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Process- vs. Product-based Approach in Listening Comprehension: Metacognitive Instruction or Taking Frequent Tests

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Abstract: The primary goal of this study is to investigate the impact of frequent testing and the influence of metacognitive intervention on EFL learners' listening comprehension across different test items. Therefore, 75 out of 100 Iranian upper-intermediate EFL learners (aged 16 to 30) were selected through an OPT and were divided into three equal proficiency level groups. The first experimental group received the frequent testing; the second experimental group received metacognitive intervention, and the third, as a control group, received a conventional method without frequent testing and metacognitive intervention. Pre- and post-tests in listening were conducted on all participants to evaluate their listening skill proficiency. Moreover, the metacognitive awareness listening questionnaire was given to all groups. The results demonstrated that both the groups who underwent frequent testing and those who received metacognitive intervention showed a superior impact on listening skill compared to the control group. Furthermore, the two experimental groups had no significant difference in their listening comprehension. Moreover, both experimental groups showed a significant improvement in EFL learners' metacognitive awareness when compared to the control group. The findings have pedagogical implications for curriculum designers and for teachers to have insights into how language learning takes place.

Keywords: EFL Learners, Frequent Tests, Listening Comprehension, Metacognitive Instruction

Introduction

Listening skill as a receptive skill in a foreign language (FL) is undeniably important in learning English and is highlighted in teaching and testing (Aryadoust, 2022). The most recent study on listening comprehension indicates listening skills pose difficulties for certain language learners due to speed of speech, fleeting nature of verbal input, and unknown vocabulary and accent (Cross, 2018; Tanewong, 2019); hence, educators should regard it as a cornerstone for successful language acquisition and attempt to solve their learners' problems (Kassem, 2015; Shakibaei et al., 2019). In this regard, taking some strategies may help learners and language educators are advised to enable learners to develop their listening comprehension strategies aimed not only at promoting comprehensible input but also at developing other language abilities (Goh, 2018; Goh & Vandergrift, 2022).

What is more, attending to oral input and contextual factors helps listeners to improve their world knowledge leading not only to successful listening comprehension (Young, 1997) but also to maintaining information in their long-term memory. Thus, the contextual information helps listeners

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decode the incoming input (Kassem, 2015). Furthermore, linking the incoming information to background knowledge assists listeners in deciphering information by applying different strategies, and without using strategies, it is perplexing for second or foreign-language listeners with limited memory capacity (Graham & Santos, 2015; Vandergrift, 2003).

Recently, metacognitive intervention in listening has been gaining importance to aid learners in enhancing their listening skill. Flavel (1976) states that metacognition is knowledge concerning how someone learns. Three distinct types of this knowledge exist: (i) person knowledge (ii) task knowledge, and (iii) strategy knowledge. Teaching learners about the listening process explicitly is referred to as "metacognitive intervention." Metacognitive intervention is used to qualify the listening comprehension process to simplify the complication of listening comprehension for EFL learners. Research shows that managing the listening comprehension process through metacognitive intervention using a strategy cultivates a listening comprehension result (Bozorgian & Fakhri Alamdari, 2018; Cross, 2011; Vandergrift & Tafaghodtari, 2010).

Human beings have a cognitive potential to process and store information, and working memory is the human limited cognitive space storing short chunks of learning activities, which underscores the usefulness of memory tests as an evaluative tool (Baddeley, 2003). When the learners are tested, they can remember a text several times. This phenomenon is a testing effect and demonstrates that memory retrieval has an important impact on learners' learning and also increases the long-term memory of test information (Roediger & Karpicke, 2006). Over the past few decades, researchers such as Daneman (1991) and Daneman and Green (1986) have recognized the role of memory in acquiring a first language. However, as Shahnazari (2013) suggests, this significant cognitive aspect necessitates further investigation to understand how working memory influences second language learning. Based on some findings testing improves memory retention (e.g., Roediger & Pyc, 2012). Teachers frequently use tests as the main tools of learning assessment in the classroom (Heidari & Izadi, 2020; Khalili sabet & pourgholamali, 2023). However, it seems that many aspects of the relationship between listening comprehension and test taking have not been covered and its hidden aspects should be examined.

Up until now, most English language teaching studies are on the effects of testing on writing, reading, and speaking skills and listening skill has received insufficient consideration. Further, metacognitive intervention in listening is time-consuming and testing listening is complicated and needs training knowledge. Therefore, the current study sought to address whether metacognitive intervention had a notable impact on listening comprehension or if taking frequent tests had a substantial impact on the listening comprehension and metacognitive awareness of EFL learners.

Literature Review

The significance of listening comprehension in language learning cannot be overstated, yet both its theoretical development in the field and its practical implementation in the classroom have been lacking attention. Furthermore, among all four-language skills, listening has been the least studied and understood because it depends largely on implicit processes (Vandergrift, 2007).

While there are different interpretations in the literature regarding listening instruction, listening as several researchers (e.g., Cook & Buck, 2010; Field, 2008; Lynch & Mendelsohn, 2013; Vandergrift, 2007) assert, is an active process. Cook and Buck (2010) characterize listening comprehension as an interactive process wherein individuals utilize their prior knowledge to understand incoming messages. Lynch and Mendelsohn (2013) argue that listening comprehension involves multiple intertwined processes, such as recognizing oral words, perceiving patterns of intonation, and assessing the pertinence of the message to the current context. Field (2008) suggests that listeners should concentrate on specific elements of the auditory input and connect it to their existing knowledge to derive meaning. Overall, these discussions emphasize that listening is a dynamic and intricate process that requires proficiency enhancement (Anderson et al., 2005; Vandergrift, 1999).

Moreover, as per the findings of Kim and Philips (2014), memory serves as an additional cognitive factor contributing to challenges in understanding spoken language. The impact of working

memory on listening comprehension is entirely mediated by the theory of mind and comprehension monitoring. Their findings illustrated that memory is important for establishing local and global coherence. Hence, this overall portrayal of listening comprehension, characterized by its active and intricate nature, aligns with the definition embraced in this study. Such a characterization of listening comprehension calls for educators and scholars to develop and implement more effective models of listening processing. This initiates a discourse on the primary elements influencing the underlying process of listening, including frequent test-taking and metacognitive instruction relevant to the current research.

Taking Frequent Tests in Learning

Research has shown that testing can enhance learning, which is explained by the testing effect (Yang et al., 2018). This effect emphasizes that learners who are tested and recognize or recall learning material successfully demonstrate better future retention compared to learners who do not undergo any testing. These materials can be pictures, prose, word lists, and verbal input (Roediger & Karpicke, 2006). Moreover, Roediger and Pyc (2012) believed that tests are not merely employed to evaluate what has been learned but it can also solidify learning. Various techniques such as self-explanation and elaborative interrogation can be used to evaluate learning and improve it simultaneously.

Theories such as transfer-appropriate processing and noticing input that focus on compatibility of the activities involved in both the learning and testing stages are consistent with this notion. Testing improves learning by 'producing elaboration of existing memory traces and their cue-target relationships'. Moreover, testing introduces a desirable difficulty during learning (Roediger & Karpicke, 2006). Moreover, Wheeler and Roediger (1992) demonstrated that frequent testing at short intervals could enhance the performance of test takers. In their study, test-takers who were given three successive tests recalled about twice as much a week later than participants who did not receive any tests.

Butler (2010) argued that undergoing retesting is even more effective than restudying when it comes to retaining and transferring concepts and facts. In this research, participants who took frequent tests during experiment period outperformed those who only repeated their studying. He attributed this effect to the mnemonic advantage of learning enhanced by testing that extends beyond the retention of the particular information tested throughout the initial stages of learning. Tuckman (2000) maintained that taking frequent tests may also enhance learners' motivation to achieve. Tests provide incentive to learn as well as necessity and opportunity to avoid failure or achieve success. Haleem and Saeed (2021) examined the effects of taking frequent tests on students' text anxiety. In their experimental study, worry and emotional scale scores were evaluated. Research findings demonstrated that both the participants in the experimental and control groups experienced identical amount of text anxiety and taking frequent tests had no effect on their worry and emotional factors.

Yang et al. (2018) examined research on both forward and backward testing effects, finding consistent support for the efficacy of these effects across diverse educational materials. Their findings suggest that implementing interim tests or quizzes during learning is crucial for enhancing information retention and retrieval. This practice not only mitigates proactive interference but also enhances the memorization of specific content, highlighting the importance of promoting such testing strategies for learners and educators. The finding also revealed that it strengthens information integration and produces superior knowledge organization. Furthermore, this effect can be generalized to different kinds of material and test formats.

Taking Frequent Tests in Language Learning and Listening

Regarding language learning, Nejati (2015) examined weekly frequent tests followed by feedback on students' vocabulary and reported a positive and durable wash-back effect among learners who took repeated tests. He attributed the findings to learners' regular review of material and preparedness before sessions. Furthermore, getting familiar with course objectives and emphasis, as well as increasing

extrinsic motivation, were considered another crucial factor. Frequent tests also help learners be aware of their weaknesses and strengths and make them actively involved in the learning process.

In a different study, Wangdi (2018) examined how frequent testing influenced the midterm and final scores of vocational students' general language exams and found that participants in the experimental cohort who took frequent tests and received corrective feedback performed better than their control group counterparts. Based on the results, realizing flaws and weaknesses and attempting to overcome them were effective in obtaining these results. Learners put more time into their studies due to intrinsic motivational force resulting from positive feedback from their teacher and gaining higher grades in exams. Self-regulation, self-directed and independent learning, as well as continuing learning outside the classroom to obtain better scores, were other positive effects of this approach.

Preparing listening test has received considerable attention in advancing EFL language learning. In this regard, Kwan and Yu (2024) examined Korean test takers' viewing behaviours and their test performance with visual cues in EFL listening. 57 English learners' eye-movements through video-based listening test were recorded and 23 of them were interviewed too. Compared with the test items, learners viewed the visual cues longer and learners looking at the correct answers received higher scores than those looking at the speakers and the distractors. The findings indicated that learners indicated that visual cues helped them improve their comprehension during the listening tasks. In another study measuring the effect of the listening test, Winke and Lime (2017) used two experimental and control groups (n = 63) with three different types of instructions. The first experimental group used three practice tests along with test-taking strategies instruction. Still, the second experimental group used the same four practice tests without test-taking strategies instruction and vocabulary instruction practiced. The third group did not receive practice tests and test-taking strategies in the conversation class. The learners' test wiseness and test-taking anxiety were measured with questionnaires before and after the intervention. The findings indicated that learners' listening test performance was not affected by the types of instruction, but familiarity with the test items and types affected the learners' listening test performance. Learners with lower scores on listening tests had more anxiety.

Investigating test-taking strategies for completing a lecture-based listening test successfully Low and Aryadoust (2021) used 66 learners' self-reported test-taking strategy use, actual strategy use with eye-tracking, and test scores. Learners' gaze behavior was measured in three stages: before, while, and after listening tests, and they responded to a questionnaire indicating their strategy use in the three stages. The findings indicated that haze behavior is a good predictor of learners' final listening test performance, but the self-report had a moderate prediction of their performance.

Metacognitive Instruction

In the last few years, there has been increased attention and research into the relationship between listening instruction and metacognition. As a case in point, Vandergrift (2004) examined two distinct approaches to listening including enhancing the ability to segment lexical units alongside improving word recognition skills and raising metacognitive awareness. After that, he put forward an integrated model advocating for the utilization of metacognitive strategies like planning, focused attention, monitoring, problem-solving, selective attention, and evaluation. These strategies assisted learners in analyzing a text after listening, ensuring comprehension of new terms. Research that was conducted further frequently utilized this model as their listening development approach and reported its effectiveness (Bozorgian et al., 2022; Kumar et al., 2020; Maftoon & Fakhri Alamdari, 2020; Vandergrift & Tafaghodtari, 2010).

Bozorgian (2014) investigated the impact of metacognitive instruction on native speakers of Persian who enrolled in an EFL course (N = 30). The instructional approach involved delivering listening guidance using Metacognitive Instruction (MI) through a series of five phases: planning/predicting, initial verification, secondary verification, final verification, and reflection. These stages were closely related to one or various metacognitive strategies including planning, monitoring, problem-solving, and evaluation. The incorporation of these strategies into the intervention was

emphasized in the study, which resulted in significant improvements in listening comprehension skill and the establishment of a notable correlation between listening ability and metacognition.

Similarly, Rahimirad and Shams (2014) asserted the superiority of metacognitive strategy instruction over traditional approaches in improving learners' listening performance. Interviews conducted as part of their research indicated that the implementation of these strategies effectively boosted self-confidence and alleviated listening-related anxiety among EFL learners. In another study, Ahmadi Safa and Motaghi (2021) compared the efficacy of cognitive versus metacognitive instruction on EFL learners' listening comprehension skills. Their findings highlighted the effectiveness of metacognitive instruction in enhancing learners' problem-solving abilities and empowering them to take control of their learning processes. Additionally, Maftoon and Fakhri Alamdari (2020) documented positive outcomes of metacognitive instruction, particularly in improving learners' listening comprehension and enhancing their metacognitive awareness.

Furthermore, studies have been conducted to examine the relationship between metacognitive instruction and working memory (WM) capacity. For example, Bozorgian et al. (2022) investigated the effectiveness of Metacognitive Instruction (MI) on learners with varying levels of WM capacity, observing significant improvements in their directed attention and monitoring skills. However, inadequate research focuses on comparing taking frequent tests as the product approach with metacognitive intervention as the process approach of listening comprehension. Therefore, the following research questions have been formulated to uncover which approach helps learners maximize their listening comprehension:

Research Question One: Does frequent test-taking or metacognitive intervention help Iranian EFL learners' listening comprehension?

Research Question Two: Does frequent test-taking or metacognitive intervention help Iranian EFL learners' metacognitive awareness?

Methodology

Design of the Study

The design of the study is both descriptive and correlational. The researchers aim to describe the current situation of teacher training courses held in Iranian private language institutes; thus, the design is descriptive. This section should give us information about the design of the study, the research approach, and the variables under study.

Participants

The research population was based on upper-intermediate Iranian EFL learners. To fulfill the basic intentions of this research, out of 100, both male (N=75) and female (N=25) EFL learners who were university students with ages ranging from 16 to 30 were selected to take part in this study through an Oxford Placement Test. After administering the placement test, the upper-intermediate learners were chosen. The selected learners were in a convenience sample and randomly divided into three main groups: two experimental and one control group. The first group received frequent listening tests; the second group received the metacognitive intervention. Finally, the third group, as a control group, received the conventional method without receiving the metacognitive intervention and frequent listening tests.

Instruments

Oxford Placement Test (OPT)

OPT is a test of language proficiency presented by Oxford University Press (2001) that provides teachers as well as course administrators with a reliable and time-saving source of test items for determining the proficiency level of an EFL/ESL learner. The test consisted of three main parts: reading, vocabulary, listening, and grammar. The test comprised 60 questions in two parts multiple-choice items and cloze passages.

Listening Pretest and Posttest

In order to gauge learners' listening comprehension ability, two tests were employed to evaluate how many words and content of the listening files are memorized in different periods of time. Two tests comprised two audio files (2-3 mins) with ten open-ended questions. Each file involved five questions and they were teacher-made questions. The tests were administered as pre- and post-tests. Each test item had two scores, and in total, each test consisted of 20 scores. The topics of both audio files were "urban and rural life" and "Health" from the "Mindset for IELTS" textbook published by Cambridge University Press. The listening tests were administrated once in two periods of time: before and after the intervention. Two raters scored the participants' performance. In order to examine the validity of the tests, two experienced teachers who were teaching at a university took part in this research. After designing the items of the tests, they commented on and revised the items. The revision process was repeated two times to prepare appropriate tests for language learners. In addition, the reliability of both listening pre- and post-tests was calculated utilizing Cronbach's alpha. In this condition, fifteen EFL learners of this study were chosen to take part in the pilot test. The reliability coefficients for the teacher-designed listening pre- and post-tests turned out to be .78 and .81, respectively, which was indicative of an adequately high-reliability index for both tests (Larson-Hall, 2010).

Metacognitive Awareness Listening Questionnaire (MALQ)

The participants' metacognitive awareness and perceived effectiveness of listening strategies were evaluated using the Metacognitive Awareness Listening Questionnaire (MALQ) (Vandergrift et al., 2006). This six-point Likert scale questionnaire included 21 items, each rated on a ranging from 1 (strongly disagree) to 6 (strongly agree). No neutral points were provided to prevent neutral responses. MALQ encompassed five dimensions: planning evaluation (5 items), person knowledge (3 items), problem-solving (6 items), mental translation (3 items), and directed attention (4 items). The factor structure of the questionnaire was examined by both exploratory and confirmatory factor analyses. They did it by using samples of different foreign language learners from many EFL contexts. In this study, the reliability coefficient of MALQ was estimated and a figure of 0.76 was obtained. The questionnaire was administered two times as the pre-test and post-test.

Frequent Listening Tests

Frequent listening tests were utilized to assess the extent of memory-based listening skill learning. Participants in Experimental Group 1 (EG1) took different tests. For the first one (test.1), they listened to listening files from the listening comprehension section of a test-preparation book for the International English Language Testing Service (IELTS). Each listening file covered a single topic. They took three other tests (i.e., test 2, test 3, test 4) plus test 5, which were all common among all participants. These tests examined learners' long-term retention. They consisted of the words or texts that learners listened to in all materials during the study. To gather the data in this study, the listening module of the IELTS was used for two reasons: it was internationally valid, reliable, and easy to administer; and raters who could reliably and validly score learners' listening skill were easily accessible.

Data Collection Procedure

The researchers determined the number of phases to carry out this research and initially explained orally the main objectives to participants, who agreed to cooperate voluntarily with the process of data collection. Then, all participants in the study took part in the OPT in order to ensure the homogeneity of the groups in terms of language proficiency, from which 75 EFL learners were selected based on the OPT outcome and divided into three groups: Two experimental groups and a control group.

Pre-test

To screen the participants' listening comprehension and metacognitive awareness, a pre-test of listening comprehension and metacognitive awareness listening questionnaire were administered to all groups. After that the frequent test taking and metacognitive intervention for the two experimental groups began.

Interventions

In the first experimental group, the procedure was related to taking frequent listening tests, which means the participants in the group took a listening test 20 minutes after they worked on the listening text. They took 2 other listening tests five days after working on listening text and five weeks after that, respectively. Then, their scores were compared to the test.2 scores which they had taken after 20 minutes working the listening text so that they recall the text that they had listened to first. The tests consisted of 20 questions related to the text they heard for the first time. The teacher assigned ten minutes to each test. Finally, at the end of the intervention, they took test 5 as their posttest.

In the second experimental group, the teacher used metacognitive intervention based on Goh and Vandergrift (2022) in the listening comprehension process. In general, this process was based on three phases. During the initial phase, listeners were acquainted with the discussion topic as they assessed their level of comprehension during the initial listening session. This initial familiarity with the topic acted as a form of pre-organization, aiding learners in focusing directly on the content of the listening texts. Subsequently, learners listened to the same recorded files two more times and took notes simultaneously.

Notes were taken to help learners enhance their working memory capacity. Following three rounds of listening to the text, listeners identified all the omitted details, and the repetition of listening sessions enabled them to comprehend the listening material thoroughly and completely. In the subsequent phase, the instructor assisted learners in structuring their notes and presenting them to their peers within a group setting. The concept of group collaboration aimed to bolster the listeners' confidence in their listening acquisition journey.

In the last phase, learners started to explore all the missing parts or points by matching their notes with the original texts. As a result, listeners learned an instructive lesson that was to experience learning from their errors. It also enabled them to feel much more relaxed and take further risks in learning by guessing and predicting, and experimenting. Ultimately, following the accumulation of sufficient information on the listening subject, engaging in discussions with peers, and exchanging notes, the listeners underwent a final listening session of the same texts. Subsequently, they conducted self-assessments on their performance and compared their notes with the transcriptions to evaluate their individual progress.

The third group, the control group, did not receive any frequent test-taking and metacognitive intervention in listening comprehension in their class. Learners worked on the same textbook (Touchstone 4 (3rd edition) by McCarten, et al., 2010) and received their routine listening instruction. The instruction included pre-listening (warming up to activate learners' prior knowledge), while-listening (listening to the text and answering questions), and post-listening (providing a summary of the text) phases. There was neither any use of metacognitive strategies nor any note-taking, discussion,

reflection, and evaluation in this group. At the end of the study, the listening post-test and MALQ were administered to all groups

Data Analysis

SPSS package version 23 was used to analyze data. Firstly, descriptive statistics and then inferential statistics were applied. To analyze both research questions, One-Way ANOVAs were utilized to respond to the research questions.

Results

First Research Question

To respond to the first research question, which was to investigate whether there is a significant difference between the listening comprehension of the learners taking frequent tests and those taking metacognitive intervention, descriptive statistics of the listening pre-test scores were analyzed and presented in Table 1 to address the first research question Table 1.

Table 1

Descriptive Statistics and one-way ANOVA of Listening Pre-test among Three Group

	N	*Mean*	*Std. Deviation*	*sig*
EG1-Pre	25	11.00	1.40	
EG2-Pre	25	11.50	1.39	.18
Control-Pre	25	11.50	1.35	
Valid N (listwise)	25			

EG1 = Taking Frequent Test Group, EG2 = Metacognitive Instruction Group, CG = Conventional Method

As shown in Table 1, the three groups displayed the following mean (M) and standard deviation (SD) values: Frequent Test Group (M = 11.00, SD = 1.40), Metacognitive Instruction Group (M = 11.50, SD = 1.39), and the control group (M = 11.50, SD = 1.35). Notably, there were variations in the mean scores of the three groups in the initial listening pre-test. Consequently, a One-way ANOVA was utilized to compare the listening ability means of the three groups in Table 1, indicating no significant difference ($p = .183 > .05$) among the first, second, and control groups in listening ability before the intervention. Table 2 presents the summary statistics and One-way ANOVA results for the listening post-test scores post-intervention.

Table 2

Descriptive Statistics and One-way ANOVA of Listening Post-test

	N	*Mean*	*Std. Deviation*	*sig*
EG1-Pre	25	16.00	1.69	
EG2-Pre	25	17.00	1.75	.00
Control-Pre	25	13.50	1.48	
Valid N (listwise)	25			

Table 2 displayed the summary of statistics for the three groups in the listening post-test: the Frequent Test Group (M = 16.00, SD = 1.69), the Metacognitive Instruction Group (M = 17.00, SD = 1.75), and the control group (M = 13.50, SD = 1.48). It is evident that there are variations in the mean scores of the three groups in the listening post-test. Subsequently, a One-way ANOVA was conducted to compare the means of the three groups in Table 2, revealing a significant difference ($p = .001 < .05$) in the performance of the first, second, and control groups in listening ability following the instruction. Table 3 presents the Tukey Honestly Significant Difference (HSD) to observe the discernible distinctions among the three groups in the listening post-test scores.

Table 3

Multiple Comparisons Listening Post-scores Tukey HSD among Three Groups

(I) Groups	*(J) Groups*	*Mean Difference (I-J)*	*Sig.*
EG1	EG2	-1.000	.085
	CG	2.500*	.000
EG2	EG1	1.000	.085
	CG	3.500*	.000
CG	EG1	-2.500*	.000
	EG2	-3.500*	.000

*. The mean difference is significant at the 0.05 level.

Table 3 shows the differences among the three groups in listening comprehension ability. In this respect, there was a significant difference among taking frequent test group, the metacognitive instruction group, and the control group in listening comprehension performance. Accordingly, both taking frequent tests and metacognitive instruction groups had a better effect on listening ability than the control group. In other words, they outperformed significantly the control group in listening ability. Moreover, although there was no significant difference between the taking frequent tests and metacognitive instruction groups in listening ability, the metacognitive instruction groups the metacognitive instruction group outperformed the taking frequent tests group

Second Research Question

The second research question attempted to examine the possible difference between the metacognitive awareness of the students taking frequent tests and those taking metacognitive intervention. Accordingly, it is fundamental to analyze the descriptive statistics of metacognitive awareness pre-questionnaire in three groups in Table 4.

Table 4

Descriptive Statistics and One-way ANOVA of Metacognitive Pre-Questionnaire among Three Group

	N	*Mean*	*Std. Deviation*	*Sig.*
EG1-Pre	25	55.00	1.90	
EG2-Pre	25	57.00	1.87	.12
Control-Pre	25	54.00	1.80	

EG1 = Taking Frequent Test Group, EG2 = Metacognitive Instruction Group, CG = Conventional Method

Table 4 displayed the summary statistics for the three groups in metacognitive awareness as follows: Frequent Test Group (M = 55.00, SD = 1.90), Metacognitive Instruction Group (M = 57.00, SD = 1.87), and the control group (M = 54.00, SD = 1.80). There are observable differences in the mean scores of the three groups in the pre-questionnaire assessing metacognitive awareness. Consequently, One-way ANOVA analysis was conducted using Table 4 to compare the means of the three groups in metacognitive awareness.

Table 5

Descriptive Statistics and One-way ANOVA of Metacognitive Awareness Post-Questionnaire

	N	*Mean*	*Std. Deviation*	*Sig.*
EG1-Post	25	76.00	2.16	
EG2-Post	25	83.00	2.23	.00
Control-Post	25	63.00	1.99	

The results in Table 4 indicate that there is no notable difference (p = .12 > .05) among the performances of the Frequent Test, Metacognitive Instruction, and Control groups in metacognitive awareness prior

to the instructional intervention. Subsequently, Table 5 illustrates the descriptive statistics for the post-questionnaire scores assessing metacognitive awareness.

As shown in Table 5, the descriptive statistics for the three groups in the metacognitive post-questionnaire are as follows: Frequent Test Group (M = 76.00, SD = 2.16), Metacognitive Instruction Group (M= 83.00, SD = 2.23), and the Control Group (M = 63.00, SD = 1.99). It is evident that there are variations in the mean scores of the three groups in the metacognitive post-questionnaire. Consequently, a One-way ANOVA analysis was conducted to compare the means of the three groups showed in Table 5.

The analysis of Table 5 reveals that there is a significant difference (p = .00 <.05) between the performance of the three groups in metacognitive awareness ability after giving the instruction. To observe the differences among the three groups in metacognitive awareness post-questionnaire scores, Table 6 illustrates the difference in Tukey HSD.

Table 6

Multiple Comparisons Metacognitive Post-scores Tukey HSD among Three Groups

(I) Groups	*(J) Groups*	*Mean Difference (I-J)*	*Sig.*
EG1	EG2	-7.000*	.000
	CG	13.000*	.000
EG2	EG1	7.000*	.000
	CG	20.000*	.000
CG	EG1	-13.000*	.000
	EG2	-20.000*	.000

*. The mean difference is significant at the 0.05 level.

Table 6 demonstrates the differences among the three groups. In this regard, there was a significant difference among taking frequent test, metacognitive instruction and the control groups in metacognitive awareness. Accordingly, both taking frequent test and metacognitive instruction groups had a better effect on metacognitive awareness than the control group. In other words, they outperformed significantly the control group in metacognitive awareness. Moreover, there was a significant difference between the metacognitive instruction group and the taking frequent test groups in metacognitive awareness, and the metacognitive instruction group significantly outperformed the taking frequent tests group.

Discussion

In the present research, the main purpose was to examine the effects of using frequent tests and metacognitive intervention on improving EFL learners listening comprehension and metacognitive awareness. In other words, this field project, using both frequent tests and metacognitive intervention in EFL classrooms, is designed to foster listening ability for the students. This study intended to respond to two research questions:

The first research question was posed to examine the significant difference between the listening comprehension of the students taking frequent tests and those taking metacognitive intervention. The results illustrated that there was a significant difference among taking frequent test group, metacognitive instruction group and the control group in listening comprehension performance and metacognitive awareness. In this regard, both experimental groups significantly outperformed the control group. This finding is consistent with studies such as Winke and Lime (2017), Low and Aryadoust (2021), Nejati (2015) and Wangdi (2018), in which taking frequent tests could help learners to enhance their language skills. These studies attributed their results to the positive effect of taking frequent tests on long-term memory, extrinsic motivation, and continuous revision of materials. Given listening comprehension, Goh and Vandergrift (2022) believe that in top-down listening, listeners need

to apply their prior knowledge to interpret the incoming messages. They use their contextual (see Winke & Lime, 2017), topical, cultural, and pragmatic knowledge to activate a conceptual framework and realize those messages. All these knowledge sources can be stored in their long-term memory. Therefore, hiring strategies such as taking frequent tests assists listeners in enhancing long-term memory and subsequently their top-down listening skills.

Additionally, the results obtained from the data analyses demonstrated that metacognitive instruction had a noticeable effect on the experimental groups' listening performance. The findings of the study are consistent with those of the previous studies indicating that metacognitive strategies facilitate and improve EFL listening comprehension (for instance, Bozorgian, 2014; Kwan and Yu (2024); Kumar et al., 2020; Maftoon & Fakhri Alamdari, 2020; Ahmadi Safa & Motaghi, 2020; Rahimirad and Shams; 2014). The results of these studies showed that most EFL learners do not generally consider listening skill as a skill that needs applying strategies and a lack of awareness about the significance of these strategies throughout the listening process was notices. Therefore, English teachers need to emphasize utilizing strategies in their teaching and instruct learners about metacognition and its role in listening learning, and the approaches in which these strategies can be transferred to other skills and activities. Furthermore, when evaluating the efficacy of working memory in assessing both the processing and storage capacities of the working memory span during listening comprehension, the outcomes of the post-test showed an improvement in the performance of both experimental groups compared to the pre-test. This suggests that learning and training through strategies and taking tests contribute to an enhanced working memory span in the second language (L2) context.

The second research question examined the significant differences between the metacognitive awareness of the students taking frequent tests and those receiving metacognitive intervention. The results demonstrated that there was a significant difference among taking frequent tests, metacognitive instruction, and the control groups in metacognitive awareness. Accordingly, both taking frequent tests and metacognitive instruction groups had a better effect on metacognitive awareness than the control group. The learners' awareness of metacognitive strategies developed due to strategy training. This result was concluded by recording better performance in the MALQ questionnaire after the treatment sessions. MI improves WM (Bozorgian & Fakhri Alamdari, 2018; Goh & Vandergrift, 2022) and taking frequent tests elevates long-term memory, mental processes, and awareness of the background and prior knowledge. This finding is in line with several studies (Bozorgian et al., 2020; Rahimirad & Shams, 2020, Maftoon & Fakhri Alamdari, 2020, Vandergrift & Tafaghodtari, 2011) that demonstrate positive effects of MI on metacognitive awareness. However, the results of this study contradict Bozorgian (2014) study, in which metacognitive intervention had a positive effect on the learners' listening skills but no improvement was reported in their metacognitive awareness.

Conclusion and Implications

This research aimed to investigate how metacognitive strategies and regular testing influence the listening comprehension abilities and metacognitive awareness of upper intermediate EFL learners. The results indicated a significant enhancement in participants' performance following training sessions where they were instructed on employing metacognitive strategies and undergoing frequent testing in listening activities. Both approaches notably enhanced participants' listening comprehension abilities to varying extents. Additionally, the study revealed that the training in strategies and regular tests significantly boosted the metacognitive awareness of upper intermediate EFL learners.

The findings have significant pedagogical implications, too. It can be concluded that learners can benefit from the findings of this research and attempt to enhance their listening proficiency by improving metacognitive strategies and using frequent tests. They can find and select the most adequate strategies that better contribute to their listening learning success. The learners are able to make a list of the most appropriate strategies to help them with self-monitoring, self-managing, and self-evaluating their own listening-learning process.

Curriculum designers and material developers can also take advantage of the findings of this study. It is recommended that they try to design English courses while paying particular attention to

metacognitive strategies and frequent tests. It seems necessary to comprise some sections in the course books to familiarize EFL learners with the efficacy of these strategies in enhancing listening comprehension. Material developers can also design some particular activities through which listeners are given opportunities to practice and apply these strategies. These kinds of activities and tasks are currently absent from coursebooks.

Like any other studies, the current investigation suffered from a few limitations. The first limitation was the number of participants. It means that the number of participants in this study was few and the results should be generalized cautiously. Moreover, this study did not consider psychological factors such as personality types, age, and learning style. Future studies are suggested to take these factors into learners' proficiency levels, gender, content familiarity and test types. This research also encountered time limitations. In order to carry out meticulous research, it was substantial for further research to assign sufficient time. Moreover, in future studies, the role of metacognitive strategies and taking frequent tests on other skills such as writing, reading, and speaking can be examined.

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