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The Effects of Metacognitive Strategy Training on Improving Iranian EFL Learners' Listening Performance and the Similarities and Differences Across Three Elementary, Intermediate, and Advanced Proficiency Levels

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Abstract

The present study was an investigation of metacognitive strategy training on improving Iranian EFL learners' listening performance and the differences and similarities at three levels of elementary, intermediate, and advanced levels. Few studies have been conducted to investigate three levels. So, 348 third grade female senior high school students of Zanjan/Iran were selected through multistage cluster random sampling method and based on Cambridge placement test (2010), 116, 132, and 100 students in 3 elementary, advanced, and control groups participated in this experimental study. During two months and over period of nine forty-minute sessions, students in experimental groups received metacognitive and listening instructions. To address the research question, ANOVA test was conducted and the results showed that there were meaningful differences between students' performance and the students of experimental advanced group showed more improvement than students in experimental intermediate and elementary groups, and students of intermediate experimental group showed more improvement than students in experimental elementary group. The implication of the study is that metacognitive strategy training should be incorporated into the regular listening teaching programs to help students become more effective listeners.

Keywords: EFL learners, listening performance, metacognitive strategy training, proficiency levels

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1. Introduction

One of the most significant current discussions in the era of learning and teaching is metacognitive strategy that plays a key role in learning the second or foreign language. Metacognition is "cognition about cognition", "thinking about thinking", "knowing about knowing", becoming "aware of one's awareness" and higher-order thinking skills (Van & Veenman, 2014). This term comes from the root word meta, meaning "beyond." Metacognition can take many forms; it includes knowledge about when and how to use particular strategies for learning or for problem-solving (Moritz & Lysaker, 2018). There are generally two components of metacognition: (1) knowledge about cognition, and (2) regulation of cognition (Nelson, Metcalfe, & Shimamura, 1994; Ogata, 2017).

Learning styles and strategies are factors which help us determine how well students learn a second or foreign language. Language acquisition is affected positively by learning strategy (Fasih, Izadpanah, & Shahnavaz, 2018; Oxford, 2003). It may improve learners' learning in language comprehension and production in terms of forms and functions. Graham (2003) mentioned that 40-50% of adult communication time is spent in listening. Listening is an important part in the second language acquisition process. Moreover, Chamot (2004) determined that instead of considering listening as a single process, it is better to consider it as related processes of sound recognition, perception of intonation patterns, and interpretation of relevance of what is being mentioned about the topic. He mentioned that, while listening to a second or foreign language, learners use strategies consciously and unconsciously in their first language.

The metacognition history dates back at least as far as two works by the Greek philosopher Aristotle (384-322 BC): On the Soul and the Parva Naturalia. This higher-level cognition was introduced mainly by American developmental psychologist Flavell (1976) as metacognition. He firstly argued that metacognition includes both monitoring and regulation and is intentional. "In any kind of cognitive transaction with the human or non-human environment, a variety of information processing activities may go on. Among other things, metacognition refers to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in service of some concrete goal or objective." (Flavell, 1976, p. 232).

Flavell defined metacognition as knowledge about cognition and control of cognition. For example, a person is engaging in metacognition if he notices that he is having more trouble learning A than B, or if it strikes her that she should double-check C before accepting it as fact (1976, p. 232). Andreas Demetriou's theory (one of the neo-Piagetian theories of cognitive development) used the term hypercognition to refer to self-monitoring, self-representation, and self-regulation processes, which are regarded as integral components of the human mind (Demetriou, Efklides, & Platsidou, 1993; Newton & Nguyen, 2018). Moreover, with his colleagues, he showed that these processes participate in general intelligence, together with processing efficiency and reasoning, which have traditionally been considered to compose fluid intelligence (Demetriou & Kazi, 2006). Metacognition also involves thinking about one's own thinking process such as study skills, memory capabilities, and the ability to monitor learning. This concept needs to be explicitly taught along with content instruction. Metacognitive knowledge is about one's own cognitive processes and the understanding of how to regulate those processes to maximize learning.

It is believed that acquiring language proficiency for either L1 or in L2 is deeply based on individuals' receptive skills. Language acquisition is achieved mainly through receiving language input (Mendelsohn & Lynch, 2013). Listening is one of the receptive skills and an active and conscious process, and though it is neglected, its vitality in foreign language learning is not deniable. In spite of its importance, L2 learners usually think about listening as the most tough skill to learn, since to be the least explicit of the four language skills. Studies have shown that one of the reasons might be the lack of guidance on how learners can direct and evaluate their learning; hence for a better academic success, learners should be trained how to learn and cope effectively with the learning task because they do benefit from being actively taught various strategies as they approach a listening activity (McKenney & Reeves, 2018).

One effective way to help learners with the complexity of listening is through "metacognitive instruction." Through this process, instructors may have the opportunity to provide learners with effective strategies and make them aware of the listening process, and improve their adequacy to use convenient strategies to enhancing their listening performance. In the field of listening instruction, O'Malley and Chamot (1990) stated that learning a language is effective once metacognition is involved; during this approach, students find out how to plan for a listening task, how to monitor their comprehension, and way to judge their performance. From the situation mentioned above, the current study makes an attempt to shed the light on the impact of metacognitive based- strategy instruction on the listening performance of EFL students, and tries to search learners' difficulties during the listening task. The data reached by

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this study could alter the EFL teachers to develop effective techniques to enhance students listening skills and strategies (Mobaraki & Nia, 2018).

To help language learners, many researches regarding metacognitive strategy are projected and employed in teaching and learning a second or foreign language. So far, however, a significant drawback with all of these researches was that they have not investigated the effects of metacognitive strategy training on improving Iranian EFL Learners' listening performance in three levels of elementary, intermediate, and advanced, while this current research has focused on the effectiveness of using metacognitive strategy training on listening performance in the EFL classrooms on 348 third grade senior high school students in Zanjan. In addition, a few researches have been investigated the similarities and differences between the effects of metacognitive strategy training across the three elementary, intermediate, and advanced proficiency levels.

The issue of metacognitive strategy training in language learning has received some interest in analysis over twenty years ago however it absolutely was not a contemporary art. However, within the last five years, in particular, the topic has rekindled both theoretical and empirical research interest and however there is no general agreement getting ready to what extent metacognitive strategy training would improve listening performance of the EFL students. Metacognitive strategy training was an important element, however a difficult task in increasing the listening performance and also this issue needs the researchers to undertake investigations so as to search out more about their relationships. However, the question is that how metacognitive strategy training can improve learners' listening performance. Although, up to now, extensive numbers of studies are conducted to answer the above question, the consequences of metacognitive strategy training are still a matter of considerable controversy. Therefore, still there seems to be a necessity for additional investigations filling the remained gaps in this area. The purpose of this study was to investigate the effectiveness of using metacognitive strategy training on listening performance in the EFL classrooms and the similarities and differences across three elementary, intermediate and advanced proficiency levels, on 348 third grade senior high school students in Zanjan/Iran.

1.1 Statement of Problem

The current study addresses the need for further research in the area of systematic teaching of listening strategies. According to Carrier (2003), for L2 learners, the ability to use strategies effectively in their academic listening is crucial. She believed that learners need to be able to actively and selectively choose the strategies most applicable for a given listening situation and evaluate strategy effectiveness in their everyday learning tasks. As Carrier (ibid) indicated in her study, students can benefit from instruction in strategies for academic listening in a variety of settings and incorporating many types of media. This study adds to the growing body of research of how Iranian EFL learners' listening performance at the elementary, intermediate, and advanced levels pursuing academic study may benefit from explicit metacognitive strategy training. Doing this research contributes a method to introduce and model metacognitive strategy training. Results of the study provided insight into participants' self-perceptions of their use of metacognitive and listening strategies both before and after systematic classroom instruction. Due to the importance of metacognitive learning strategies and the listening skill, more attention should be paid to the kinds of strategies which teachers teach to learners in order to help them improve their listening skill.

The focus on L2 listening was initially on the use of strategies for listening comprehension. In recent years, learners' metacognitive knowledge has been the predominant field in listening strategy research and the importance of metacognitive strategies awareness has been proved (Vandergrift, 2006 as cited in Rahimi & Katal, 2012). Many studies focused on L2 learner's use of metacognitive strategies for coping with difficulties and facilitating comprehension. Rahimi and Katal (2012) asserted that in Iranian foreign language institutes, metacognitive strategy training is not an internal part of many listening course books or curriculum and listening teachers do not seem to pay attention to these strategies while designing their lessons. There is empirical evidence in the literature that the use of metacognitive strategies leads to better listening performance in different contexts (O'Malley & Chamot, 1990; Vandergrift, 2003). For instance, Vandergrift (2003) trained students in the use of prediction, individual planning, peer discussions, and post listening reflections that made up the metacognitive strategies in beginner elementary school and university contexts in France. Students in both groups were more focused on the advantages of predictions for successful listening, the place of collaboration with a partner for monitoring, and the confidence-building function of this approach for developing listening comprehension ability.

Many research studies have focused on finding the role of metacognitive awareness in students' learning outcome and achievement in different school subjects. There is extensive evidence that learners' metacognition can directly affect

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the process and outcome of their learning (Boekaerts, Pintrich, & Zeidner, 2000 as cited in Rahimi & Katal, 2012). Coshkun (2010) stated that metacognitive strategies don't only help learning in general but also have a lot to offer to listening comprehension. Goh (2008) asserted that the metacognitive strategy improves students' confidence and makes them less anxious in listening and weak listeners benefit much from the training. So, there were some internal and external studies around this issue, but they didn't completely aim at showing the effects of metacognitive strategy training on improving Iranian EFL learners' listening performance at the elementary, intermediate, and advanced levels, which this study aimed at, and on the other hand there were few researches that showed the relationship between them.

1.2 Research Question

The purpose of this study was to demonstrate the effectiveness of using metacognitive strategy training on listening performance of the students in the EFL classrooms. The goal of this investigation was to answer the following research question:

What are the similarities and differences between the effects of metacognitive strategy training across the three elementary, intermediate, and advanced proficiency levels?

1.3 Research Hypotheses

The null hypothesis of this study is as follows:

There are no meaningful differences between the effects of metacognitive strategy training across the three elementary, intermediate, and advanced proficiency levels.

Also the alternative hypothesis is as follows:

There are meaningful differences between the effects of metacognitive strategy training across the three elementary, intermediate, and advanced proficiency levels.

2. Review of the Literature

Vandergrift and Tafaghodtari (2010) investigated the effects of a metacognitive, process-based approach to teaching second language (L2) listening. The participants were 106 students of French. 59 students were assigned to experimental group. They listened to a variety of texts and were taught metacognitive processes including prediction, planning, monitoring, evaluating, and problem solving. The control group included 47 students who listened to the same texts without metacognitive instruction. The experimental group outperformed the control group in the listening comprehension measure. Less skilled listeners in the experimental group made greater gains than their more skilled ones.

Wong (2012) focused on how university students in Hong Kong self-regulate their academic learning. Two factors were focused for their self-regulation: the utilization of metacognitive skills and the punctuality for learning. Three hundred and fourteen students from two universities participated in this study by filling out a self-administered questionnaire, which consists of three instruments measuring metacognitive awareness, procrastination, and academic performance. The results demonstrated that 'high metacognitive awareness' and 'low procrastination tendency' had positive effects on academic learning. In order to analyze the data, the data were divided into four categories by using the mean scores of each variable: students with high level of metacognitive awareness and high level of procrastination; students with low level of metacognitive awareness and low level of procrastination; students with high level of metacognitive awareness but low level of procrastination; students with low level of metacognitive awareness but high level of procrastination. The results demonstrated that the students with none of these positive factors are considerably lower in G.P.A. than students from the other three groups; however, it is surprising to find that the students who have two positive elements do not get a higher G.P.A. than those who have only one of these positive elements.

Taheri and Taki (2015) analyzed the effect of dictogloss on EFL learners' listening comprehension as well as on their use of metacognitive listening strategies and they focused on the effects on male and female learners. For this aim, a total number of 50 female and male Iranian EFL learners, aged between 12 and 15 years old, at the intermediate proficiency level in a private language school in Iran were selected and randomly assigned to experimental and control groups with 25 male and female learners in each group. Dictogloss was used to teach the learners in the experimental group in the 12 instructional sessions. Participants' listening comprehension was determined through a pre/posttest

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that was adapted from the listening section of the standard test of PET and their use of metacognitive listening strategies via the Metacognitive Awareness Listening Questionnaire (MALQ), a questionnaire developed by Vandergrift, Mareschal, and Tafaghodtari (2006). The information obtained were submitted to the t-test and results revealed significant improvement in the experimental group's listening comprehension with no remarkable difference between male and female learners. Finally, the results demonstrated that the listeners in the experimental group made significant enhancements in their choice of metacognitive strategies through using the dictogloss technique. Findings are considered in light of recent theories of language learning and teaching.

Mevarech and Fridkin (2006) investigated about metacognition training in mathematics class that can improve the metacognitive awareness of the students and their mathematic knowledge and performance. The instrumentation of their research was MAI to measure metacognition, and the result shows that metacognitive awareness is positively correlated with the academic performance. Although the samples are from pre-college mathematics classes, the experimental design may give a cause-and-effect conclusion for their study.

Rezvan, Ahmadi, and Abedi (2006) demonstrated that the rise of metacognition can improve the students' academic performance, especially for the university students who are on margin or called conditional students. The study also showed that metacognitive training can be a reason of the change in the emotional state of the students, reducing their level of anxiety and improving their academic work. The results demonstrated that the use of metacognitive strategies had a significant effect on the weaker learners. It can be mentioned that a low level of metacognition is one of the causes of poor academic performance.

Downing (2009) performed his study in the City University of Hong Kong on 300 participants and he also used accumulated Grade Point Average to measure the academic performance of the students. Although he used LASSI instead of MAI, he mentioned that it is a good instrument to measure metacognition. He measured three times for the two variables in 2005, 2007, and 2009. The results showed that students who improve significantly in academic performance are those who also grow significantly in metacognition.

Bozorgian (2012) studied twenty-eight Iranian high-basic level EFL listeners who took part in a "strategy-based" approach including: advanced organization, directed attention, selective attention, and self-management. The strategy-based approach was applied to four listening lessons focusing on improving listeners' comprehension of IELTS listening texts. Pretest and posttest comparisons revealed that less-skilled listeners show higher improvement than more-skilled ones on the International English Language Testing System (IELTS) listening tests. This supports the contribution of metacognitive instruction to empowering listeners and endorsing the listening comprehension ability.

Altuwairesh (2016) investigated the metacognitive listening strategies used by Saudi EFL female students when listening to texts in English. Two main research questions were explored in the study: (1) which of the five major types of metacognitive strategies do the participants use most when listening to English texts? and (2) what are the metacognitive listening strategies used most by the target group when listening to English texts? The MALQ was used to arrive at answers to the two research questions. The participants were 82 students from the same cohort. Results reveal that the participants reported using problem-solving and directed attention strategies more frequently than the other metacognitive listening strategies; mental translation and personal knowledge strategies are the least used by the participants. The results give insight into the metacognitive listening strategies used by effective L2 listeners, with ample evidence provided from the literature available on the subject. Results of this study also demonstrate that many L2 learners do in fact perceive listening as difficult, thus, investing classroom time in developing learners' strategies is worthwhile.

Chou (2017) in his study about a task-based language teaching approach to developing metacognitive strategies for listening comprehension, aimed to investigate how well a task-based teaching framework was able to develop intermediate Chinese English as a Foreign Language (EFL) university students' metacognitive awareness of listening comprehension. Eighty-eight sophomores participated in the study, which used a quasi-experimental design. The experimental group received strategy-embedded task-based listening instruction for 18 weeks, whereas the control group received only strategy-based instruction. Listening tests and questionnaires were used in the pre-test and post-test stages. The results showed that the experimental group improved their metacognitive awareness of strategies for listening and outperformed the control group in the listening test. The students in the experimental group considered tasks to be an important medium of input enhancement for improving listening ability.

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Bozorgian and Fakhri Alamdari (2018) attempted to investigate the effect of metacognitive instruction through dialogic interaction in a joint activity on advanced Iranian EFL learners' multimedia listening and their metacognitive awareness in listening comprehension. The data were collected through (N=180) male and female Iranian advanced learners ranging from 16 to 24 years of age in three groups. The first two groups were experimental (n=60), trained through a structured intervention program focusing on metacognitive instruction through dialogic interaction (MIDI) and metacognitive instruction (MI) for 10 sessions. The learners in the experimental group were involved in 60 minutes of practice twice a week. The third group was a control group (n=60), trained through regular classroom listening activities without receiving the structured intervention program. Multimedia listening tests and the MALQ were used to track the advanced learners' multimedia listening comprehension and metacognitive awareness. The results showed that metacognitive instruction through dialogic interaction did improve both the advanced learners' multimedia listening comprehension and their metacognitive awareness in listening.

Ko (2019) analyzed English-learners' metacognition when engaged in reading and listening tasks, to determine if there was a correlation between their reading metacognition and listening metacognition, and to determine if metacognition levels differed between students of basic, intermediate, and advanced English levels. One class of 50 nursing students in a 5-year nursing program was assigned to participate in this study for one semester. The learners were divided into three groups (high, intermediate, and low) based on their score on an English listening test. At the beginning of the semester, they listened to a lesson called "Dangerous Dining." Five months later, the students were presented with the same lesson, though this time in written form rather than spoken form, and their reading comprehension was tested using the same questions. Then the learners were asked to fill out two online questionnaires: a 21-question questionnaire about their reading strategies, and a 30-question questionnaire about their listening strategies. The surveys were designed to gauge the participants' metacognitive awareness. The results showed that there was a positive and strong significant correlation between the learners' listening metacognitive strategy and reading metacognitive strategy. The results revealed that there was a positive significant correlation between reading comprehension and listening comprehension for low-level learners. The intermediate and advanced language learners reported applying fewer listening metacognitive strategies to reading metacognitive strategies than the low-level language learners because they had internalized the listening/reading metacognitive strategies to experience them automatically and didn't report the automated process. They thus used fewer metacognitive strategies.

Tan, Chen, and Lee (2019) studied the effectiveness of a digital pen-based learning system with a reward mechanism to improve learners' metacognitive strategies in listening and developed a digital pen-based learning system with a reward mechanism that guides learners through the metacognitive processes effectively use available help options to develop listening skills. Two experiments were performed to evaluate the effects of the proposed system on learners' listening achievement, motivation, and metacognitive awareness. The experimental results indicated that the proposed system improved learners' listening comprehension, learning motivation, and metacognitive awareness. A lag-sequential analysis was conducted to infer learners' behavioral patterns to explore how learners used the help options to perform listening tasks. Several interesting behavioral patterns were found and discussed.

Fathi and Hamidzadeh (2019) investigated the contribution of listening strategy instruction to improve listening comprehension of EFL learners in Iranian context. In so doing, a number of 52 English literature students of two intact classes at Islamic Azad University, North Tehran Branch, in Iran served as the participants of the study. The two classes were randomly assigned to an experimental group and a control group. The experimental group received the listening strategy instruction according to the approach proposed by Yeldham and Gruba (2014), whereas the control group was taught with regular method with no strategy instruction. The listening section of the IELTS was administered to measure the listening comprehension ability of the students before (i.e., as pre-test) and after (i.e., as post-test) the strategy instruction. Oxford Placement Test (OPT) was also administered to ensure the homogeneity of the participants with regard to their general English proficiency. The findings revealed that the experimental group significantly outperformed the control group on the listening performance test, suggesting that the listening strategy instruction was effective in enhancing listening comprehension of the participants.

Maftoon and Fakhri Alamdari (2020) explored the effect of metacognitive strategy instruction on the listening performance and metacognitive awareness of EFL learners in Iran. It also strove to investigate how various aspects of learners' metacognitive awareness, as measured by each of the five MALQ factors, were affected by metacognitive strategy instruction. The participants were 60 intermediate EFL listeners in two groups, ranging in age from 20 to 26. The experimental group (N = 30) went through a guided lesson plan in metacognition for 10 weeks, which focused on planning, monitoring, and evaluation. The control group (N = 30) was taught by the same teacher and listened to the

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same texts without any guided attention to process. The MALQ and a listening test were also used before and after the intervention to track the changes in metacognitive awareness and listening performance. The results showed that metacognitive strategy instruction led to a considerable variance in overall listening performance and metacognitive awareness of learners. Furthermore, the analysis of the five MALQ factors revealed a significant impact of metacognitive strategy instruction on the metacognitive awareness of listeners.

3. Methodology

3.1 Participants

The participants of this study were 348 third grade senior high school students in Zanjan. Zanjan province has 8 cities, among these cities, Zanjan city was chosen. Zanjan city consists of two districts that the district two was randomly chosen. In district 2, there were 433 schools that among them senior high schools were randomly chosen. There were 47 senior high schools in district two that 24 of them were for girls and among them, 8 senior high schools were non-profit. The third level students of 6 senior high schools included: Sama, Mehre Danesh, Alavi, Fereshte, Nedaye Mehr and Roshd junior high schools were randomly chosen. There were 3 third grade classes in each of them and two classes of each were randomly chosen for this study.

The statistical populations of this study were 1715 third grade senior high school students in the second district in Zanjan. According to Cochron formula, 338 participants were selected and in order to increase the accuracy and to have homogeneous groups 10% or 10 more participants were added and totally 348 students were participated in this study. There were 116, 132, and 100 students in 3 different groups, one elementary control group (CG) (n=58) and one elementary experimental group (EG) (n=58), one intermediate control group (n=66) and one intermediate experimental group (n=66) and one advanced control group (n=50) and one advanced experimental group (n=50). Their age ranges were 15 to 16. They were all female students. The type of sampling in this study was multistage cluster random sampling.

In order to guarantee the homogeneity of the participants of this study and to fulfill the objectives of the study; first a Cambridge Placement Test (2010) by Cambridge University Press was distributed among all the students to determine their level of proficiency. Out of 348 students, 116, 132, and 100 students respectively were proved to be Elementary, Intermediate, and Advanced. After that the Student's Consent Form was distributed among students in order to make them familiar with the processes of the current study. Finally, in order to motivate the students for participating in this study, an English story book was provided for them as a gift.

3.2 Design of the Study

In this experimental study, an experimental design was used to determine the effects of metacognitive strategy training on improving Iranian EFL learners' listening performance and participants were selected through multistage cluster random sampling method. Because of the existence of both pre and post-tests and experimental and control groups, the experimental design was used. The experimental and control groups were selected randomly by the researchers. The control group was considered when studying the effect of metacognitive strategy training on improving Iranian EFL learners' listening performance. The main independent variable was the use of metacognitive strategy training and the dependent variables was listening performance because this investigation demonstrated the effects of metacognitive strategy training on improving Iranian EFL learners' listening performance and the differences and similarities at three levels of elementary, intermediate and advanced levels.

3.3 Instruments

The following instruments were employed in order to collect the required data for the present study:

3.3.1 Pre- and Post Tests

Students were given pre-tests on the first day of the investigation, and post-tests on the last day of the study. The main instruments that were used in this study included a listening test and a questionnaire. The listening test and MALQ questionnaire were used to track development of the experimental group over the course of the intervention. The same instruments were used to compare results of the experimental group against those of the comparison group.

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3.3.2 Pilot Study

The MALQ were piloted on 30 students with similar educational background, 10 Elementary, 10 Intermediate, and 10 Advanced students in order to obtain the reliability for the test. The test-retest reliability of these tests with the one-week interval was .84 which showed an acceptable reliability value, because tests that have scores with a reliability of .80 or higher are sufficiently reliable for most investigation purposes (Gay, 1992).

3.3.3 Cambridge Placement Test

To have a homogeneous group of participants, to neutralize any effect of proficiency level on participants' performance and to fulfill the objectives of the study, first, a Cambridge Placement Test (2010) by Cambridge University Press was distributed among all the student participants of this study in order to determine their level of proficiency. The aim was to select those students with the Elementary, Intermediate, and Advanced levels of proficiency. Out of 348 students, 116, 132, and 100 students respectively were proved to be Elementary, Intermediate, and Advanced level.

3.3.4 Metacognitive Awareness Listening Questionnaire (MALQ)

In this study, changes in metacognitive knowledge concerning listening were measured using the MALQ. The MALQ "is a listening questionnaire designed to assess second language (L2) listeners' metacognitive awareness and perceived use of strategies while listening to oral texts" (Vandergrift et al., 2006, p. 431). The questionnaire was developed and validated by Vandergrift et al. (2006) and is "a reliable listening questionnaire with strong underlying psychometric properties" (p.432). The MALQ is designed "on a theoretical model of metacognition" and can be used by researchers as a pre-test/post-test to "assess learners" growing awareness of the processes underlying successful L2 listening" (p. 453). This questionnaire is designed for researchers and instructors alike to help evaluate the degree to which language learners are aware and capable of regulating the L2 listening comprehension process (ibid). The MALQ consists of 21 items which fall under five distinct factors: problem-solving, planning and evaluation, mental translation, person knowledge, and directed attention.

3.3.5 TOEFL Listening Test

In this study, EFL listening ability was measured using a sample TOEFL listening test (Phillips, 2008). The rationale for using a TOEFL test in this study, rather than any other standardized test, is that the course book the participants use in their Listening 4 course, Mosaic Π, has a brief section at the end of each chapter dedicated to TOEFL practice. Hence, they are somewhat familiar with the general technique of the test. Further, the test that was used is based solely on conversations and lectures, which are similar to the types of listening the students practice in their actual listening class.

3.4 Procedure

The main data collection stage took place during 2 months. The study, as mentioned previously, involved three groups (N= 348); two classes of every six senior high schools (Sama, Mehre Danesh, Alavi, fereshte, Nedaye Mehr, and Roshd) were chosen and they were assigned randomly into three groups, three control groups (A1, B1, & C1) and three experimental groups (A2, B2, & C2). The intervention had two main objectives; one was to raise the participants' metacognitive awareness, and then measure the impact of this form of metacognitive instruction on the participants listening performance. Therefore, the study aimed at improving the EFL listening ability as well as metacognitive knowledge of the participants. The chief principle behind this instruction was to encourage students to take a more active role in developing their L2 listening, as suggested by Goh and Taib (2006).

3.5 Data Collection

At first, the informed consent letter was distributed among students to read and sign. They were also asked to write their emails to arrange for future sessions. During that session, the TOEFL test and the MALQ were administered for the first time. The students seemed to be frustrated by the high level of the test. However, the researchers tried to reassure them by explaining that the sessions they will take part in will hopefully lead them to finding it less difficult. The use of the MALQ, which was administered right after the pre- test, served as the first step in the awareness-raising process. The teaching materials covered during this intervention were the texts participants listened to throughout the intervention and they were chosen from published materials, including Contemporary Topics 1, and Longman Preparation Course for the TOEFL Test: IBT Listening. These books are especially designed for teaching and training

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purposes, and as Buck (2001) argued, teaching materials are a source of suitable pre-recorded texts. He also mentioned that "published listening materials are often very well made; they are at appropriate difficulty levels and on suitable topics" (ibid: 156).

Then, by the help of the English teachers, during two months and over period of 9 forty-minute sessions, students in experimental groups (A2, B2, & C2) received metacognitive instruction and how to use this technique in listening. For all of the classes the same pre-tests were used to inform and guide the instruction, focusing on the areas of weakness demonstrated by the students on the assessment. After the students took the pre-tests, results were used to guide content instruction. During these two months, the control group (A1, B1, & C1) didn't receive treatment by the researchers and was then used as a benchmark to measure the other tested subjects' treatment. Like other participants of this study, they were provided with pre- post tests and the results were used to compare the participants of groups A2, B2, and C2 and to examine the effects of metacognitive strategy training on improving Iranian EFL learners' listening performance.

3.6 Data Analysis

For data analysis of the hypothesis, due to the normal distribution of the variables, the ANOVA and Tukey tests were conducted. The covariance analysis (ANCOVA) was used to compare the means of one or more groups and estimate one or more independent variables and to extract the effect of one or more intervening variables, covariance, or covariate from the equation. Kolmogorov Smirnov (K–S test or KS test) was a nonparametric test of the equality of continuous, one-dimensional probability distributions that could be used to compare a sample with a reference probability distribution (one-sample K–S test), or to compare two samples (two-sample K–S test) to decide between parametric or non-parametric tests. This test was used to check the homogeneity of the variances.

Analysis of variance (ANOVA) is a collection of statistical models and their associated estimation procedures used to analyze the differences among group means in a sample. In the ANOVA setting, the observed variance in a particular variable is partitioned into components attributable to different sources of variation. In its simplest form, ANOVA provides a statistical test of whether the population means of several groups are equal, and therefore generalizes the t-test to more than two groups. ANOVA is useful for comparing (testing) three or more group means for statistical significance. The Tukey Test (or Tukey procedure) is a post-hoc test based on the standardized range distribution. An ANOVA test can tell you if your results are significant overall, but it won't tell you exactly where those differences lie. After you have run an ANOVA and found significant results, then you can run Tukey's HSD to find out which specific groups' means (compared with each other) are different. The test compares all possible pairs of means.

4. Findings

In this section, the distribution method of research variables based on the most important central indexes of mean and dispersion and standard deviation were investigated. To compare the pre-test and post-test scores, the scores were set based on 40. Descriptive statistics of listening performance scores in the control and experimental groups, in the pre-test and post-test, was demonstrated in Table 1.

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Table 1. Descriptive statistics of pre- and post-test scores in the control and experimental group

	Control			**Experiment**		
Group	Pre-test elementary	Post-test intermediate	Post-test Advance	Post-test elementary	Post-test intermediate	Post-test Advance
Mean	11.6724	24.6818	33.7000	15.7069	30.0758	36.8800
Median	12.0000	25.0000	34.0000	15.0000	29.5000	37.0000
Mode	15.00	23.00	30.00	14.00	29.00	40.00
Std. Deviation	5.11752	3.10414	3.78099	4.21363	1.89988	2.58441
Skewness	.239	.304	-.170	.581	.804	-.594
Kurtosis	-.008	-1.118	-.908	-.484	-.344	-.359

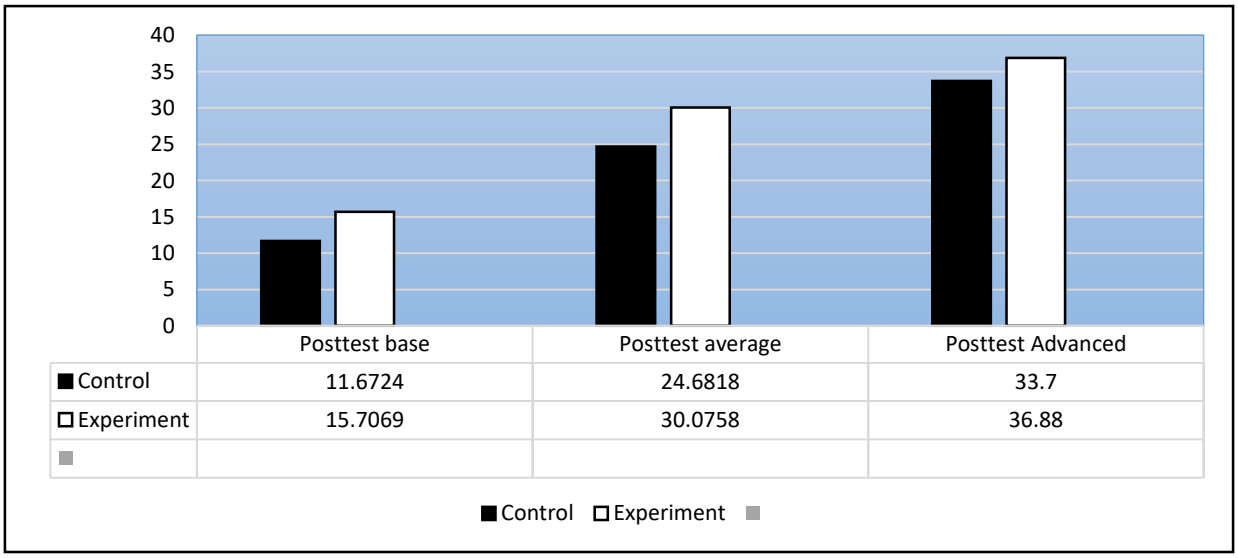


Diagram 1. Descriptive statistics of post-test scores in the control and experimental groups

Considering the Table 1 and Diagram 1, the data are normally distributed.

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Table 2. Descriptive statistics of pre-test scores in the control and experimental groups

	Control			**Experiment**		
Group	Pre-test elementary	Pre-test intermediate	Pre-test advance	Pre-test elementary	Pre-test intermediate	Pre-test advance
Mean	10.5690	24.1364	32.3000	10.603	24.2576	31.4200
Median	11.0000	23.0000	33.0000	10.5000	24.0000	31.0000
Mode	11.00[a]	23.00	34.00	10.00	22.00	34.00
Std. Deviation	5.87027	3.07789	3.97569	5.47383	2.84097	4.24788
Skewness	.181	.377	-.306	-.156	.424	.115
Kurtosis	-.246	-1.095	-.612	-.649	-.784	-.831

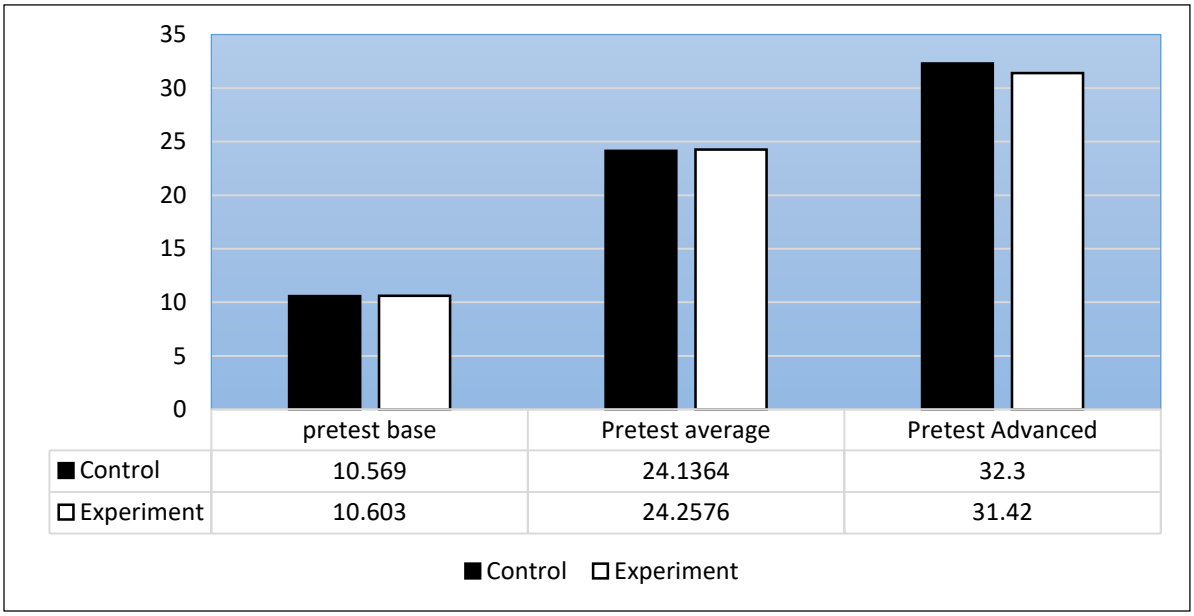


Diagram 2. Descriptive statistics of post-test scores in the control and experimental group

Considering the Table 2 and Diagram 2, the data are normally distributed.

4.1 The Pre-assumptions of the Covariance Analysis

4.1.1 Normality of the Scores

In order to check the normal distribution of the data, Kolmogorov-Smirnov test were conducted. The Kolmogorov–Smirnov statistic quantifies a distance between the empirical distribution function of the sample and the cumulative distribution function of the reference distribution, or between the empirical distribution functions of two samples. The null distribution of this statistic is calculated under the null hypothesis that the sample is drawn from the reference distribution (in the one-sample case) or that the samples are drawn from the same distribution (in the two-sample

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case). In each case, the distributions considered under the null hypothesis are continuous distributions but are otherwise unrestricted. The results of the Kolmogorov-Smirnov tests were demonstrated in Tables 3 and 4.

Table 3. The normality of the pre-tests scores in control and experimental groups

One-Sample Kolmogorov-Smirnov Test

Group		Pre-test elementary	Pre-test intermediate	Pre-test advance	Result
Experiment	Kolmogorov-Smirnov Z	.698	1.020	.643	Distribution of normal data
	Asymp. Sig. (2-tailed)	.714	.249	.803	Distribution of normal data
Control	Control	.486	1.216	.888	Distribution of normal data
	Asymp. Sig. (2-tailed)	.972	.066	.410	Distribution of normal data

a. Test distribution is Normal.

Table 4. The normality of the post-tests scores in control and experimental groups

One-Sample Kolmogorov-Smirnov Test

Group		Post-test elementary	Post-test intermediate	Pre-test advance	Result
Experiment	Kolmogorov-Smirnov Z	1.102	.888	.947	Distribution of normal data
	Asymp. Sig. (2-tailed)	.176	.410	.331	Distribution of normal data
Control	Kolmogorov-Smirnov Z	.781	1.328	.680	Distribution of normal data
	Asymp. Sig. (2-tailed)	.575	.060	.745	Distribution of normal data

a. Test distribution is Normal.

Considering the Sig values obtained in Table 3 and Table 4, all of which were more than 0.05, H0 that was the normality of the variables in the pre and post-test scores at the significance level of 0.05 was accepted.

4.1.2 Homogeneity of the Variances

In this study, Levene's test was an inferential statistic used to assess the equality of variances for a variable calculated for two or more groups. Some common statistical procedures assume that variances of the population from which different samples were drawn were equal. In this research the Levene's test was used to check the homogeneity of the variances and the results were presented in Tables 5, 6, and 7.

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Table 5. Homogeneity of variance between elementary control and experimental groups in pre-test

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.	Result
Pre-test elementary	.237	1	114	.628	The assumption of the equality of variances is accepted
Post-test elementary	1.665	1	114	.200	The assumption of the equality of variances is accepted

Table 6. Homogeneity of variance between intermediate control and experimental groups in pre-test

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.	Result
Pre-test intermediate	1.148	1	130	.286	The assumption of the equality of variances is accepted
Post-test intermediate	2.064	1	130	.145	The assumption of the equality of variances is accepted

Table 7. Homogeneity of variance between advance control and experimental groups in pre-test

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.	Result
Post-test Advance	.417	1	98	.520	The assumption of the equality of variances is accepted
Post-test Advance	2.320	1	98	.120	The assumption of the equality of variances is accepted

Considering the Sig values obtained in Tables 5, 6 and 3.7, all of which were more than 0.05, the H0 that was about homogeneity of the variances at the significance level of 0.05 was accepted and therefore the assumption of the homogeneity of the variances of the participants in the pre and post-tests scores were accepted with the 5% level of error.

4.1.3 Covariance Running Before Beginning the Study

This presupposition was followed and pre-test has been performed for students in three levels, before the implementation of the independent variable.

4.1.4 Homogeneity of Regression Slope

To analyze the homogeneity of regression slope, the F value was calculated between covariance and independent variables; the results which were presented in Table 8 showed that this index was significant (Sig> 0.05).

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Table 8. Regression Slope homogeneity test between covariance and independent variable

Tests of Between-Subjects Effects

Post-test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	
group * pre-test elementary	19.897	2	9.949	.380	.871	Reception of homogeneous regression slope
group * pre-test intermediate	132.185	2	66.093	5.049	.078	Reception of homogeneous regression slope
group * pre-test advance	23.764	2	11.882	.917	.815	Reception of homogeneous regression slope

Considering the Sig values obtained in Table 3.8, all of which were more than 0.05, H0 namely the assumption of regression line slope homogeneity between covariance and independent variable was accepted at the significance level of 0.05.

4.1.5 The Linearity of the Correlation of Covariance Variable and Independent Variable

In order to analyze the linearity of the correlation of the covariance variable and independent variable, the F value of the covariance variable was calculated. The F value was calculated between covariance and independent variables; the results which are presented in Table 9 showed that this index was significant (Sig> 0.05).

Table 9. The test of linearity of the correlation of covariance and independent variable

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Pre-test elementary	1979.462	1	1979.462	425.787	.000
Pre-test intermediate	126.340	1	126.340	22.186	.000
Pre-test advance	721.586	1	721.586	228.593	.000

a. R Squared = .143 (Adjusted R Squared = .138)

Considering the Sig value obtained in Table 9, all of which were less than 0.05, the H1 namely the assumption of linearity of the correlation between covariance and independent variable was accepted at the significance level of 0.05. The research question of the present paper was: What are the similarities and differences between the effects of metacognitive strategy training across the three elementary- intermediate and advanced proficiency levels? For data analysis of the second hypothesis which was: there are meaningful differences between the effects of metacognitive strategy training across the three elementary, intermediate, and advanced proficiency levels, due to the normal distribution of the variables, the ANOVA test was conducted. The results of ANOVA test were demonstrated in Table 10.

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Table 10. The results of ANOVA test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26171.760	2	13085.880	742.724	.000
Within Groups	6078.478	345	17.619		
Total	32250.239	347			

As it was demonstrated in Table 10, the Sig value was 0.00 which was less than 0.05. Therefore, there was a significant difference between the mean scores in the pre-test and post-test of three levels. Tukey test is used to determine these difference and the results are presented in Table 11.

Table 11. The results of Tukey test

					95% Confidence Interval	
(I) Variable	(J) Variable	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
elementary	intermediate	-13.68913*	.53419	.000	-14.9466	-12.4317
	advance	-21.60034*	.57278	.000	-22.9486	-20.2521
intermediate	elementary	13.68913*	.53419	.000	12.4317	14.9466
	advance	-7.91121*	.55647	.000	-9.2211	-6.6013
advance	elementary	21.60034*	.57278	.000	20.2521	22.9486
	intermediate	7.91121*	.55647	.000	6.6013	9.2211

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

As it was demonstrated in Table 11, the Sig value was less than 0.05. Therefore, metacognitive strategy training improved Iranian advanced EFL learners' listening performance more than Iranian intermediate and elementary EFL learners' listening performance and metacognitive strategy training improved Iranian intermediate EFL learners' listening performance more than elementary EFL learners' listening performance. The mean difference between the elementary and the intermediate levels was 689.13, between elementary and advanced levels was of -60 / -21, and between intermediate and advanced levels was 7.911. So the results showed that metacognitive strategy training improved Iranian advance EFL learners' listening performance more than both intermediate and elementary EFL learners' listening performance.

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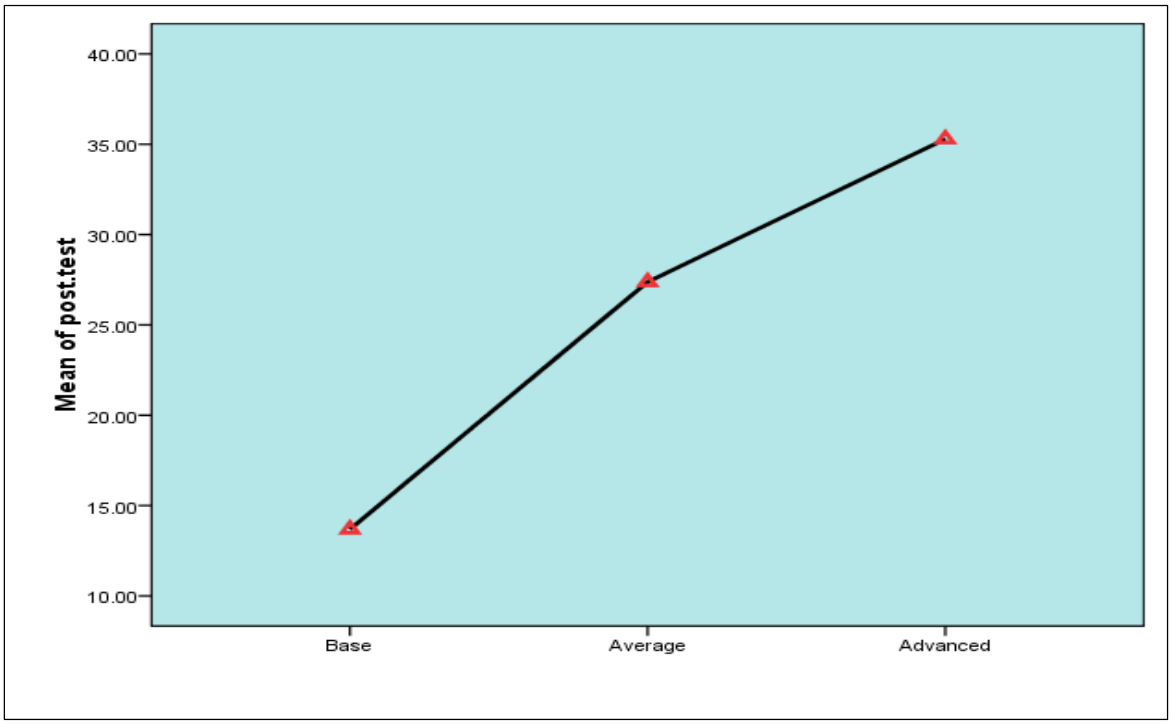


Diagram 3. Comparison of the means between the three levels for improvement of listening performance

5. Discussion

The research question of this investigation was: What are the similarities and differences between the effects of metacognitive strategy training across the three elementary, intermediate and advanced proficiency levels? In the present investigation, students in elementary, intermediate, and advanced (A2, B2, & C2) experimental groups received the metacognitive strategy instruction and how to use this technique in listening. Students demonstrated gains on all measures from pre-test to post-test and all students demonstrated improvements; which was the overarching goal of this study. The overall findings determined that there are significant differences between students' performance for condition on the pre- and post-tests and the students of experimental group C2 showed more improvement in listening performance than students in experimental group B2 and students of experimental group B2 showed more improvement in listening performance than students in experimental group A2, therefore these results showed the effectiveness of metacognitive strategy instruction in advanced level.

First, regarding similarities, it should be mentioned that metacognitive strategy training improved experimental group learners' listening performance in the three elementary, intermediate, and advanced proficiency levels. Regarding differences, it can be said that metacognitive strategy training was more effective on intermediate level learners' listening performance than that of elementary and advanced ones, the difference of experimental groups' pre-test and post-test means in intermediate proficiency level was more than that in the elementary and advanced proficiency levels. Other studies have focused on what proficient and successful language learners do while listening, with regard to the type of strategies they use, and how and under what conditions they use those strategies. The findings of these studies support the fact that proficient language learners take conscious steps to understand what they are doing by using a wider range of strategies than less proficient learners do.

The results of the current study replicated results from the experimental study of Mevarech and Fridkin (2006). They investigated metacognition training in mathematics class that can improve the metacognitive awareness of the students and their mathematic knowledge, performance and the results show that metacognitive awareness is positively correlated with the academic performance. Likewise, the experimental design of Rezvan, Ahmadi, and Abedi (2006) also demonstrated that the rise of metacognition can improve the students' academic performance, especially for the university students and the results demonstrated that the use of metacognitive strategies had a significant effect on the weaker learners. The results of the present study are also consistent with some previous research in Hong Kong like

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Downing, Chan, Lam, and Downing (2009). Downing's study was performed in the City University of Hong Kong on 300 participants. Although he used LASSI instead of MAI, he mentioned that it was a good instrument to measure metacognition. He measured three times for the two variables in 2005, 2007, and 2009. The results showed that students who improve significantly in academic performance are those who also grow significantly in metacognition.

It should be mentioned that the results of the present study are in contrast with the findings of Maleki (2005) who investigated the effect of cognitive and the metacognitive strategies on improvement of different school subjects such as English, but failed to find significant difference in the effect of metacognitive strategy training on learning English. He found that cognitive strategies were useful in learning physics and metacognitive strategies were only useful in social lessons but neither cognitive strategies nor metacognitive strategies were found to be useful in learning English (Maleki, 2005 as cited in Rahimi et al., 2012).

Overall, the results of this research demonstrated the effectiveness of metacognitive strategy instruction in advanced level and it was a helpful method for differentiating instruction. The practical significance of this research question was to use metacognitive strategy training as a way to improve Iranian advanced EFL learners' listening performance more than students in intermediate experimental group B2 and students of experimental group B2 showed more improvement in listening performance than students in elementary experimental group A2, therefore these results showed the effectiveness of metacognitive strategy instruction in advanced level in the third level of high school and also it can be used for different levels in different academic places.

6. Conclusion

Based on the results achieved from the research question, there are significant and meaningful differences between students' performance for condition on the pre- and post-tests and the students of experimental Advanced group (C2) showed more improvement in listening performance than students in experimental Intermediate and Elementary groups (B2 and A2), and students of Intermediate experimental group (B2) showed more improvement in listening performance than students in experimental Elementary group (A2), therefore these results showed the effectiveness of metacognitive strategy instruction in advanced level. The findings of this study provided empirical evidence for replacing the method of exposing EFL learners just to listening texts in listening classes by an approach in which metacognitive strategies are applied in listening processes. It was proved that metacognitive strategy training is so effective on listening performance that it should be incorporated in course books, lessons, and curricula. When using metacognition training, the role of the teacher was that of a facilitator or coach. This entails that the teacher sets the environment for learning to happen, by setting appropriate tasks, being there for students to coach and provide feedback on accomplished tasks, and allowing for repeated exposure to the text when necessary. That is fairly the task of the teacher and the rest is left to the student. Hence, in this approach, the focus shifts from the teacher to the learner which makes the classroom more learner-centered.

The present study shows that G.P.A. (Grade Point Average) is positively related to metacognitive awareness, so it is reasonable to believe that helping students develop their metacognition may help increase students' G.P.A. Metacognitive skills help learners become aware of their own thinking, and let them know whether they have understood the targeted learning materials. With training, learners who find that they have not yet understood will try to use different strategies to carry out the learning processes again until they are aware that they have learnt the materials successfully. In practice, it has recommended that learners of different levels should be taught different strategies. For instance, in the teaching of a foreign language, when new learners are taught how to use vocabulary words, the strategies of elaboration and rehearsal should be useful to help them memorize the newly learnt materials, so deeper processes needed for better recalling. For advanced learners, the focus may change to the use of collocation, proofreading, and the analysis of first language errors, so shallow processing focused on superficial aspects of information. They may need to use the strategies of evaluation and debugging, which will help them develop their ability in academic autonomy. Therefore, learners should be taught the strategies that fit their learning needs. On the other hand, how to evaluate whether the students have acquired and applied the metacognitive skills is another point. As mentioned before in other researches about metacognition, when a leaner can use a strategy automatically, it becomes his /her skill.

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