a great custome about hunders years. People take part in the outdoor activity in the days of the weather gets warmer and the flower begin to open.

西安交通工程学院考试答题纸 (B)

2022 - 2023 学年第二学期 科目: 大学英语 A4

题号	一	二	三	四	五	六	七	八	九	十	总分
得分	5	25	40	5							75
阅卷人	余	邵	祖	朝							AD
核分人	祖	余	朝	邵							邵

得分 5

Part I Writing (15 scores)

As we all know, physical exercise is very important to us. If we haven't physical, we will become thind and our body will bad, so we need notice physical's importance to us.

At the college, physical exercise is always thing. Many students want to exercise their body use physical, as a students, we need think physical exercise is very important to us, it will make us better and better. I think it is very good thing to us, so we should stay to do exercise and make every students know us.

5

得分 25

Part II Listening Comprehension (25 scores)

Section A (7*1=7 scores)

1. C 2. D 3. A 4. D 5. B 6. A 7. C 7

Section B (8*1=8 scores)

8. C 9. B 10. D 11. A 12. B 13. B 14. A 15. C 8

Section C (10*1=10 scores)

16. A 17. A 18. D 19. C 20. B 21. C 22. D 23. D 24. B 25. A 10

得分 40

Part III Reading Comprehension (50 scores)

Section A (10*2=20 scores)

26. E 27. M 28. D 29. F 30. K 31. G 32. H 33. L 34. B 35. A 20

Section B (10*1=10 scores)

36. D 37. C 38. B 39. E 40. F 41. H 42. J 43. I 44. G 45. A 0

Section C (10*2=20 scores)

46. B 47. A 48. D 49. C 50. A 20
51. A 52. C 53. D 54. B 55. D

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得分 5

Part IV Translation (10 scores)

Start of spring indicates the beginning of spring in the Chinese lunar calendar. After the beginning of spring, the day became longer, the weather became warmer, everything began to revive, and the earth was full of vitality. People often say that "a year's plan lies in spring" and farmers begin to sow at this time, laying the foundation for a bumper harvest throughout the year.

APPENDIX S: CEFE STATISTICS COMPARISION OF EXPERIMENT CLASS

Student No.	Pre-test	Post-test	Variation	Scores	
	Means	Means		Passing score	Max. of score
E1	76.00	79.00	3	60	100
E2	68.00	74.00	6	60	100
E3	82.00	80.00	-2	60	100
E4	81.00	86.00	5	60	100
E5	71.00	74.00	3	60	100
E6	69.00	73.00	4	60	100
E7	78.00	81.00	3	60	100
E8	60.00	65.00	5	60	100
E9	66.00	70.00	4	60	100
E10	62.00	67.00	5	60	100
E11	84.00	82.00	-2	60	100
E12	63.00	67.00	4	60	100
E13	54.00	59.00	5	60	100
E14	73.00	76.00	3	60	100
E15	65.00	70.00	5	60	100
E16	56.00	60.00	4	60	100
E17	69.00	72.00	3	60	100
E18	66.00	71.00	5	60	100
E19	72.00	74.00	2	60	100
E20	73.00	78.00	5	60	100
E21	70.00	74.00	4	60	100
E22	72.00	75.00	3	60	100
E23	72.00	75.00	3	60	100
E24	58.00	62.00	4	60	100
E25	68.00	72.00	4	60	100
E26	74.00	77.00	3	60	100
E27	76.00	81.00	5	60	100
E28	48.00	56.00	8	60	100
E29	56.00	62.00	6	60	100
E30	71.00	75.00	4	60	100
E31	81.00	84.00	3	60	100
E32	65.00	70.00	5	60	100
E33	73.00	77.00	5	60	100
E34	74.00	80.00	6	60	100
E35	61.00	66.00	5	60	100
E36	52.00	58.00	6	60	100
E37	72.00	77.00	5	60	100
E38	75.00	79.00	5	60	100
E39	62.00	68.00	6	60	100
E40	81.00	84.00	3	60	100

APPENDIX T: CEFE STATISTICS COMPARISION OF CONTROL CLASS

Student No.	Pre-test	Post-test	Variation	Scores	
	Means	Means		Passing score	Max. of score
C1	61.00	62.00	1	60	100
C2	85.00	83.00	-2	60	100
C3	66.00	67.00	1	60	100
C4	66.00	69.00	3	60	100
C5	82.00	80.00	-2	60	100
C6	51.00	58.00	7	60	100
C7	73.00	72.00	-1	60	100
C8	81.00	83.00	2	60	100
C9	52.00	57.00	5	60	100
C10	70.00	71.00	1	60	100
C11	82.00	84.00	2	60	100
C12	63.00	63.00	0	60	100
C13	54.00	56.00	2	60	100
C14	32.00	42.00	10	60	100
C15	39.00	43.00	4	60	100
C16	64.00	68.00	4	60	100
C17	76.00	79.00	3	60	100
C18	77.00	73.00	-4	60	100
C19	69.00	67.00	-2	60	100
C20	81.00	78.00	-3	60	100
C21	53.00	58.00	5	60	100
C22	78.00	82.00	4	60	100
C23	81.00	78.00	-3	60	100
C24	64.00	66.00	2	60	100
C25	40.00	48.00	8	60	100
C26	62.00	63.00	1	60	100
C27	69.00	65.00	-4	60	100
C28	74.00	72.00	-2	60	100
C29	64.00	65.00	1	60	100
C30	79.00	81.00	2	60	100
C31	67.00	68.00	1	60	100
C32	65.00	64.00	-1	60	100
C33	78.00	72.00	-5	60	100
C34	78.00	74.00	-4	60	100
C35	63.00	65.00	1	60	100
C36	54.00	53.00	-1	60	100
C37	68.00	68.00	0	60	100
C38	81.00	80.00	-1	60	100
C39	63.00	62.00	-1	60	100
C40	78.00	80.00	2	60	100

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