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The Effects of Teaching Metacognitive Strategies on Thai University EFL Learners' TOEIC Listening Comprehension

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The TOEIC has emerged as the benchmark for assessing the English language proficiency and communication abilities of individuals whose first language is not English. Achieving a high score on this examination may prove challenging for them. While there have been numerous studies into metacognitive strategies towards reading comprehension, in the Thai context, research into metacognitive strategies towards listening comprehension in general and TOEIC in particular is still inadequate. This study investigates how teaching metacognitive strategies affects 201 students' listening comprehension in a southern Thai university. It draws on the research framework adapted from O'Malley and Chamot (1988) and Oxford (1990). Using a mixed methods design, the study combines quantitative data from pre- and post-TOEIC listening comprehension tests, a 6-point Likert-scale listening questionnaire (MALQ), and qualitative data from self-report interviews with the test-taking students. Based on the pre-TOEIC listening comprehension test, the students were classified into 2 proficiency levels: low-proficient and high-proficient. Following the metacognitive strategy instruction, they were asked to take the post-test and interviewed. The pre- and post-test scores and the reported use of the strategies were analyzed and compared using descriptive statistics and content analysis. The results demonstrated that teaching metacognitive strategies can facilitate both proficiency-level groups in comprehending the listening texts and raise their metacognitive awareness.

Keywords: metacognitive strategies, TOEIC, listening comprehension, EFL learners, MALQ

INTRODUCTION

Listening comprehension involves understanding what someone says by actively thinking about it, building meaning, interacting with the speaker, and planning what to say in response (Rost, 2002). It is essential for learning a language, especially when learning English as a foreign language. Learners depend on listening to understand the new language. Understanding spoken English is essential for becoming fluent in the language. It is also vital for success in many academic subjects (Berne, 2004; Liu, 2009). Consequently, EFL students must diligently cultivate their listening comprehension capabilities to attain excellence in language acquisition and academic pursuits. Nevertheless, mastering this skill set presents a formidable challenge due to the complex nature of the process.

EFL students often face various difficulties when listening to spoken English, which can be linked to three core issues: the students' listening skills and interest in practicing listening, the teachers' accents, and the nature of the lecture content (Liu, 2009). Concerning the first factor, EFL students often struggle with listening due to their linguistic limitations. Insufficient vocabulary, pronunciation

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challenges, and a poor grasp of grammar hinder their ability to understand spoken English (Singhal, 2020). A limited vocabulary, in particular, makes it challenging to recognize sounds, while grammatical gaps impede comprehension of sentence structure (Hamouda, 2013). In addition, to motivate learners, it is essential to provide ample practice time, opportunities to use English, and smaller class sizes (Dunifa, 2023). For the second factor, teachers can inadvertently create listening difficulties for students by speaking too quickly, giving long talks, or having accents that students are not used to (Ishler, 2010). Accents can especially be problematic because they change how English words sound, making it harder for students to comprehend. For the last factor, according to Moradi (2013), the challenging content of lectures can hinder EFL students' ability to understand the presented material. Compared to a student's ability, task difficulty can impact their capability and motivation. Instructors should strive to provide tasks that are neither easy nor difficult. This can be achieved through differentiated instruction, where tasks are customized to meet the specific needs of each student (Tiang-uan, 2024). Vandergrift (2007) proposes using a range of listening techniques to help students manage their difficulties in listening. This is especially important in Thailand, where English learners must overcome challenges to understand English lectures.

Listening strategies are mental tools that help people understand spoken language and overcome listening challenges (Oxford, 1990). These strategies become especially important when listeners must handle complex listening tasks, such as recognizing word stress and distinguishing between similar sounds to grasp and remember new information from English speech (Oxford, 1990). One of the effective listening strategies that learners can use to cope with their learning, think about the learning process, check their comprehension, and assess their comprehension is metacognitive strategies (Holden, 2004; Nation & Newton, 2009). Numerous researchers have used teaching metacognitive strategies to instruct listening successfully. For example, Goh (2008) demonstrated that these strategies effectively handle complex listening challenges. Vandergrift and Tafaghodtari (2010) further support this by linking metacognitive strategies to improved listening skills. O'Malley and Chamot (1988) contributed to this research by showing how metacognitive knowledge can be used to monitor listening development.

The primary goal of listening strategy instruction is to equip learners with various strategies for handling real-world listening challenges (Mendelsohn, 2006). Nevertheless, merely providing knowledge of these strategies is insufficient to improve listening ability. A strategic, step-by-step approach to the classroom practice of these strategies is essential. Several researchers (Bozorgian, 2014; Robillos & Bustos, 2022; Vandergrift & Goh, 2012) advocate for the utilization of a process-focused methodology, such as the pedagogical cycle (Vandergrift & Goh, 2012), in teaching listening. They argue that this approach empowers students to manage the listening process better, build confidence, and eventually achieve higher listening competence (Goh, 2008). A pedagogical cycle is a step-by-step method for teaching listening that includes metacognition and listening exercises (Vandergrift & Goh, 2012). This sequence aids students in comprehending the listening content and the cognitive skills used during the listening process. Teachers must provide abundant opportunities for students to practice the outlined step-by-step process (Bozorgian, 2014; Goh, 2008; Robillos, 2020; Vandergrift & Tafaghodtari, 2010). This process involves planning (making and checking predictions, identifying and filling knowledge gaps), monitoring (checking and tracking progress), and evaluating listening performance (Goh, 2008; Vandergrift & Tafaghodtari, 2010).

According to Cubalit (2016), Thai university students struggle with listening comprehension. This suggests a clear need for developing and implementing effective listening strategies. Recent studies reveal that students have difficulties implementing listening techniques, leading to poorer comprehension of EFL lectures (Bennui, 2007; Cubalit, 2016). There is a dearth of research investigating the influence of process-oriented metacognitive strategy instruction on EFL listening abilities within the Thai educational system. Moreover, most research has also been studied on the

impacts of metacognitive strategies on reading skill (Anugkakul, 2015; Khunasathitchai, Linkhome, & Sittironnarit, 2023; Merndee, Ruangpaisarn, & Prachanun, 2014; Puyagoon Zwick, Chattiwat, Kositchaivat, & Paiwithayasiritham, 2020; Thampradit, 2006) and writing skill (Boonyarattanasoontorn, 2017). Therefore, this study sheds light on an area not previously explored in the Thai context by examining the effects of teaching metacognitive strategies on Thai university EFL learners' listening comprehension and reported use of the strategies. Accordingly, the present study poses the following research questions:

1. How does metacognitive strategy instruction impact Thai university EFL learners' listening comprehension both before and after the strategy instruction?
2. How does metacognitive strategy instruction impact Thai university EFL learners' listening comprehension classified by proficiency levels before and after the strategy instruction?
3. What metacognitive strategies do Thai university EFL learners reportedly use in their listening comprehension? To what extent do they use metacognitive strategies before and after the strategy instruction?
4. Is there any difference in using metacognitive strategies among Thai university EFL learners classified by proficiency levels before and after the strategy instruction?

LITERATURE REVIEW

Teaching metacognitive strategies for listening comprehension

Metacognitive strategies relate to thinking about learning, planning, monitoring, evaluating, and self-management, which contain a set of 7 strategies (O'Malley & Chamot (1988); Oxford (1990). Planning helps learners develop knowledge and understanding of what should be done to achieve a task and develop a suitable method to solve problems that may be obstacles to task completion. Directed attention helps learners decide in advance what to pay attention to, neglect trivial red herrings, and stay focused during task completion. Selective attention allows learners to determine in advance to participate in specific language inputs, assisting them in performing the task. Self-management helps learners comprehend the conditions that make them achieve any tasks; it also allows learners to prepare for those conditions, regulate their language performance, and maximize their prior knowledge. Self-monitoring helps learners check and/or make a correction in their comprehension while learning. Problem identification refers to the learners' ability to understand and solve problems. Self-evaluation is a strategy that facilitates learners when they check their results and evaluate their learning competence and achievements.

Previous studies (Al-Khresheh and Alruwaili (2023); Al-Shammari (2020); Anaktototy (2022); Cao and Lin (2020); Chero (2023); Hung and Lin (2023); Liu (2020); Lu (2021); Robillos & Bustos, 2022) consistently show that teaching metacognitive strategies improves EFL students' listening comprehension. O'Malley and Chamot (1990) argue that effective listening instruction should explicitly teach strategies, including their purpose and use. Vandergrift (2003) emphasizes that effective listeners use metacognitive strategies to distinguish themselves.

SLA researchers have established that learners' comprehension of their learning processes, cognitive abilities, and strategy utilization can positively influence their language acquisition (Vandergrift et al., 2006). Bozorgian (2014) suggests that developing metacognitive skills can help learners become more effective. By planning, monitoring, and evaluating their learning, learners can make informed decisions to improve their knowledge. For example, Al-Khresheh and Alruwaili (2023) examined the employment of metacognitive strategies in listening comprehension by Saudi EFL learners, identifying the most and least frequently used strategies and exploring any gender-based disparities. A descriptive research design was used to gather data from 204 Saudi male and female university students with diverse academic levels. Data collection was facilitated through the administration of

the Metacognitive Awareness Listening Questionnaire. The findings revealed that problem-solving and mental translation were the most frequently utilized strategies, indicating a proactive approach to addressing listening challenges and a significant dependence on cognitive translation processes for comprehension. Planning, evaluation, directed attention, and person knowledge were used less frequently. Gender analysis revealed no significant gender differences in strategy use, except for problem-solving, where females were likelier to employ this strategy.

Likewise, Al-Shammari (2020) studied the effect of listening strategy instruction on EFL learners' listening comprehension and metacognitive awareness. The study also examines the differences among five factors of the Metacognitive Awareness of Listening Questionnaire (MALQ). The participants were 60 Iraqi EFL sophomores from two intact classes: intervention and control groups. Based on the listening proficiency pre-test, post-test, and the MALQ, the treatment group scored higher than the control group. Moreover, planning-evaluation, problem-solving, and mental translation strategies significantly increased. However, in the treatment group, it was reported that directed attention and person knowledge decreased.

Anaktototy (2022) investigated university students' awareness of metacognitive listening strategies. A mixed-methods approach was utilized, with quantitative data obtained through a questionnaire adapted from the Metacognitive Awareness Listening Questionnaire (MALQ). 178 English Education students aged 19-21 at Pattimura University participated in the study by completing a questionnaire. Additionally, eight students were randomly selected for in-depth interviews to gather qualitative data on their metacognitive strategies for planning, monitoring, and evaluating their listening activities.

Cao and Lin (2020) investigated how metacognitive strategies affect students' listening comprehension in the Jiangxi Blue Sky Vocational College. The English teachers were advised to train their students and assist their pedagogy. The results indicated a significant difference between the student groups who used metacognitive strategies and those who did not use metacognitive strategies in listening tasks. Female students applied metacognitive strategies more frequently than male students. Self-regulation, self-evaluation, monitoring, and planning strategies were significantly different. The use of monitoring strategies was the most significant difference. It also showed that the students who used the strategies more frequently, especially the monitoring strategies, outperformed those who used them less frequently. Moreover, the students' listening comprehension ability would be more vital when regularly using the metacognitive listening strategies.

Chero (2023) examined the impact of metacognitive instruction on the listening performance and metacognitive awareness of two distinct groups of low-level English as a Foreign Language learners: those classified as skilled listeners and those classified as less-skilled listeners. Twenty English language learners, both male and female, taking an A1 level general English course, participated in the study. The MALQ, an open-ended questionnaire, and two standardized listening tests were used as instruments to collect the data. The results revealed a significant improvement in the listening performance of the less-skilled learners. Additionally, the findings from the Metacognitive Awareness Listening Questionnaire (MALQ) and the open-ended questionnaire demonstrated a significant increase in two MALQ factors, namely, person knowledge and strategy use, for both learners.

A separate study by Robillos and Bustos (2022) investigated the impact of teaching metacognitive strategies using a pedagogical cycle on the listening abilities and metacognitive awareness of 27 Thai English as a Foreign Language students. The intervention consisted of eight sessions of a metacognitive pedagogical cycle to enhance the students' comprehension of short informative video clips and their metacognitive awareness. The findings indicated a significant improvement in the participants' listening scores from before to after the intervention, which was associated with their metacognitive awareness during listening. Nevertheless, two out of five metacognitive awareness

factors (problem-solving and directed attention) were not significantly associated with the participants' listening comprehension performance.

The present study sought to investigate the efficacy of metacognitive strategy instruction on the listening comprehension of southern Thai university EFL learners and their self-reported utilization of these strategies pre- and post-intervention. It focused on the effectiveness of metacognitive strategy instruction, adapted from O'Malley & Chamot (1988) and Oxford (1990), in improving students' listening comprehension.

METHOD

Research design

This research utilized a mixed-methods approach, combining a listening questionnaire and semi-structured interviews to gain a comprehensive and in-depth understanding of the research phenomenon (Kumar, 2019). Mixed methods research employs quantitative and qualitative techniques to investigate a research problem (Flewitt & Ang, 2020). According to Creswell (2015), this method uses philosophical assumptions, qualitative (open-ended) and quantitative (closed-ended) approaches, and the integration of the strengths of these approaches to better understand research problems in a study.

Participants

The purposive sampling group was 201 third-year students at Nakhon Si Thammarat Rajabhat University, located in Nakhon Si Thammarat Province, in the South of Thailand. The students were enrolled in a mandatory listening and speaking course in the first semester of 2023, a 10-week program that met for 2 hours 30 minutes per week. This course was selected for the study due to its primary focus on listening skills. According to university records, the participants were purposefully chosen based on specific criteria (Etikan et al., 2016): first, they were at a similar A2 CEFR level. Second, the researcher taught the course to the participants during data collection. Third, they were Thai non-English major students, both male and female. As they had no prior experience with TOEIC listening tests, their participation was expected to be more receptive to the impact of metacognitive strategy instruction. The students were free to participate in the data collection for ethical considerations to support the results and provide in-depth information regarding the reported use of metacognitive strategies. Only 10 students willing to interview were invited to participate in a semi-structured interview. The interview questions aimed to obtain more insights into the learning strategy used in listening to L2 learners and the influence of metacognitive strategy instruction on developing their listening. After taking the pre-TOEIC listening comprehension test, they were separated into two proficiency levels: low-proficient students, or those who scored below the mean, and high-proficient students, or those who scored above the mean. The participants were unaware of their assigned proficiency level; they were solely informed of their participation in a study investigating the learning of listening skills within the context of the TOEIC listening comprehension test.

Instruments

The TOEIC listening comprehension sections from the TOEIC preparation book, Longman Preparation Series for the TOEIC Test: Listening and Reading (6th Edition: Introductory course), published by Pearson and the 9th edition TOEIC published by Barron's (Lougheed, 2021) were used to teach the participants because the practice tests from these sources have frequently been updated and mainly relevant to the actual TOEIC listening comprehension tests administered by Educational Testing Service (ETS). These prepared course materials allowed the participants to practice various skills in the four sections: photographs, question-response, short conversations, and short talks. The metacognitive listening strategies were employed in TOEIC-oriented listening activities.

The pre-test consisted of 100 multiple-choice questions containing four parts: photographs, question-response, short conversations, and short talks. It was designed by selecting question items from various editions of Longman preparation books and Barron's books to evaluate the students' listening comprehension before the intervention. The selection of two pre-tests would give us more reliable information about the participants' listening abilities—the post-test aimed to evaluate the students' listening comprehension after the intervention. The post-TOEIC listening comprehension test was a parallel form of the pre-TOEIC listening comprehension test.

The Metacognitive Awareness Listening Questionnaire (MALQ) developed by Vandergrift et al. (2006) aimed to evaluate the participants' metacognitive awareness variation. The first part of the MALQ was the students' background information. The second part was 21 randomly ordered lists measuring L2 learners' listening comprehension. This questionnaire comprises five factors: Person Knowledge, Mental Translation, Problem Solving, Directed Attention, and Planning-Evaluation.

To fully understand the students' perceived use of listening strategies, the MALQ was translated and explained into Thai and checked by one Thai/English language expert. Hence, all of the MALQ items in the translated version were equivalent to those in the original version. A reliability analysis was conducted using Cronbach's alpha to assess the internal consistency of the 21 items of the translated version. Items with a reliability coefficient below .70 were removed from the data analysis. The results revealed a high level of reliability and consistency among the questionnaire items, with a Cronbach's alpha of .956 for the standardized items.

After completing the MALQ, the students willing to attend an interview session participated in a semi-structured interview. The interview questions were designed to obtain more insights into the listening strategies used by L2 learners in listening and the impact of metacognitive strategy instruction on developing their listening. The interview questions were also translated into the Thai version.

Metacognitive teaching processes

The 7-step metacognitive teaching processes of O'Malley & Chamot (1988) and Oxford (1990) were adapted to the research's intervention. The students were taught by employing metacognitive strategies and repeatedly employed these strategies from week 1 to week 10 of the Listening-Speaking course.

Pre-listening activities: Planning/Predicting (Directed attention and selective attention)

1. The students predict the topic and the text types and write possible words they may hear on paper. They also focus on words relating to pictures and/or questions. With help from the teacher, each student can do the activities individually and in a small group.

First listen: First verification stage (Monitoring and Evaluation)

2. The students first listen to check their initial predictions, make corrections, and write additional information understood.
3. The students compare what they have written with their classmates and discuss possible correct words/keywords/ information with them. Then, they self-assess their comprehension level and decide which words are still needed.

Second listen: Second verification stage (Monitoring and Evaluation)

4. During the second listen, the students check their second predictions, confirm or make corrections, compare their initial predictions with second predictions (focus on words that sound alike), and write additional information.
5. Then, they compare their second predictions with their classmates, checkpoints of earlier disagreement or confusion, make changes/corrections and discuss how they arrived at certain words of what they have heard.

Third listen: Final verification stage (Monitoring and Evaluation)

6. The students check their second predictions, make changes/corrections, and write the answers. The teacher guides the students and discusses the text's content, possible answers, and the correct answers to the questions. Then, the students evaluate the strategies they use.

Reflection Stage and goal-setting (Monitoring, problem identification, and planning)

7. The students discuss the strategies to help identify the correct answer and difficulties with their classmates and write goals and other strategies for the following listening tasks. Moreover, the students plan and think of possible questions and/or answers they will hear in the following questions and/or answers.

Data Collection

The pre-TOEIC listening comprehension test, the post-TOEIC listening comprehension test, the listening questionnaire (MALQ), and an interview were the four main parts collected. As a teacher and researcher, I explained the listening course in the first week of the course, including an overview of listening and TOEIC. Then, all the participants took the pre-TOEIC listening comprehension test and did the listening questionnaire (MALQ). After the pre-test, I divided them into two proficiency levels: high-proficient and low-proficient. They did not know what proficiency level they were at.

During the course, the participants learned the first part (photographs) for 2 hours 30 minutes per week. The teacher explained the topic of the listening tasks to the participants. Then, the students predicted what they heard based on the questions and answers in the teaching materials. During the listening tasks, the students listened thrice with repeated audiotapes. They planned, monitored, checked, evaluated, and solved problems they encountered. After the first listen, they could share their predictions and answers with their classmates. A self-assessment of their comprehension level adapted from Wilson (2003) was conducted after their first and final listen to stimulate the students to emphasize their listening skills and make their judgment of listening performance. Moreover, the reflection stage and goal-setting were at the end of the lessons.

At the end of the listening course, the participants took the post-TOEIC listening comprehension test to measure their listening comprehension and compare the results. They also took the listening questionnaire (MALQ) again to see the differences in how they applied metacognitive strategies while taking the pre- and post-TOEIC listening comprehension tests.

Then, 10 participants willing to be interviewed joined the interview session at the end of the study regarding their awareness and knowledge of the listening lessons focused on metacognitive strategy instruction.

Data Analysis

The paired-sample t-test was used to compare the mean of the pre-test and post-test scores and to check whether the mean of each group was significantly more significant on the post-test than on the pretest. One-way ANOVA was used to calculate the differences between each MALQ factor the students used before and after the strategy instruction. It also examined the differences in all metacognitive awareness components among different proficiency levels. Following Harding's (2018) framework, qualitative data from semi-structured interviews underwent a three-stage qualitative content analysis. The researcher began by transcribing the data and immersing themselves through repeated readings. Subsequently, codes were applied to identify initial categories, followed by re-examining the transcripts to identify emergent themes relevant to the research objectives. Key themes significantly contributing to the research questions were then selected and grouped. Finally, significant themes were organized, grouped, and labeled coherently to align with the quantitative findings.

FINDINGS

A paired-sample t-test was conducted to determine the statistically significant difference in listening comprehension scores between students' pre-test and post-test results while also considering their proficiency levels. Overall, the students in the post-test performed better in their listening comprehension, suggesting that metacognitive instruction significantly affected their listening comprehension (see Table 1).

Table 1
Differences in listening comprehension between students' pre-test and post-test

Pre-test Mean ± SD	Post-test Mean ± SD	Statistical test
31.30±6.591	36.66±8.025	t = -9.797 df = 200 *p* = .000

**p*<.05

The mean score of the listening post-test of the low-proficient students was higher than those of the pre-test, suggesting that metacognitive instruction had a highly significant effect on the students' listening comprehension (see Table 2).

In addition, the mean score of the listening post-test of the high-proficient students was higher than that of the listening pre-test. This suggested that metacognitive instruction significantly affected the high-proficient students' listening comprehension (see Table 3).

Table 2
Paired-sample t-test on low-proficient students

Pre-test Mean ± SD	Post-test Mean ± SD	Statistical test
27.40±2.730	35.11±6.818	t = -11.263 df = 117 *p* = .000

**p*<.05

Table 3
Paired-sample t-test on high-proficient students

Pre-test[a]Mean ± SD	Post-test[b]Mean ± SD	Statistical test
36.84±6.511	38.85±9.079	t = -2.635 df = 82 *p* = .010

**p*<.05

One-way ANOVA was utilized to assess the differences in students' use of each MALQ factor before and after receiving strategy instruction. Additionally, it was employed to examine the variations in all metacognitive awareness components across different proficiency levels. While running the one-way ANOVA, the post hoc test was unnecessary because the results showed no significant difference ($p > 0.05$).

Overall, the results indicate that there were no statistically significant differences in metacognitive awareness development among the students in the five factors of both the pre-test and the post-test (see Table. 4). Before the strategy instruction, planning/evaluation and problem-solving were the most used factors when the students took the pre-test. However, after the strategy instruction, problem-solving was the most used factor when the students took the post-test.

Table 4
Metacognitive strategies used by the students before and after the strategy instruction

Factor	Pre-test[a] Mean ± SD	Statistical test	Post-test[b] Mean ± SD	Statistical test
Planning	4.53±.063	*F* = .188 df = 4,16 *p* = .941	4.49±.080	*F* = .581 df = *4,16* *p* = .681
Directed attention	4.34±.691		4.28±.518	
Person knowledge	4.41±.722		4.39±.407	
Mental translation	4.52±.267		4.49±.121	
Problem-solving	4.53±.158		4.53±.123	

a. Pre-test – Before the strategy instruction
b. Post-test – After the strategy instruction

The results indicate no statistically significant differences in metacognitive awareness development within the five factors before and after the strategy instruction among the low-proficient students (see Table. 5). Before the strategy instruction, planning/evaluation and mental translation were the factors most commonly used by low-proficient students. However, planning/evaluation and problem-solving were the most used factor after the strategy instruction.

Table 5
Metacognitive strategies used by the low-proficient students before and after the strategy instruction

Factor	Pre-test[a] Mean ± SD	Statistical test	Post-test[b] Mean ± SD	Statistical test
Planning	4.57±.081	*F* = *.222* df = 4,16 *p* = .922	4.53±.085	*F* = .581 df = *4,16* *p* = .681
Directed attention	4.39±.561		4.35±.507	
Person knowledge	4.43±.578		4.39±.407	
Mental translation	4.57±.178		4.49±.121	
Problem-solving	4.50±.138		4.53±.123	

a. Pre-test – Before the strategy instruction
b. Post-test – After the strategy instruction

The results indicate no statistically significant differences in metacognitive awareness development within the five factors before and after the strategy instruction among the high-proficient students (see Table 6). Before the strategy instruction, problem-solving was the most used factor among high-proficient students. However, mental translation was the factor most used after the strategy instruction.

Table 6
Metacognitive strategies used by the high-proficient students before and after the strategy instruction

Factor	Pre-test[a] Mean ± SD	Statistical test	Post-test[b] Mean ± SD	Statistical test
Planning	4.53±.141	*F* = *.228* df = 4,16 *p* = .918	4.39±.151	*F* = .579 df = *4,16* *p* = .682
Directed attention	4.26±.886		4.17±.536	
Person knowledge	4.39±.943		4.31±.295	
Mental translation	4.46±.398		4.45±.129	
Problem-solving	4.57±.198		4.40±.078	

a. Pre-test – Before the strategy instruction
b. Post-test – After the strategy instruction

Interview

The data from semi-structured interviews regarding using metacognitive strategies after the strategy instruction underwent a three-stage qualitative content analysis. Ten volunteer informants felt free to give answers. This involved three stages: data transcription, thorough data immersion through repeated reading, code development for initial categorization, identification of emergent themes

relevant to the research objectives, selection and grouping of key themes, and finally, the organization and labeling of significant themes to align with quantitative findings.

The data showed they used various metacognitive strategies to understand the listening texts and help them select the correct answers as follows:

The interview data showed that predicting the answer before listening to the speakers' speech was helpful for the students. These techniques could help them save time and guess the possible answers, as some interviewees stated:

> "*Firstly, I read the questions and tried to understand what they wanted to ask. Then I quickly guess the possible answers" (IV2). "I looked at all of the questions. I predicted the possible answers and vocabulary I might hear from each of the four statements." (IV5)*

The data also showed that focusing on the general idea or words they can translate made it easier to find the correct answers, as two interviewees stated:

> *"I cannot catch up on the speech that I hear, so I focus on the general idea of what is it about, and then I select the answer" (IV5). "In Conversations and Talks, it is tough for me to catch up on the speakers' speech. So, I focus only on the words I know to help select the correct answer" (IV7).*

The students thought that the easiest and fastest way to find correct answers was to listen to and translate those keywords, as some interviewees explained:

> *"In the Question-Response section, no questions and answers were printed on the exam sheet, so I focused only on the first WH-question that asked me. If the question asked, "What time do you leave home?" the keyword that I paid attention to was "What time?" (IV10). "Keywords would make it easy for me to catch up on the general idea of the conversation. I thought it was probably the strategy or technique I mainly used to understand the questions and select the correct answers." (IV1)*

The data showed that using the students' experience and knowledge to help them understand the speech enabled them to catch up and select the correct answer, as some interviewees stated:

> *"I mostly used this technique. I have found new vocabulary and searched for the meaning. When I did the test, the vocabulary I knew was in the test, which would make it easy to understand what the speakers in a conversation were saying" (IV3). "I tried to listen to what the speakers were saying and thought about the situation relating to the question" (IV4).*

The students knew it was difficult for them to find the correct answer. The only method that could help them guess and find the correct answer was to think about known words and use those known words to predict or compare the answer choice, as some interviewees asserted:

> *"While doing the test, I knew some words. So I used those words to help predict the answer" (IV9). "I tried to think about the words that I have heard and know their meaning so that I could compare with the words that I did not know the meaning and then rechecked the answer" (IV6).*

The interview data also showed that concentration was important while taking the test, as some interviewees asserted:

> *"When the teacher taught me how to use metacognitive strategies in doing the TOEIC test, these strategies made me focus harder on the text and have concentration on the words or the speakers' speech" (IV8). "Personally, while listening, I closed my eyes to improve my concentration." (IV2).*

The students realized that using similar words could help them cross out the incorrect answers because those words that sounded similar to those in the photographs, the questions, or the answer choices were mainly trap or false answers, as two interviewees explained:

> *"When I heard the words that sound similar to words in the questions or the answer choices, I realized that I would not select that answer" (IV3). "When I heard the same words as the*

questions or the answer choices in the question-response section, I decided not to select that answer because it would give a false one" (IV6).

The students thought that their listening skills were challenging. They could not catch up with the speakers' words or understand various accents. They also had a limited vocabulary, and the learning environment did not facilitate their listening in English, as some interviewees explained:

"I do not understand the accent or know what the speakers are saying in the audiotapes when I listen to foreign speakers, so listening is so difficult." (IV4). "Every skill is difficult for me, especially listening. I think if I know much vocabulary, I will understand the speakers' speech and be able to select the correct answer" (IV1)

DISCUSSION

This study explores the effects of teaching these strategies on Thai university EFL learners' listening comprehension and reported use of the strategies. Concerning the first research question - how metacognitive strategies affected the students' listening comprehension- it was found that teaching metacognitive strategies positively affected their listening performance. Likewise, this current study, which used different metacognitive strategies (e.g., planning, self-monitoring, and self-evaluation) in teaching listening, demonstrated that students could achieve better listening performance through these strategies taught by the teacher. These results corroborate the hypothesis that integrating metacognitive strategies into listening instruction can enhance listening performance. The findings of this study are also in congruence with those of prior research (e.g., Al-Shammari, 2020; Cao & Lin, 2020; Chero, 2023; Cross, 2011; Hung & Lin, 2023; Maftoon & Alamdari, 2020; Robillos & Bustos, 2022; Vandergrift & Tafaghodtari, 2010), which have consistently demonstrated the efficacy of metacognitive strategy instruction in improving listening comprehension. These studies explored the same notions that metacognitive strategy instruction could improve students' listening comprehension. Al-Shammari (2020) found that the intervention group performed better with metacognitive strategy instruction on listening comprehension than the control group. Hung and Lin (2023) similarly found that the two experimental groups performed better than the control group. Vandergrift and Tafaghodtari (2010) and Chero (2023) shared a similar result: a significant improvement in listening performance among less-skilled listeners. In contrast, skilled listeners did not significantly improve their listening performance scores between the pre-test and post-test.

A significant amount of literature on learning strategies supports the implementation of informed strategy instruction, which involves making students aware of these strategies and their usefulness and providing deliberate practice in using them. The TOEIC listening comprehension tests focus not on grammar per se but on understanding the main idea and as many supporting details as possible (Rutamornchai et al., 2024). Students were given multiple opportunities to listen to a text, allowing them to predict selectively and directly pay attention, monitor understanding, overcome difficulties, and evaluate their learning progress. The more they engage in these metacognitive processes independently or with peers, the more likely they are to develop their knowledge (implicit knowledge) about L2 listening through task performance (Vandergrift & Tafaghodtari, 2010).

In addition, it is important to note that the students' listening performance could not only be on the teaching of metacognitive strategies in the TOEIC listening comprehension tests but also on the students themselves, particularly their efforts and self-belief. According to the interview, to gain higher scores, they must practice doing various TOEIC listening comprehension tests from websites, learn new vocabulary from video games, songs, and talk shows, and participate in any training courses held by the university. Oxford supports this notion (2013), suggesting that language learners interested in learning a new language and/or making their language learning effective must seek opportunities to practice learning a new language, not only inside a classroom. Another factor that could help the students accomplish their goals is their belief in themselves. According to the MALQ,

although they find listening in English more complex than other skills and/or a challenge, they refuse to give up or stop listening. The TOEIC listening comprehension tests take 45 minutes, especially parts 3 and 4 (short conversations and short talks), which are time-consuming. Despite their tiredness and pressure, they try to concentrate and think that gaining high scores can make them pass the TOEIC tests and graduate from the university.

Concerning the second research question –how metacognitive strategies affected the students' listening comprehension as classified by proficiency levels – the results were that the low-proficient students showed more significant improvement in listening comprehension accomplishment than the high-proficient students. Presumably, the low-proficient students did not transfer the L1 knowledge to the L2 knowledge when listening to the texts – that is, they focused on the meanings of the keywords but did not focus on grammar and/or the whole sentences of the listening texts. According to the interview, listening to keywords and translating to those keywords were one of the strategies that could help both low- and high-proficient students understand the speakers' speeches. Therefore, these metacognitive strategies were effective for them (Goh & Taib, 2006). This result aligns with Chero's (2023) study investigating whether metacognitive instruction impacted EFL low-level learners' listening performance and metacognitive awareness. The results revealed that low-level learners' listening performance improved after the intervention.

An important distinction between low-proficiency and high-proficiency students may be attributed to metacognition – specifically, implementing metacognitive strategy instruction to regulate their self-learning and enhance listening comprehension (Vandergrift, 2003). The potential for successful implementation of this informed strategy instruction with low-proficiency students lies in their increased exposure to these listening processes under the guidance of the teacher and their high-proficiency peers (Goh, 2008).

Regarding the third research question - what metacognitive strategies did the students use before and after the strategy instruction? The study showed no significant changes in the metacognitive strategies used by students both before and after the strategy instruction. The absence of significance, consistent with Bozorgian's (2014) findings, can be attributed to the students' unfamiliarity with metacognitive strategies, inadequate application of these strategies, and inability to comprehend the purposes of each MALQ factor. However, the results of this study do not empirically support those of other studies in ESL contexts (e.g., Goh & Hu, 2014; Vandergrift & Tafaghodtari, 2010; Mareschal, 2007) and EFL contexts (e.g., Baleghizadeh & Rahimi, 2011: Rahimi & Katal, 2012) which showed that the pedagogical processes of metacognitive strategies affected metacognitive awareness. The following MALQ factors presented below can explain this lack of significant changes.

The lack of significant changes in problem-solving can be attributed to the students' inability to infer word or text meanings. It can also be inferred that they did not employ all of the various inferencing strategies outlined in the MALQ, possibly because of limited time to perform the listening tasks and individuals' knowledge and experience about the listening tasks. Dissimilar to Liu's (2020) study, the problem-solving factor exhibited the greatest significant difference. The awareness of using various strategies to solve listening problems emerged from the pedagogical design, which employed repeated listening in three stages and emphasized active meaning construction by the listeners.

Planning/evaluation indicated a decrease in uses and no significant changes. The results for planning/evaluation strategies can be explained by the intervention and duration of performing the listening tasks. The students failed to employ these strategies, possibly because of the limited test time needed to prepare themselves to read the questions and answers, look at the photographs, and evaluate themselves after performing each test. This current study's result is not in line with Cao and Lin's (2020) study, confirming that planning strategies significantly differed between the students who used metacognitive strategies and those who did not.

The reduced use of directed attention strategies could be due to the students' shifting focus and becoming distracted when they encountered difficulties understanding the listening texts, sentences, keywords, vocabulary, and phrases in the test papers. Al-Khresheh and Alruwaili (2023), Al-Shammari (2020), and Hung and Lin (2023) found a similar result: there was no significant difference in these strategies; the participants were unaware of using them.

As for person knowledge, the students' confidence level has increased, and the level of anxiety in their listening ability has decreased. This is possible because students could focus on one or two aspects of listening in each stage combined with the teacher's and peers' encouragement. This finding of greater confidence and lower anxiety was in line with Mareschal (2007) and Graham and Macaro (2008), which could improve the student's listening comprehension performance on tests (Rahimi & Abedini, 2009).

Regarding mental translation, the strategies students must learn to avoid if they want to become skilled/proficient listeners (Vandergrift et al., 2006) are commonly used by low-proficient students (Goh, 1998; Vandergrift, 2004). In line with Lu's (2021) findings, the students translated keywords as hints for listening comprehension. This study also indicated that the students' lack of vocabulary or inability to identify and remember word sounds led them to use mental translation. The result of this present study is also congruent with Bozorgian's (2014) and Hung and Lin's (2023) study, which found no statistically significant difference in mental translation, suggesting its fading role because of the metacognitive instruction. However, the results of the current study are not aligned with Al-Khresheh and Alruwaili's study indicating that mental strategies were the most frequently used among the participants.

Concerning the fourth research question, what metacognitive strategies did the students, as classified by proficiency levels, use before and after the strategy instruction? They reportedly used various metacognitive strategies. Problem-solving strategies were the most reported increase in use among the low-proficient students. As previously discussed, such an increase in low-proficient students can be attributed to the implicit learning model through listening task performance.

Nonetheless, the results of mental translation appear counterintuitive among the high-proficient students. Previous studies show that mental translation strategies are mainly used by low-proficient students (Goh, 1998; Vandergrift, 2003), but surprisingly, in this study, the high-proficient students used these strategies more, especially when they struggled with the speakers' speech while doing the test. In addition, the MALQ interview data revealed that the high proficiency of students' heavy reliance on mental translation could indicate their developing ability to understand word meanings with greater accuracy, hence an expansion of their vocabulary repertoire. As listeners developed this ability, they learned to utilize all available information to infer the meaning of what they could not directly understand.

Regarding the low-proficient and high-proficient students' scores, they reportedly used planning/evaluation, directed attention, and person knowledge less frequently after the strategy instruction than before the strategy instruction. The decreased use of planning/evaluation strategies among low-proficient and high-proficient students can be explained by the intervention and the duration of performing the listening task, as described earlier. The students seemed unfamiliar with metacognition despite describing their planning strategies in detail. They could not provide any specific examples of how they evaluated their learning process. They could not prepare themselves to read and understand the questions and answers, think about the vocabulary of the photographs ahead, and take notes. The results align with Anaktototy's (2022) study, indicating that the students' inability to explain or define metacognitive strategies suggests a gap in their understanding of the self-reflection process, a key component of metacognition.

Regarding directed attention, both the low-proficient and high-proficient students used these strategies less frequently after the strategy instruction than before the strategy instruction. According to Goh and Hu (2014), how learners focus on listening input can vary depending on their goals. This highlights the importance of directed attention in listening comprehension. Listeners can adopt different processing styles. Some prioritize utilizing all the words they hear to build understanding, while others prioritize connecting words to form preliminary ideas before grasping the entire message. The strategy of directing attention to confirm existing knowledge is common among both low-proficiency listeners and some others. Conversely, skilled listeners leverage new information to build their understanding. The results of the MALQ regarding directed attention in this present study are found insignificant, which is consistent with Robillos and Bustos's (2022) study investigating the effects of a pedagogical cycle intervention incorporating metacognitive strategy instruction on the listening comprehension and metacognitive awareness in listening of 27 Thai EFL students. Another possible explanation for the students' difficulties could be that their focus of attention shifted and became fragmented due to challenges in comprehending vocabulary, keywords, and phrases within the listening material. Difficulties in understanding elements of the listening material can distract students, leading to a loss of concentration. This reduced focus impacts their working memory capacity, hindering their ability to analyze the ongoing listening input. As a result, regaining focus and continuing to concentrate becomes challenging.

Concerning person knowledge, a low score translates to low levels of anxiety and a positive self-assessment of listening skills, which is inconsistent with Chero's (2023) study indicating that a high score of EFL low-level learners' person knowledge suggests both significant anxiety and a tendency to believe one's listening skills are weak. Both proficiency-level students recognized that listening was complex or somewhat challenging for them. However, when it came to anxiety levels, skilled listeners reported experiencing less nervousness compared to the less skilled group. This may explain the higher confidence levels observed in skilled listeners when dealing with listening tasks.

Based on the primary conclusions of this investigation, specific implications can be deduced. The predominance of problem-solving strategies students employed underscores educators' need to establish a pedagogical milieu conducive to such methodologies. To accomplish this, we can design and implement materials through the conception and execution of interactive auditory tasks that present learners with intricate comprehension challenges, thereby stimulating problem-solving and strategic cogitation. Students' reliance on mental translation strategies indicates that teachers should gradually guide them toward direct English comprehension so they can rely less on translation as they become more proficient. Moreover, students' planning and evaluation strategies show they know their thinking. Teachers can help them develop this skill further by including metacognitive training in the curriculum. This approach motivates students to actively participate in planning, monitoring, and evaluating their understanding processes.

Listening tasks in the curriculum should encourage students to use metacognitive strategies and help them develop all aspects of their listening comprehension skills somewhat. Teachers should use instructional materials to encourage students to draw on their prior knowledge and experiences to understand the language better. In today's digital world, the curriculum should include elements that strengthen students' ability to focus and prepare them for a world full of interruptions.

Professional development initiatives for English as a Foreign Language educators should underscore the critical significance of metacognitive methodologies in enhancing listening comprehension. Such programs should equip teachers with the requisite skills to identify and cultivate their students' metacognitive capacities while adapting their pedagogical techniques to accommodate their students' evolving requirements. By ensuring that teachers deeply understand metacognitive strategy training, we can significantly improve the quality of EFL teaching and create more effective learning experiences.

The current study acknowledges several constraints that may affect the generalizability of its findings. First, the students were taught to listen using metacognitive strategies for ten weeks. Future research may extend to a longer period of strategy instruction, which could raise the students' metacognitive awareness. Second, future research may include a control group in an experimental design to help researchers understand which approach is most effective in enhancing learners' listening perception and skill development. Finally, to gain a more comprehensive understanding of the factors influencing metacognitive strategy use and listening comprehension in the Thai EFL context, future research should expand its scope to include variables such as cognitive strategies, socio-affective strategies, motivation, and different task types to get a better understanding of metacognitive strategy use and listening comprehension.

CONCLUSION

This current study highlighted the importance of teaching metacognitive strategies to Thai university EFL learners to improve their listening performance and investigate their metacognitive awareness. It also investigated the differential utilization of metacognitive strategies across the five MALQ factors among Thai university EFL learners classified by proficiency levels. The findings provided empirical validation for the proposition that the instruction of metacognitive strategies of planning, monitoring, and evaluating can be advantageous in facilitating EFL learners in improving their ability to comprehend the listening texts. The findings indicate that students with lower proficiency levels may see the most significant improvements when using this approach. Although overall metacognitive awareness was not significantly enhanced, the instruction program successfully equipped students with metacognitive strategies for problem-solving, particularly the low-proficient students, when performing listening tasks.

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