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Effect of Meta-cognitive Listening Teaching Instruction and Awareness on Chinese High School Students

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	Abstract
<p>Article History</p> <p>Article Submission 26 September 2022</p> <p>Revised Submission 29 October 2022</p> <p>Article Accepted11 09 November 2022</p>	<p>This experimental study investigated the effects of MLTI¹ on Chinese high school students. The intent was to measure the samples' awareness and listening performance by MLTI to provide some pedagogical insights on the audition for Chinese high school students studying English. The study was conducted with 117 samples. The samples were randomly assigned into two groups, an EG² (N = 58) and a CG³(N = 59). To determine the listening comprehension ability of the samples, a listening pretest was administered to the samples before the experiment. A Listening Test and MALQ⁴ were taken during the tests. The EG received an eight-week treatment of meta-cognitive listening strategies. The results revealed that MLTI had a positive effect on students' meta-cognitive listening awareness, especially on planning and problem-solving awareness, and MLTI could improve students' English listening performance by comparing the mean of the pretest and post-test scores (EG=97.41; CG =89.77). The MLTI remarkably enhanced students' listening comprehension. Therefore, it should be integrated into listening teaching programs to help language learners become more effective listeners.</p> <p>Keywords: Meta-cognitive Listening; Listening Teaching Instruction; English Listening Awareness; Meta-cognitive Listening Strategies; English Listening Pedagogies; High School Students in China</p>

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Introduction

English has been widely used for communicative, political, social, and cultural purposes (Ceyhun K, Eren K, 2021). Liu (2020) found that English teaching and learning have become the focus of educators even when English is not their mother tongue. Anderson and Lynch (2003) stated that listening is an indispensable part of our daily life and may be considered one of the most important skills required in language usage. Rivers (1984) found that as people spent 40% - 50% of their time listening, comprehension played a vital role in the learning of a language. However, Goh (2014) stated that listening was less well-researched than a second language's reading and writing.

Kwok(2004) viewed Asia had an examination-oriented learning context. The highest school students in China learned the target language for concrete purposes such as passing examinations or enhancing the possibility of finding a job. These studies' purposes were unstable external motivations to learn, not internal motivations to improve one's cognitive ability. At the same time, Liu (2011) discovered that the effect of high school English listening teaching is difficult to meet the teaching expectations in China. Current foreign language teaching in China emphasizes English reading more than listening. This has led to poor listening comprehension skills by students studying English as a foreign language (Asri et al., 2021).

According to Li (2019), Li found that too much attention to language knowledge and grammar structure was paid in high school English teaching, which ignored language listening and speaking. Only 5% of English teachers organized classes in English. Up to 70% of English teachers used Chinese as their teaching language in English classes. 78% of the students reported that their English classes were not student-centered. Group discussions and communication activities were only available sporadically. Students, who were from non-English communication environments, lost the opportunity to communicate verbally in English in their classrooms.

Empirical data found that the MLTI was effective on Chinese college students' listening awareness and listening performance. However, there are few empirical studies on which aspects of meta-cognitive listening awareness will be affected by Chinese high school students, and whether MLTI will improve senior high school students listening performance is unknown. Meanwhile, the use of the MLTI in classrooms would assist in reforming the teaching of English in Chinese primary and secondary school classrooms. In this paper, two questions were discussed:(1) Does the MLTI have a significant impact on developing Chinese high school students listening performance on the listening test? (2) Does MLTI have a significant impact on the learners' meta-cognitive awareness of each factor?

Research Objectives and Questions

The study was based on the requirements of the English Curriculum Standards (2017) issued by the Ministry of Education of the People's Republic of China for the development of students' core literacy as well as solutions to the current problems prevailing in Chinese high school English listening classrooms. The research objectives were as follows:

(1) To compare the impact of MLTI on students' meta-cognitive listening awareness and listening performance from test results between EG and CG.

(2) To identify which factors from the MLTI text showed a significant impact on learners' meta-cognitive awareness.

After conducting MLTI on EG for eight weeks, more pedagogical insights to future high school English listening teaching were put forward. The research questions are as follows:

(1) Does the MLTI have a significant impact on developing Chinese high school students listening performance on listening tests?

(2) Does MLTI have a significant impact on the learners' meta-cognitive awareness of each factor?

Literature Review

Meta-cognitive Listening Teaching Instruction (MLTI)

Miller (2005), Miller described the definition of English listening teaching instruction under the Grammar-Translation Approach, the Audio-Lingual Approach, the Direct-Method Approach, and the Communicative Approach, etc. However, Miller's listening instructions were not focused on listening but rather on pedagogies. Therefore, Brown (1987) emphasized decoding skills, imitation, memorization of sound, and listening patterns for grammar. Learners were expected to know how they understood what they heard instead of learning the accuracy of the content. This instruction was regarded as a "quiz show" format, where learners were asked to answer different types of questions, but listening was not taught as a language skill. (Morley, 1999) With the development of applied linguists in the late 1970s and 80s, scholars began to focus on why some learners were more successful at learning a language than others.

Then text-oriented instruction, communication-oriented instruction, and learner-oriented instruction were the main listening instructions used in the past 50 years. Vandergrift (2010) suggested that a new evidence-based approach to teaching listening was needed in the listening strategy. Meta-cognitive Listening Teaching Instruction, as a learner-oriented instruction, was widely accepted and studied by many scholars all over the world. The positive effect of the MLTI on Iranian undergraduate students' listening performance, meta-cognitive awareness, and listening anxiety were founded by Movahed in 2014. Then, Jian (2018) concluded that the MLTI, when connected to classroom teaching and extracurricular training, had a significant effect of improving the listening performance of adult English learners, especially for low-and middle-level learners. Later, Liu (2020) proposed that the MLTI improved listening performance and meta-cognitive strategy use. It was necessary to examine MLTI and the MALQ in various target language contexts. (Goh, 2008). According to Movahed (2014), a positive effect of the MLTI on Iranian undergraduate students' listening performance, meta-cognitive awareness, and listening anxiety was found. The impact of MLTI on 60 Iraqi learners' listening and meta-cognitive awareness of listening strategies for ten weeks was also examined (Hussein Ghanima, AI-Shammari, 2019). Their findings suggested a positive effect of MLTI on listening comprehension and significant increases in problem-solving, mental translation, and planning-evaluation strategies.

Meanwhile, Jian (2018) stated that well-established aspects of reading and writing were better researched than listening to English. In this study, a new perspective for MLTI research in the EFL domain was used by comparing the control group and experimental group. The existing literature on MLTI focused on whether the listening strategies or the listening performance of undergraduate students or adults who spoke English as a second language had been effective. This study focused on Chinese high school students who spoke English as a foreign language and the effects of MLTI on students' English listening meta-cognitive awareness.

The theoretical framework of the MLTI

The process of MLTI is based on a theory of meta-cognitive knowledge, meta-cognitive experience, and strategy use. (Vandergrift, L; Goh, C; et al., 2006) The listening process involved having students plan their listening and monitor comprehension. The evaluation methods and outcomes depended on the student's reflection on their problems and the success of their problem-solving efforts. The teaching processes of MLTI are as follows.

In the pre-listening stage, where students actively discussed and made predictions, at the end of the discussion, students gradually formed their own ideas and were ready to start the first round of listening. Revising and adding additional information which they did not obtain in the first listening round and then updating their understanding of the text. At this stage, students were asked to confirm the information that had been successfully predicted, to add some new information that they did not predict, and to adjust their cognitive structures.

After having finished a new listening round, students had a whole class discussion. They then engaged in a Listening Puzzle Activity. In this activity, students retold the main points of their listening exercise to the best of their abilities. For advanced-level learners, some questions about listening details were also requested. After the third listening activity, the teacher encouraged

students to evaluate their listening process. The teacher asked their students to explain the difficulties they found in the listening exercise and to offer solutions. This helped students analyze the reasons for their listening errors in judgment. Furthermore, this provided students with a clear guideline as to how they should set goals, make plans for the next listening exercise, and to advance to the next listening level. The sequence of the meta-cognitive teaching method is as follows.

Methodology

Samples

The samples were sophomore students from a general high school, Jingning No. 1 High School in Gansu Province, China. The students were between 15-18 years of age. This school has three different grade levels. There were 16 separate classes for each grade, and around 60 students in each class.

EG and CG samples were in two separate classes. Both had the same teaching objectives and content. Both classes were taught by the same English listening teacher. The EG received an eight-week treatment of meta-cognitive listening strategies, while CG didn't. Samples in both the EG and the CG groups were randomly chosen. EG had a total of $N = 58$ students ($n = 40$ boys and $n = 18$ girls) and CG had $N = 59$ students ($n = 40$ boys and $n = 19$ girls). This study received strong support from both the school and the students.

Research Instruments: MALQ and English Listening Test

One instrument used for this study was the MALQ (Meta-cognitive Awareness Listening Questionnaire) (Vandergrift; Goh; et al., 2006). Moderation of the MALQ was introduced in this study. The 21 effective items containing the five major aspects have been verified by many scholars. These five factors concluded in the questionnaire were as follows: the plan evaluation (Item1, 10, 14, 20, 21), the directed attention (Items 2, 6, 12, 16), the personal knowledge (Items 3, 8, 15), the mental translation (Item 4, 11, 18), and the problem-solving (Item 5, 7, 9, 13, 17, 19). The author modified the original MALQ in two ways. Since the subjects of the study are high school students living in China, English is their foreign language. The term "French" was substituted with "English" in the three items (3, 8, 15).

Second, for the convenience of subsequent statistical analysis, the negative sentence of the directed attention factor item (16) was changed to an affirmative sentence. After translation into Chinese, proofreading was also done with other scholars (Zhang, Yongzheng, Yu, and Cuihong, 2015).

Another research instrument was English listening test questions, which were developed by experienced teachers at the school with more than twenty years of teaching experience. The difficulty of the test questions was also based on the samples' practical level of English. The types of English listening test questions include single-choice, multiple-choice, and short-answer questions and dialogues.

Research Procedures:

Before conducting the MLTI:

- (1) English listening tests were conducted for the CG and the EG.
- (2) The English listening scores of the EG and the CG were collected and analyzed.
- (3) The MALQ survey was done for the EG.

Next, an 8-week MLTI training was conducted for the EG, and the teaching method strictly followed the teaching steps proposed by the framework of the meta-cognitive listening instructional theory.

After 8 weeks of MLTI for the EG.

- (1) A listening post-test was administered to EG and CG.
- (2) The post-test scores of both groups were collected and analyzed.
- (3) The post-test of MALQ was done for EC.

(4) Pre-test and post-test analysis of English listening test scores within each group were conducted.

(5) Within-group analyses were conducted to determine whether the EG differed significantly on the pre-test and post-test of the five strategies in meta-cognitive awareness and to compare in detail the specific pre-test and post-test changes.

Results

Stata (15) software was mainly used for the assessment. First, the authors analyzed the listening pre-test of the EG and CG.

Table 1. Analysis of English listening pre-test in EG and CG

	Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
CG	59	86.43	3.07	23.63	80.27	92.59
EG	58	85.5	2.18	16.60	81.13	89.86
combined	117	85.97	1.88	20.37	82.24	89.70
$t = 0.24$ Ha: diff $\neq 0$ Pr(T > t) = 0.80						

As shown in Table 1, the difference in the mean between EC and CG was not significant ($P=0.8054$). After the Meta-cognitive Listening Teaching Instruction for the EG for eight weeks, descriptive statistical analysis, Paired t-test, and t-value calculation were done for the English scores of the pre-test and post-test of the CG and EG, respectively, as detailed in Table 2.

Table 2. Test on the mean difference between the pre and post test scores of English listening performance of the EG and CG

	GROUP	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
EG (Pre-test)	58	85.5	2.18	16.60	81.13	89.86
EG (Post-test)	58	97.41	2.76	21.04	91.88	102.94
$t = -4.04$ Ha: mean(diff) $\neq 0$ Pr(T > t) = 0.0002						
CG (Pre-test)	59	86.43	3.07	23.63	80.27	92.59
CG (Post-test)	59	89.77	2.70	20.74	84.37	95.18
$t = 1.22$ Ha: mean(diff) $\neq 0$ Pr(T > t) = 0.22						

There is a significant difference in the change of English listening scores between the EG in the pre-test and post-test ($p=0.0002$). However, It is not significant in the mean of the CG's pre-test and post-test ($p=0.2$). The difference is insignificant. Subsequently, a Two-sample t test with equal variances was conducted for EG and CG, as shown in Table 3.

Table 3. Two-sample t- test with equal variances of post-test of EG and CG

	Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
CG (Post-test)	59	89.77	2.70	20.74	84.37	95.18
EG (Post-test)	58	97.41	2.76	21.04	91.88	102.94
Combined	117	93.56	1.95	21.15	89.69	97.43
$t = -1.9770$ Ha: diff $\neq 0$ Pr(T > t) = 0.05						

In conclusion, by conducting eight weeks of MLTI, the English listening performance of the

EG improved significantly ($P=0.05$).

To explore the specific enhancement of MLTI on high school students' meta-cognitive listening awareness. The authors successively distributed the MALQ to students in the EG, and the pre-test and post-test data of the questionnaire were analyzed in detail.

Table 4. Pre- and Post-Tests of Meta-cognitive Awareness in the EG

Variable		Mean	Std.	Std. Dev.	Ha: mean(diff) != 0
Planning evaluation	Pre-test	15.17	.74	5.67	Pr(T > t) = 0.0020
	Post-test	18.31	.55	4.24	
Directed attention	Pre-test	17.36	.41	3.16	Pr(T > t) = 0.5056
	Post-test	17.79	.55	4.19	
Personal knowledge	Pre-test	10.41	.37	2.86	Pr(T > t) = 0.3899
	Post-test	10.96	.44	3.36	
Mental translation	Pre-test	11.5	.53	4.07	Pr(T > t) = 1.0000
	Post-test	11.5	.43	3.32	
Problem solving	Pre-test	22.24	.94	7.17	Pr(T > t) = 0.0505
	Post-test	24.60	.75	5.76	

As seen from table 4 above, It was very effective in enhancing students' awareness of planning evaluation ($P\leq 0.01$) and problem-solving ($P\leq 0.05$), followed by personal knowledge ($P\leq 0.3899$) and directed attention awareness ($P\leq 0.5056$).

Discussion

Although the research samples are limited, the Meta-cognitive Listening Teaching experiment only was conducted for eight weeks. The findings suggested that teaching meta-cognitive strategies had a positive impact on students' listening performance, which is similar to the findings made by other scholars. The findings also suggest that MLTI can be effective in increasing students' meta-cognitive awareness, especially planned evaluation awareness (Valizadeh, F.; Farvardin, M. T., 2020) and problem-solving awareness (Al-Shammari, H. G., 2020).

Planning assessment (Items 1, 10, 14, 20, 21) referred to students' strategies in their preparation to listen. By mobilizing their existing relevant knowledge, they were able to make bold guesses and predictions before they began listening to the English passage. Students became aware and constantly assessed their listening accuracy during the listening process. The meta-cognitive listening pedagogy was process-oriented, not result-oriented. This was the main reason why planning the students' awareness increased their assessment in a significant manner.

Problem-solving (Items 5, 7, 9, 13, 17, 19) required students to mobilize information they had already known. They were able to infer what they did not understand and to monitor whether their inferences were correct. This process required top-down and bottom-up interactive information processing of the students' listening processes, which proved to be very helpful for comprehension. For a short time, the MLTI did not significantly improve the students' personal knowledge awareness (Item 3,8,15). It fully indicated that samples in the EG were not confident in their English listening performance and self-efficacy.

On the other hand, foreign language teaching in high schools in China emphasized students' test-taking ability instead of their listening and speaking skills, which made it difficult for students to gain confidence when speaking the language. The results of the EG showed that eight weeks of instruction in meta-cognitive listening did not decrease the usage of the students' mental translation strategy (Item 4,11,18). Due to the limited access opportunities to listen and speak, those in the EG group relied more on Chinese as a scaffold for learning a foreign language. Furthermore, the improvement of listening skills could not be accomplished in a short time. More patience and confidence were necessary for students' further improvement in their speaking ability. Eight weeks of instruction in meta-cognitive listening was no help in decreasing the usage

of the students' mental translation strategy (Item 4,11,18). The mental translation is an inefficient method and is a strategy to be avoided by skilled listeners. Due to the limited opportunities that the samples had to listen and analyze the English passage, those in the EG group relied more on Chinese as a scaffold for learning a foreign language.

Directed attention (Items 2, 6, 12, 16), referred to the strategy that learners use to focus on the task. Skilled listeners are more able to maintain attention, focus on incoming information or their thoughts, regulate other meta-cognitive processes, and persist through difficulties (Vandergrift, L; Goh, C; et al., 2006). There is no doubt that focused students achieve better listening performance and also contribute to their later learning power. However, developing students' concentration could not be an overnight process. The development of students' listening concentration cannot be achieved only by listening in the classroom. This required cooperation in several aspects: (1) At a regular frequency, systematic and conscious training will result in the practice of using reasonable training content and scientific methodology. (2) Create an internal and external environment that could be conducive to student concentration. Not only was it necessary for students to concentrate on the listening content without distractions, but it necessitated a quiet learning environment too. (3) Students could adjust their own training habits and have a positive stress-resistant mindset. Any attempt to improve concentration levels through short training sessions with an eager mindset could be counterproductive to the goal.

MLTI provides language learners with the knowledge and tools for meaningful learning transfer (Moiinvaziri, M., 2017). Some pedagogical implications provided for teachers are as follows. (1) The use of meta-cognitive strategies can improve students' listening performance, whose application should be widespread in high schools in China. (2) Traditional product-oriented approaches should be combined with the MLTI, which is a process-oriented approach and focus more on strategic listening that is beneficial to students. (3) Since the lack of listening personal knowledge awareness, students always regarded English listening as a challenge. Therefore, teachers' listening instructional activities should be designed in a tiered and diverse way so that samples of different levels should have a good level of participation. (4) Students should be encouraged to listen actively, and teachers should plan some interesting pre-listening activities to help them overcome their psychological anxiety in listening. (5) Provide a variety of rich listening materials as much as possible so that students can bring in more background information for effective interactive processing during the prediction or verification stage. (6) Try your best to provide an immersion environment to avoid the overuse of mental translation strategies.

Conclusion

This article adopts a quantitative research method to analyze the effect of Meta-cognitive listening teaching instruction and awareness on Chinese high school students through the data of questionnaires. The results revealed that MLTI had a positive effect on students' meta-cognitive listening awareness, especially on planning and problem-solving awareness, and MLTI could improve students' English listening performance. According to these findings, some pedagogical implications for students' learning in English listening are as follows. (1) Consciously reflect on and monitor their listening process. (2) Plan and consciously train themselves to listen to English. (3) Pay full attention to the listening process to develop their ability to orient their attention when doing listening exercises. (4) Express themselves in English in authentic situations as much as possible to avoid mental translation awareness. There is no denying fact that there are many other reasons affecting students' English listening learning, like listening anxiety, learning interest, and motivation, etc., MLTI for English listening cannot completely solve these problems; future research should focus more on students' affective factors, environmental factors, and teaching factors from a micro perspective.

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