The Application of Metacognitive Strategies in Computer-Assisted Listening Comprehension Class

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ABSTRACT

Computer-Assisted Language Learning (CALL) in listening comprehension courses has long been proved effective in enhancing EFL learner's listening proficiency as it creates enough space for students to individualize their learning process. However, it is a need to provide students appropriate strategies to help them overcome various difficulties in their listening practice. This quasi-experimental research aims at investigating the influence of metacognitive strategies on EFL learner's listening comprehension performance in CALL listening class. Forty-nine Vietnamese English major freshmen from two intact classes at Van Lang University, participated in the study. During the 10-week listening comprehension course, learners in the experimental group were instructed to use metacognitive strategies, while those in the control group received no strategy instruction. The collected data from the pre-test and post-test were analyzed by t-test using SPSS software. Students were also required to complete the Metacognitive Awareness Listening Questionnaire (MALQ), adopted from Vandergrift (2004). The findings suggested that metacognitive strategy instruction positively affects students' listening comprehension competence.

Keywords: metacognitive strategies, computer-assisted language learning, teaching listening.

1. INTRODUCTION

Of all four English language skills, listening plays an essential role in the learning process as listening provides a significant input for learners, especially in the EFL climate. Nunan (1998) [1] stated that it is the input that gives the foundation source of information for learners to build up the necessary knowledge of the target language use. Thus, teaching and learning listening, more importantly listening comprehension, have always received lots of attention from educators and learners themselves. Graham (2006) [2] points out that most language learners consider listening comprehension a much more challenging skill to master than reading comprehension. This is mainly due to the fact that students in listening sessions do not have many opportunities to listen back and forward the audio as many times as wish since the whole class is expected to listen together for certain times, regardless of students' mixed-leveled listening proficiency.

In recent decades, computer-assisted language learning (CALL) has been introduced in the language learning context to further support students in learning listening. There comes a lot of research indicated that foreign languages taught in CALL classes provide better outcomes than the traditional classroom (Kolich, 1985) [3]. Indeed, it is considered a great replacement for the traditional listening comprehension class, with speakers and the audio player. In CALL class, the computer is utilized as an effective instrument to carry out the presentation, reinforcement, and assessment of learner's performance. Moreover, CALL allows students to individualize their learning. In other words, students can study at their own pace. Above all, they are able to interact with the computer program to have the audio repeated or listen to specific parts of the audio without disturbing other students in the class. In addition, the advent of web-based software featuring a mobile-compatible application, i.e., Moodle, allows learners to gain access to the learning program from anywhere at any time, since then maximizing the learning time.

Nevertheless, as in the CALL system, listening activities are mostly presented in a small test to assess learners' listening comprehension ability, which may lead to a sense of anxiety across the students in the class. Although students in CALL listening class could adjust the virtual audio player to self-pace themselves when carrying out the tasks, they still need to be instructed on certain listening strategies to really overcome obstacles in the course of listening. According to Vandergift (1999)

[4], in order to successfully complete tasks of listening comprehension, it requires certain mental stages to be applied besides self-emerging oneself into the audio with a multitude of replaying times. Therefore, the teacher should instruct students with effective metacognitive strategies to help them develop their listening competence and self-regulation (Goh, 2002) [5]. Metacognitive strategies, indeed, have been proved their effectiveness in enhancing learners' listening comprehension (Vandergrift et al. 2006; Rahimi & Katal, 2012) [6], [7]. Regarding the five aspects of metacognitive instruction, i.e., planning and evaluation, directed attention, personal knowledge, mental translation, and problem-solving, it could provide learners with effective tactics to proactive face with listening comprehension tasks. Hence, this application in CALL listening class may assist students more in the process of learning listening comprehension.

Despite the effectiveness in enhancing learners' listening performance, metacognitive strategies have yet to be fully examined their influences in CALL context. With this issue in mind, this study investigates the impact of the use of metacognitive strategies in CALL listening comprehensive class. The research was conducted in the first semester of the school year 2020-20201 at the Faculty of Languages, Van Lang University. It is a hope that the English-majored freshmen participating in this quasi-experimental study could be beneficial from the application of metacognitive instruction. Additionally, the findings were expected to gain some understanding of the use of metacognitive strategies in the computer-assisted teaching environment.

Research questions:

Does the application of metacognitive strategies improve EFL students' listening performance?

2. LITERATURE REVIEW

The reviewed literature consists of two main sections: teaching L2 listening in CALL classroom and metacognitive strategies in L2 listening.

2.1. Teaching L2 Listening in CALL Context

Teaching listening has long relied on technology applications since the advent of audio recorder and audio player. However, it was not until the assistant of computer in ESL or EFL classroom, the teaching and learning L2 listening has completely changed. It is where every learner could proactively control the target language audio by interacting with the listening software, or more advanced with web-based learning systems, for the sake of comprehension. In this section, the literature focused on the body of work related to the impacts of learners' control of acoustic files in two aspects: repetition and speed modification.

The most common technique to be applied in listening comprehension class is repetition. Hatch (1983) [8] pointed out that allowing learners to listen to the input several times. It gives learners more opportunities to gain more understanding of the listening content or simply revisit missing information after the initial of listening. Although repetition can help learners become more comprehensible, leading to better performance, Chang and Read (2006) [9] showed that this technique is solely effective for students who have obtained a certain level of the target language to process on the later listening times so as to revise the information interpreted. It, however, not greatly supports lower-level students. Indeed, repetition might generate tension and a sense of loss for those learners with limited L2 knowledge. Therefore, it is suggested that appropriate listening strategies should be employed after every listening time to gain the level of comprehension when practicing listening (Jensen & Vinther, 2003; Chang & Read, 2006) [10], [9].

Another listening technique that could easy carried out in the CALL classroom is modifying the audio speed. By applying technology, the speed of the audio could be decelerated without distorting the pitch of the acoustic signal. This is also one of the most prominent choices of learners when dealing with the listening section. It is clear that when the audio speed was modified to suit the learners' listening competence, especially low-profile ones, the aspect of comprehension has been raised, resulting in a boost in learners' listening performance (Griffiths, 1991; Zhao, 1997) [11], [12]. However, Zhao, [12], however, pointed out that the modification of audio speed differs greatly from learner to learner due to their own listening competence. In other words, learners tended to use technology to help them stay in their comfort zone rather than push themselves to a much more challenging level of listening speed, which approximately meets L2 natural speech speed. This may have a negative effect on helping students develop necessary listening skills for real-life communication. Also, Zhao [12] stated that L2 students could obtain a certain level of comprehension with appropriate trained listening strategies when facing authentic-like audio recordings.

Indeed, such issues arising in the computer-assisted classroom might not necessarily derive from the technology, yet those obstacles possibly come from learners themselves. Mills, Herron, and Cole (2004) [13] and Vanderplank (2010) [14] state that apart from some technical issues, the vast majority of problems facing by L2 learners belong to the lack of appropriate techniques to apply during the listening period. A sense of overwhelm could be easily recognized across students who struggle with a lot of input despite the help of either repetition or speed manipulation; thus, Vandergrift and Goh (2012) [15] put forward a need to instruct students with viable listening strategies to endure the request of

both grasping the gist and extracting required information. It is suggested that successful L2 learners be conscious of their listening process and the listening tasks' requests. Among various listening tactics, metacognitive instruction has been considered as an effective method equipping learners with appropriate self-regulation tactics leading to listening success (Vandergrift et al., 2006; Rahimi & Katal, 2012) [6], [7]. The following literature is for the review of the application of metacognitive strategies in teaching L2 listening.

2.2. Metacognitive Strategies in L2 Listening

The definition of metacognition may vary among researchers in detail, yet it is generally accepted that metacognition refers to the consciousness of a person's mental processes. Wenden (1998) [16] elaborated metacognition as a thinking process at a high level in which one could actively control the process of cognition. Therefore, by highlighting the issue of metacognition in teaching, the teacher could generate learners some mental characteristics of a successful L2 learner, i.e., the awareness of the learning process and the employment of various tactics to deal with the requirements presented in different tasks and learning situation. Buck (2001) [17] listed out the four categories of metacognition in action that learners should follow:

- Situation Assessing: Prior to carrying out a task, learners should self-assess their knowledge, the existing internal and external resources, and factors affecting the situation.

- Monitoring: Identifying individual efficacy and others' performance during the task implementation.

- Self-evaluating: Identifying individual efficacy and others' performance after the task implementation.

- Self-testing: Identifying individual efficacy of language use and the shortage of necessary language input.

Vandergrift and God (2012) [15] also presented the chief characteristics of metacognition in action consisting of:

- Intentionally paying attention to individual knowledge, prior experience, and actions frequently employed;

- Self-reflecting on thinking, actions, and the audio resource to analyze, provide and receive feedback;

- Planning for the learning process, based on reflections;

- Implementing follow-up actions or delaying them for later use;

- Producing adjustment in thinking and action to respond with task changes;

- Employing pair work or group work to plan and take follow-up actions to deal with the tasks;

- Constructing knowledge and experience by either individual or collaboration.

Based on these theoretical principles, the metacognitive instruction in teaching listening underlines the procedure that heightens the listening process's consciousness. This requires learners to relate their own knowledge about the listening content, understand the demands of the tasks, and foresee appropriate strategies to be applied to resolve tasks (Vandergrift & Goh, 2012) [15]. More importantly, the two researchers emphasized the learners' reflection so as to construct a necessary action to self-regulate their learning process. In detail, as learners connect new information to the existing one, they need to take further steps to initially plan, then monitor, and finally evaluate their work in the listening comprehension class (Goh, 2010) [18]. To be more specific, Goh and Taib (2006) [19], in their study of young learners, put forward a five-step metacognitive procedure to teach listening:

- Step 1: pre-listening activity
Students in pairs brainstorm and note down the lexical terms related to the listening topic.

- Step 2: First listen
Students circle the word that they predicted correctly and note down some more information from the recording in the course of listening.

- Step 3: pair discussion
Students in pairs compare their work for the initial listen and explain to each other their strategies to get that information. In the follow-up reflection stage, confusing or missing information is also noted and highlighted between two peers.

- Step 4: second listen
In this stage, students take a chance to revisit unsettled information and might take note of some further information.

- Step 5: whole-class discussion
It is time for the teacher to facilitate the discussion and provide appropriate feedback for comprehension. The strategies applied to solve the tasks are also discussed.

In recent decades, the application of metacognitive strategies in teaching L2 listening comprehension has achieved promising results. In 2006, Goh and Taib [19] conducted research on the application of metacognitive instruction for ESL young learners. Ten primary students participated in eight listening sessions with the concentration on personal reflection at the post-listening stage and discussion sessions, facilitated by the teacher. The pre-test and post-test resulted were collected at the beginning and the end of the experiment and analyzed.

The result showed that metacognitive instruction positively impacted participants' listening performance. Additionally, virtually every student confirmed a level of comprehension of the tasks' requirements and formed better strategies to deal with such tasks. Although this is small-scale research and the sample characteristics, at the primary level, are also different from the current context, university freshmen, the afore-mentioned 5-step metacognitive instruction is worth referencing as the procedure is quite clear, following the theoretical concepts of metacognition.

Vandergrift and Tafaghodtari (2010) [20] carried out an empirical study on the impacts of metacognitive strategies in teaching French listening comprehension. Over one semester, 106 participants, divided into the control and experimental group, were instructed a 7-step metacognitive process, adopted from Vandergrift's work in 2004 [21]. A pre-test and post-test were employed to measure students' performance. Also, the metacognitive awareness Listening Questionnaire (MALQ) was delivered at the beginning, middle, and end of the experiment period to gauge students' metacognitive development. The findings put forward positive impacts of metacognitive strategies on students' listening performance. More importantly, students in the experimental group demonstrated a great level of metacognitive development, which helped them gain essential listening skills. A follow-up search undertook by Tisma (2016) [22] also investigated the metacognition instruction with a focus on the aspect of vocabulary in the EFL listening comprehension context. In an agreement with Vandergirt and Tafaghodtari [20], the yielded result confirmed the effectiveness of metacognitive strategies in equipping learners with appropriate procedures to self-regulate their listening learning process. In brief, despite the fact that these two studies did not conduct in the CALL context, the result proposes a promising hypothesis that metacognitive strategies in the current teaching context might obtain positive results. In addition, the research procedure of Vandergrift and Tafaghotari [20] is of role model for the current study.

3. METHODOLOGY

3.1. Settings and Participants

The study was carried out at the Faculty of Foreign Languages, Van Lang University where the Moodle system has been utilized since 2017 to teach English major freshmen the Listening 1 and Listening two courses. The Listening 1 course consists of 10 sessions, two hours and a half for each. The teaching materials were selected from different listening sources ranging from level A2 to B1 CERF, including three units of Listening A2, four units of Listening A2 plus, and three units of Listening B1. In order to provide students with

essential listening skills to meet the course outcome, which is level B1 CEFR, the students are taught in the computer lab with the web-delivered Moodle system.

Regarding participants, 49 freshmen, from 18-20 years old, of two intact English classes were invited to participate in the study when they were taking the first term of the academic year 2020-2021. There were 26 students assigned to the Control Group and 23 students joining the Experimental Group. The researcher is also the course instructor of the two classes. There are no differences in the syllabus and teaching materials applied to these research classes. In terms of participants' background knowledge, most of them have studied English for almost 12 years since they were primary students, while some students have had only 6-year English studying experience. To get a place in the university, they must pass the English test in the National High School Graduation Examination organized by the Vietnam Ministry of Education and Training. In the test, students' listening proficiency is not evaluated.

3.2. Research Design

The random sampling procedure was unable to carry out in the research context. Two intact classes were assigned as the research population in place of randomization. Hence, the present study applied the quasi-experimental research design due to the limitation in choosing participants (Creswell, 2011) [23]. At the beginning and the end of the course, a pre-test and post-test were used to measure the learner's listening competence. Also, the Metacognitive Awareness Listening Questionnaire (MALQ) of Vandergrift (2004) [21] was employed to gain more understanding of students' awareness of the application of metacognitive strategies. The yielded result could present more evidence to help explain the tests' data.

3.3 Metacognitive Instruction

The 7-step metacognitive instruction of Vandergrift (2004) was adapted to the research's treatment. As the original procedure is designed for the common class, the sixth step was modified. Students in the third listening would individually interact with the web-based system in the computer.

Pre-listening: Planning/ Predicting stage

1. In pairs, the students were asked to anticipate the possible types of information, words, or phrases that may appear after they had been provided the topic and text type of the listening task.

First listen: First verification stage

2. The instructor played the recording while the students were individually completing the task and taking notes that they heard.
3. The students worked in pairs to compare and revise what they had listened to, then identify essential information that listeners needed to concentrate on.

Second listen: Second verification stage

4. The instructor replayed the recording so that the students could confirm inconsistency and complete missing points, modify and write down some more information they could catch.
5. The students discussed and shared the points that need more attention and relevant information, then reflected upon the way they interpret words, terms, or parts of the text.

Third listen: Third verification stage

6. The students themselves listened to the recording and entered their answers in the Moodle system. The web-based system was automatically graded students' answers.

Reflection stage

7. The students were encouraged to show the points which were difficult to understand and contribute possible tactics to solve them. In case they had no resolution, the instructor would provide them strategies to enable them to solve the task. Next, the instructor showed the students the answers to the listening task. Eventually, students were required to summarize useful strategies for further listening activities.

3.4. The Application of Metacognitive Strategies

The research was conducted within 10 weeks from week 1 to week 10 of the first Listening course.

Stage 1: week 1

During the stage, the Moodle system was introduced to the participants so that they could get used to using themselves for learning and practicing. At the end of this stage, students were involved in taking a pre-test on the Moodle system. The 35-min test was extracted from test 1 of the Cambridge English Preliminary 7 (Cambridge English, 2014) [24].

Stage 2: from week 2 to week 09

As soon as these students were used to using the Moodle system, the treatment was applied in the Experimental Group, whereas there was no interference in the Control Group.

Stage 3: week 10

At the final session, all the participants of both intact research groups had been required to answer the MALQ before they took the post-test, adopted from test 4 of the Cambridge English Preliminary 7 (Cambridge English, 2014) [24].

3.5. Data Collection and Analysis

Data yielded from the pre-test and post-test were then analyzed using SPSS (version 23). Firstly, an Independent sample T-test was run to analyze the difference between the two groups on the pre-test score. After administrating the post-test, another independent sample T-test was carried out to measure the average score difference between the two groups' post-test data.

The collected data of the MALQ was analyzed by the descriptive statistics process. The data was presented in 5 main aspects of the questionnaire, namely Planning-Evaluation, Directed Attention, Person Knowledge, Mental Translation, and Problem-Solving.

4. FINDINGS

As this is quasi-experimental research, it is necessary to measure the gap between the two groups' listening proficiency to minimize such threats related to the lack of random participant assignment (Creswell, 2011) [23]. The pre-test was administered, and the Independent Sample T-test analyzed the data to compare the control and experimental groups' listening performance. In case the data difference is statically significant, the study should be suspended; otherwise, the study could be

Table 1. Pre-test Independent-Samples T-Test

Group	N	M	SD	MD	*t*	*df*	*p*
Control	26	5.500	2.387	-0.543	-0.891	47	0.132
Experimental	23	6.044	1.796				

Table 2. Post-test Independent-Samples T-Test

Group	N	M	SD	MD	*t*	*df*	*p*
Control	26	6.980	1.762	-0.172	-0.402	47	0.029
Experimental	23	7.160	1.109				

continued with the application of the metacognitive strategies.

Table 1 gives information about the pre-test independent-samples t-test statistics. The Mean score of the control group (M=5.500; SD=2.387) is lower than the figure of the experimental group (M=6.044; SD=1.796). However, the analyzed data indicates that this difference is not statistically significant (t (47)= -0.543, p=0.132>0.05). Therefore, the discrepancy between the two intact classes' pre-test performance is adequate to conduct the quasi-experimental research further.

Table 2 shows the result of the independent-samples t-test of the post-test, conducted after the treatment application. Table 1 and 2 clearly show that the average post-test score of the experimental group (M=7.160; SD= 1.109) is higher than the group's data at the pre-test stage (M=6.044; SD= 1.796). This is also true for the control group's case with the pre-test score and post-test score, M= 5.500 and M=6.980, respectively. Hence, it could be concluded that students in both groups show a certain improvement after taking the 'Listening 1' course.

Comparing the data of the post-test of the control and experimental groups, it can be seen that the control group's mean score (M=6.980; SD=1.762) is lower than that of the experimental group (M=7.160; SD=1.109). The independent-samples t-test points out that the gap between the two groups' scores is statistically significant (t (47) = -0.402, p=0.029 <0.05). This implies that participants in the experimental group were beneficial from applying metacognitive strategies in the CALL listening comprehension context. In other words, metacognitive strategies are effective in enhancing students' listening performance.

Table 3 presents the yielded data of the MALQ questionnaire after running the descriptive statistics and frequencies procedures. By and large, 23 investigated students revealed a fairly consistent response in most question items with the Mean score ranging from around 3.0, slightly disagree, to 5.0, agree. And the Standard Deviation is under 2.0. The findings are discussed in 5 main aspects of the metacognitive awareness questionnaire.

Planning-evaluation

After the treatment, the awareness of planning and evaluation has been raised. In Question 1, 87% of students in the experimental group agreed that they tended to formulate a plan prior to the listening tasks, and 70% of the responses indicate that students frequently set a target for their listening (Question 21). It is, however, nearly half of them (47.8%) answered that they were not used to retrieving the previously interacted listening texts as a source of reference when dealing with a new listening task (Question 10).

Directed attention

The vast majority of the population has developed a strong awareness of task completion. Indeed, 73.9% of students would not surrender difficulties emerging when listening to tasks (Question 16). So as to deal with listening incomprehension, most students tended to focus on the text, and 82.6% of participants showed an attempt to self-regulate the concentration whenever being distracted, yet the percent of students quickly recovering the concentration was lower with only 69.6% of confirmed successful cases.

Person knowledge

When it comes to the general consumption of listening comprehension, students (89.3%) agreed that listening skill is of challenging skills to be managed (Question 8), and 69.6% of them even perceived that listening is the most difficult language skill in comparison to reading, writing and speaking skills. However, when being asked about the feeling of listening to English, there were two distinct major sides. While more than half (52.2%) of the sampling revealed a sense of anxiety towards listening, the other half (48.8%) confirmed their more or less confidence with listening to English.

Mental translation

The mental translation was confirmed as part of most participants' listening process (73.9%). However, the two types of translations, i.e., word-by-word translation and keyword translation, were selected differently. In detail, almost every student (91.3%) opted for keyword translation as a hint for listening comprehension (Question 11), whereas 39.1% of the students confirmed that they still attempted to translate every word during the listening process in the hope of clarifying the meaning of the recording.

Problem-solving

By applying the metacognitive strategies, experimental participants (91.3%) were able to adjust their listening content interpretation as soon as they recognize any misunderstanding. More importantly, the existing knowledge of the topic and personal experience greatly contribute to the listening process's success. 91.3% of listeners self-regulated the gathered information with their existing knowledge of the topic; also, an equal percentage of participants utilized their knowledge of the topic to help them gain more understanding of the information collected in the course of listening (Question 9). When it comes to the issue of unfamiliar words, participants had different tactics to deal with it. 73.9% of the population would guess the meaning of unknown words based on the familiar words (question 5), while more students infer the meaning of new vocabularies based on the text's gist (question 7). However, the most effective reference source to encounter new words would be the recording itself's content. 87% of the students chose this approach to guess new words when listening.

Table 3. MALQ Descriptive Statistics

Aspect	Item	1	2	3	4	5	6	M	SD
Planning-Evaluation	Question 1: Before I start to listen, I have a plan in my head for how I am going to listen.	8.7	4.3	0.0	17.4	52.2	17.4	4.522	1.410
	Question 10: Before listening, I think of similar texts that I may have listened to	8.7	21.7	17.4	30.4	21.7	0.0	3.348	1.300
	Question 14: After listening, I think back to how I listened, and about what I might do differently next time.	8.7	4.3	4.3	21.7	52.2	8.7	4.304	1.363
	Question 20: As I listen, I periodically ask myself if I am satisfied with my level of comprehension	8.7	0.0	4.3	21.7	34.8	30.4	4.652	1.434
	Question 21: I have a goal in mind as I listen.	8.7	0.0	21.7	39.1	21.7	8.7	3.913	1.276
Directed attention	Question 2 I focus harder on the text when I have trouble understanding.	8.7	0.0	8.7	17.4	43.5	21.7	4.522	1.410
	Question 6 When my mind wanders, I recover my concentration right away.	4.3	13.0	13.0	21.7	39.1	8.7	4.044	1.364
	Question 12 I try to get back on track when I lose concentration.	8.7	4.3	4.3	4.3	69.6	8.7	4.478	1.377
	Question 16 When I have difficulty understanding what I hear, I give up and stop listening.	39.1	13.0	21.7	17.4	8.7	0.0	2.435	1.409
Person Knowledge	Question 3 I find that listening in English is more difficult than reading, speaking, or writing in English	0.0	4.3	26.1	30.4	21.7	17.4	4.217	1.166
	Question 8 I feel that listening comprehension in English is a challenge for me	13.0	0.0	8.7	8.7	34.8	34.8	4.565	1.674
	Question 15 I don't feel nervous when I listen to English.	8.7	34.8	30.4	4.3	17.4	4.3	3.000	1.382
Mental translation	Question 4 I translate in my head as I listen.	8.7	0.0	17.4	47.8	21.7	4.3	3.870	1.180
	Question 11 I translate key words as I listen.	8.7	0.0	0.0	21.7	43.5	26.1	4.696	1.363
	Question 18 I translate word by word, as I listen	13.0	30.4	17.4	30.4	8.7	0.0	2.913	1.240
Problem solving	Question 5 I use the words I understand to guess the meaning of the words I don't understand.	4.3	21.7	0.0	4.3	56.5	13.0	4.261	1.544
	Question 7 As I listen, I compare what I understand with what I know about the topic.	4.3	4.3	4.3	43.5	26.1	17.4	4.348	1.229
	Question 9 I use my experience and knowledge to help me understand.	8.7	0.0	0.0	17.4	65.2	8.7	4.565	1.237
	Question 13 As I listen, I quickly adjust my interpretation if I realize that it is not correct.	4.3	0.0	4.3	17.4	47.8	26.1	4.826	1.154
	Question 17 I use the general idea of the text to help me guess the meaning of the words that I don't understand	8.7	0.0	8.7	26.1	39.1	17.4	4.391	1.373
	Question 19 When I guess the meaning of a word, I think back to everything else that I have heard, to see if my guess makes sense	8.7	0.0	4.3	26.1	52.2	8.7	4.391	1.270

5. DISCUSSION

Regarding the question of the impacts of metacognitive strategies on students' listening proficiency, an Independent-samples T test was run to determine if there was any significant discrepancy in the post-test scores of the control and experimental groups. The data analysis showed that the experimental group outperformed the control group; thus, it could be concluded that the application of metacognitive strategies in the computer-assisted listening comprehension course could enhance the learner's performance. The result of the study was in an alignment with previous studies conducted by God and Taib (2006) [19], Vandergrift and Tafaghodtari (2010) [20], and Tisma (2016) [22] who all presented the conclusion that metacognitive instruction could effectively equipped learners with effective strategies to deal with L2 listening comprehension tasks. Vandergrift and Tafaghodtari [20] also highlighted that less skilled learners were those who received the most benefits from the treatment. In other words, those deficient learners improved better than their proficient peers. However, this issue was not the aim of the current research; thus, the study finding does not confirm or deny the two researchers' findings.

Looking at learners' awareness when being instructed with metacognitive strategies, the vast of the students in the experimental group demonstrated a high awareness of planning and self-evaluation, leading to the necessary strategies to help learners prepare themselves for the upcoming and self-evaluate their effort of listening. By setting a clear goal and forming a plan in mind, the students can build up their prediction and expectation for the information of the recording in the pre-listening stage (Ur, 2012) [25]. However, nearly half of the experimental group participants did not recall similar listening texts. In a personal communication with some participants providing negative responses in this issue, they claimed that they were unable to remember clearly any texts related to the existing listening tasks, yet it is the general knowledge of the topic that could be recalled. This was reflected in Question 7, with up to 87% of students comparing the gathered information as listening with the listening topic's individual knowledge. Also, the self-evaluation of one's listening proficiency was frequently asked in the course of listening (Question 20).

About the aspect of directed attention, investigated listeners performed certain effective strategies to help them listen more comprehensively. Scrutinizing the text would be a great indication to understand the text further. Other strategies are the ability to be aware of the distraction and stay focus on the aural source during the listening period. Rost (2002) [26] and Ur (2012) [25] considered these are the successful characteristics of high-level listeners.

Mental translation is one of the most salient aspects that learners of English should pay attention to. There were many students confirming the presence of mental translation as they were listening to the recording. According to Cook (1992) [27], it is, in fact, the nature of L2 learners; this expert claims that when one processes the target language, the L1 is also activated spontaneously. However, in order to become sufficient L2 listeners, students must impulse the elimination of mental translation when listening. This is mainly because the translation in mind would impede the process of acquiring and interpreting information from the on-going listening source, resulting in the misconception in listening comprehension (Goh, 2002) [5]. However, regarding the nature of L2 acquisition, Vandergrift and Tafaghodtari (2010) [20] suggested that mental translation could be helpful as long as the word-by-word translation was not dominated. Fortunately, the number of students who preferred word-by-word translation is minor; most students opted for keyword translation, which is an appropriate choice, regarding the pre-intermediate and intermediate level of proficiency.

After the treatment, most participants underlined the consciousness of problem-solving strategies. They were able to self-manipulate their response to tasks whenever they realized some faults made. When it comes to the issue of encountering unknown words, the three strategies of deducing the meaning of unfamiliar words were employed by most learners. Indeed, learners demonstrated the ability to utilize the general idea of the text, the meaning of listening comprehension does not require L2 learners to understand every single word, yet proficient learners should show the ability to guess the words to gain an understanding of the text (Gilakjani & Ahmadi, 2011) [28].

Finally, the aspect of personal knowledge revealed the students' awareness of listening comprehension. This is reflected on three issues, how learners perceive listening comprehension, their anxiety when listening to tasks, and one's belief in his or her capacity of listening comprehension. The participants showed a low level of self-efficacy as most of them confirm a high level of difficulty of listening. Moreover, they also perceive listening as the most challenging skill among other language skills. Interestingly, the group opinion is divided when it comes to the sense of anxiety of listening. Nearly half of the participants shared that they did not more or less feel anxious when carrying out the listening process. I some informal discussions with some students in the class, they explained why they did not worry much when listening was due to the 7-step listening process. Through several steps prior to the self-conducting task, students were participating in discussion with peers and may receive support from them. More importantly, after the third listening, in which they individually interacted

with the web-based system, the teacher facilitated the discussion of listening strategies and clarified uncomprehensive points in the listening tasks. All in all, the aid from peers and teacher helps students alleviate listening anxiety. Sparks and Ganschow (2001) [29] stated that the three discussed issues of the person knowledge aspect exert a great influence on the academic performance; thus, the positive signal of students' anxiety may serve as the initial solution for further enhancing the self-efficacy and perception of listening comprehension across the population.

6. CONCLUSION

The aim of the research was to investigate the impacts of metacognitive strategies on EFL students' listening competence in the computer-assisted learning environment at the tertiary level. The major finding concluded that the application positively influenced learners' listening comprehension performance after eight weeks of receiving the metacognitive instruction. Although various studies are advocating for the use of metacognitive strategies in teaching listening, most of them were conducted in the teaching context without the support of CALL; thus, the result of the current study helps shed light on the influence of metacognitive strategies in CALL, i.e., the web-based Moodle system. The study, by and large, provides learners opportunities to incline themselves towards the successful listener's status. By participating in the guided metacognitive listening procedure, students, especially low-level ones, received support from their peers and the teacher with the knowledge and necessary tactics to endure the listening difficulties that might appear in the course of listening. Moreover, the MALQ helps the researcher understand students' awareness towards metacognitive instruction; since then, he could take steps to further assist the learners in enhancing listening skills. The questionnaire also serves as a self-report tool for individuals to reflect their use of strategies in listening. Therefore, learners are empowered to develop themselves to the notion of self-regulation in learning listening

The major limitation of the current research hinders the quasi-research design. Since the sampling process was not rigorously conducted, the yielded results were more or less affected. The small sample size of 49 participants is another drawback to take notice of. More importantly, during the teaching period, the diversity of students' listening comprehension competence could be observed, though it needs more evidence to prove. If the researcher had noticed the issue of mixed-level classes earlier and provided special help to low-level students, the results could have been different. This issue needs further exploration. Moreover, the outcome of the research may be affected by certain factors. As the study

was conducted in the CALL context, the available facilities, student's computing literacy, and their comfort of using technology are among threats foreseen.

Regarding the above-mentioned limitations, further research could be conducted on a larger scale with the favorable of true experimental in order to attain more rigorous results. The future study could also focus on the application of metacognitive strategies for mixed-level classes, which is the typical educational context in various countries, including Vietnam. Another suggestion is that the MALQ could be administered at the beginning and the end of the study to compare changes in learners' awareness of the metacognitive strategies. Last but not least, metacognitive instruction requires a certain amount of time to get students to improve their consciousness; thus, it is a hope that further research could be conducted in a longer time span.

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