The Effects of Metacognitive Strategy Training on the Listening Comprehension and Self-Regulation of EFL Learners

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Abstract

This study aims to highlight the key roles played by metacognitive strategies training in the development of listening comprehension skill and self-regulation strategies of EFL learners. The participants of this study ($N = 60$) were female Iranian students assigned to two groups of experimental and control in Kish English Language Institute. Learners in the experimental group received 6-week instruction on the listening metacognitive strategies, while those in the control group received no strategy instruction. Four instruments were used in this study: a pretest of listening comprehension, Metacognitive Awareness Listening Questionnaire (MALQ), Academic Self-Regulated Learning Scale (A-SRL-S), and a posttest on listening comprehension. The analysis of the data revealed that metacognitive listening strategies training improved the listening performance of the learners in the experimental group compared to those in the control group. It also showed that there was a statistically significant difference between the two groups in the use of problem-solving, planning-evaluation, mental translation, and personal knowledge strategies. The results also showed that learning metacognitive strategies helped language learners to regulate their use of self-evaluation, organizing, goal-setting, seeking assistance, environmental structuring, and responsibility strategies. Additionally, regression analyses demonstrated that self-regulation strategies accounted for 37% of variance in the EFL learners' listening comprehension, while metacognitive listening strategies accounted for 6 % of the variance. The findings of this study suggested that (a) listening metacognitive strategies training can have benefits on listening skill development, increase use of self-regulatory and metacognitive strategies, (b) learners who used more metacognitive strategies revealed a high level of self-regulation strategies use.

Keywords: listening comprehension, metacognition, metacognitive listening strategies, self-regulation strategies

Introduction

Listening, as Rost (2001) and Vandergrift (2007) state, is an important language skill to develop in terms of second language acquisition. Rost argues that "a key difference between more successful and less successful acquirers relates in large part to their ability to use listening as a means of acquisition" (p. 94). Listeners can use a variety of mental processes to give meaning to the information they listen to. These mental processes that listeners use to understand spoken English can be broadly described as listening comprehension strategies. As indicated by Cohen (2000), many researchers in the field of second and foreign language listening agree on the idea that listeners often do not effectively handle listening tasks utilizing these strategies. There seems to be a common feeling among EFL listening researchers that listening should be

approached as a skill requiring strategy use, and teaching students how to use these strategies leads to improvement in their listening ability.

Although in recent years, there has been growing interest in the examination of the relationship between metacognitive listening strategies instruction and other factors such as learning style preferences (e.g., ShiraniBidabadi & Yamat, 2010), motivation (e.g., Sutudenama & Taghipur, 2010; Vandergrift, 2005), learning conception and learning English (Salehi & Farzad, 2003), there is still no study investigating the relation between listening metacognitive strategies training and self-regulation in the academic domain of listening. It is thus worthwhile to conduct studies to gain more insights in this regard. It was assumed that there could be a relation between students' metacognitive strategies awareness and the use of self-regulation strategies. Therefore, this study intended to highlight the key roles played by metacognitive strategies in the development of listening comprehension skill and self-regulation strategies. In other words, it is intended to make learners metacognitively aware of the self-regulatory strategies they employ in performing listening tasks. This study attempted to answer the following research questions:

Q1. Is there any significant difference between the experimental and control groups in terms of metacognitive listening strategy use?

Q2. Is there any significant difference between those who received metacognitive strategies training and those who did not in the use of self-regulatory strategies?

Q3. Which is the best predictor of listening comprehension: metacognitive listening strategies or self-regulation strategies?

Review Literature

Metacognitive Knowledge

Metacognition, as Nelson (1996) suggests, is a construct that is concerned with thinking about one's thinking or the human ability to be conscious of one's mental processes. Active monitoring, consequent regulation, and orchestration of these processes to accomplish a goal are the essential components of metacognition (Flavel as cited in Goh, 2008). Flavell (as cited in Goh, 2008) argues for the positive impact of metacognition on learning. He notes that metacognitive knowledge can direct learners to select, evaluate, revise, and abandon cognitive tasks, goals, and strategies in light of their relationships with one another and with the learners' own abilities and interests.

Metacognitive knowledge, as Wenden (1998) argues, influences the self-regulation of learning in planning, monitoring, and evaluating skills, and these skills can include self-directed language learning. In other words, metacognitive knowledge informs planning decisions taken at the outset of learning and the monitoring processes that regulate the completion of a learning task (e.g., self-observation, assessment of problems and progress, and decisions to remediate); it also provides the criteria for evaluation made once a learning task is undertaken. It has also been found that high degrees of metacognitive knowledge enable learners to be successful at processing and storing new information, finding the best ways to practice and reinforce what they have learned (Vandergrift et al., 2006) and playing a central role in enhancing thinking and comprehension (Costa, 2001; Sternberg, 1998; Wenden, 1998).

Metacognitive strategies, on the other hand, are strategies for monitoring and guiding cognitive strategies containing planning, control, monitoring, and self-regulation (Weinstein & Hume as cited in Pintrich, 1999). According to Oxford (2002), the basic metacognitive strategies are connecting new information to the old one, selecting deliberate thinking strategies, planning, monitoring, and evaluating thinking processes. As Ridley et al. (1992) argue, these strategies can

help learners regulate and manage learning activities such as taking conscious control of learning, planning and selecting strategies, monitoring the process of learning, correcting errors, analyzing the effectiveness of learning strategies, and modifying learning behaviors and strategies when necessary.

Metacognitive strategies, as Anderson (2003) suggests, play more central role than other learning strategies since once a learner understands how to regulate his/her own learning through the use of strategies, language acquisition should proceed at a faster rate. By the same token, strategic learners have metacognitive knowledge about their own thinking and learning approaches, a good understanding of what a task involves, and the ability to employ the strategies that best meet both the task demands and their own learning strengths.

Metacognitive Listening Strategies

It is believed that listeners who could employ various listening strategies flexibly were more successful in making sense of spoken texts, while listeners who did not make use of adequate listening strategies appeared to focus only on the text or word-for-word decoding (Bacan, 1992; Murphy, 1985; Vandergrift, 1996). Mendelsohn (1995) argues that the use of listening strategies appears to be considered as a significant factor in determining whether a learner is a skillful listener or not.

Metacognitive awareness of listening, as Vandergrift et al. (2006) define, is learners' cognitive appraisal or the metacognitive knowledge of their perceptions about themselves, their understanding of listening requirements, their cognitive purposes, and their approach to the task and their strategies. These strategies include five types of strategies (i.e., problem-solving, planning and evaluation, mental translation, person knowledge, and directed attention).

According to Richards (1990), problem-solving consists of a group of strategies listeners employ to make inferences and to monitor these inferences. It is argued that planning and evaluation strategies are those strategies that help learners to be prepared for listening and to evaluate the results of their listening endeavors. Mental translation strategies are those strategies that listeners are required to avoid if they intend to become proficient listeners (Vandergrift, 2003). Person knowledge strategies, as pointed out by Sparks and Ganschow (2001), involve listeners' perceptions regarding the difficulty offered by L2 listening and their self-efficacy in L2 listening, such as assessing the perceived difficulty of listening and learners' linguistic confidence in L2 listening. Directed attention includes strategies that listeners employ to concentrate and to stay on tasks such as getting back on track when losing concentration or focusing harder when having difficulty understanding (Rost, 2002).

Stressing the role of metacognition in learning, Vandergrift (1999) notes that "the few studies carried out in listening strategy instruction suggest that students can indeed be instructed in strategy use to enhance their performance on listening tasks" (p. 170). He further argues that instruction in strategies can help students capitalize on the language input they receive and improve their performance on listening tasks. Similarly, Goh (2008), listing the positive impacts of metacognitive strategy instruction on listening comprehension, argued that instruction in this regard enhances learners' confidence and makes them less anxious in the listening process. Further, he notes that weak listeners benefit much from the training in this regard.

Many studies have focused on the impact of metacognitive listening strategies instruction on L2 learner's listening comprehension (e.g., Mareschal, 2002; O'Malley & Chamot, 1990; Rahimi & Katal, 2011; ShiraniBidabadi & Yamat, 2010; Sutudenama & Taghipur, 2010; Vandergrift, 1997, 2003, 2005). For instance, O'Malley and Chamot (1990) proved the effectiveness of metacognitive strategy instruction on L2 listening performance. In their study,

the intermediate high school ESL learners received instruction on a metacognitive, a cognitive, and a socio-affective strategy. A comparison was made between the performances on a posttest of listening with two other groups: the first group received only instruction on a cognitive and a socio-affective strategy, the second one was a control group receiving no strategy instruction. Results of the study revealed that in each daily test, the experimental group performed better than the control group, and that the group receiving instruction on metacognitive strategies had a better performance compared to the one received instruction on cognitive strategies on three of the four tests.

In another study, Rahimi and Katal (2011) distributed Metacognitive Awareness Listening Questionnaire among university students of different majors in order to investigate the level of Iranian university students' metacognitive listening strategies awareness in learning English. The results of the study showed that more than 60% of the participants were fully or considerably aware of their metacognitive listening strategies. It was also found that girls and boys were not different with regard to their general metacognitive awareness of listening strategies. However, girls' awareness in directed attention was significantly higher than boys' awareness. Further, English students were found to be more aware of their problem solving and planning and evaluation strategies, and non-English majors were found to be more aware of their mental translation strategies.

Self-Regulation Strategies

As Boekaerts and Cascallar (2006) argue, self-regulated learning has become a key construct in education, and therefore, a variety of studies have been conducted on self-regulation in recent years (e.g., Aksan, 2009; Berger & Karabenick, 2010; Boekaerts & Cascallar, 2006; Breuer & Eugestre, 2006; Cleary & Zimmerman, 2004; Corno, 1989; Kitsantas & Zimmerman, 2006; Liew & Mctigue, 2008; Ning & Downing, 2010; Perry et al, 2008; Pintrich, 2000; Pintrich & Schunk, 2002; Wigfield, 1994; Winne & Hadwin, 1998; Wolters, 1998; Zimmerman, 2000, 2001).

Self-regulation is viewed as ''an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment'' (Pintrich, 2000, p. 453). Self-regulation, according to Bandura (1986), is the process of influencing the external environment by involving in the activities of self-observation, self-judgment, and self-reaction. In addition, self-regulation is generally characterized as a construct in which monitoring and regulating one's learning occurs via the use of a number of cognitive and metacognitive strategies (Pintrich, 2004; Winne & Hadwin, 1998; Winne & Perry, 2000; Zimmerman, 2001). Self-regulated learning is also defined as the process whereby students activate and sustain cognitions and behaviors systematically oriented toward the attainment of their learning goals (Zimmerman, 1986).

For the construct of self-regulation, multiple conceptualizations are suggested by Boekaerts, Maes, and Karoly (2005). It is suggested that it can involve multicomponent, iterative, self-steering processes that target one's own cognitions, feelings, and actions as well as features of the environment for modulation in the service of one's own goals. For instance, most models of self-regulated learning incorporate aspects of both metacognition and self-regulation to shape its lens on learner monitoring. Similarly, Fox and Riconscente (2008) argue that "metacognition and self-regulation are parallel and intertwining constructs that are clearly distinct yet mutually entailed both developmentally and in their functions in human thought and behavior. Neither subsumes nor subordinates the other" (p. 386). Fox and Riconscente further point out that

metacognition and self-regulation are broadly conceptualized "within the broad context of all activities for humans of all ages and points of development,", whereas "self-regulated learning is, by most definitions, limited to students in academic contexts" (p. 374). Dinsmore et al. (2008) located the core meaning of metacognition as a focus on the individual's cognition, self-regulation as a focus on behavior that is the result of individual/environment interaction and self-regulated learning as a fusion of these former two.

Metacognitive and self-regulatory processes, as Kaplan (2008) suggests, need to be clearly linked with methods designed to develop them; however, in many studies, measures of metacognition, self-regulation, and self-regulated learning were not linked with measures of academic performances (Schunk, 2008). Therefore, this study aimed to investigate the effect of metacognitive listening strategies instruction on EFL learners' listening performance and self-regulation strategies.

Method

Participants

This study was conducted with 60 female Iranian students majoring in different fields of study in Kish English Language Institute. They were chosen from four elementary language classes. They were all adult learners at the elementary level ranging in age from 18 to 28. Twenty-nine learners were assigned to the control group and thirty-one were assigned to the experimental group.

Materials and Instruments

Chamot and O'Malley's (1994) Cognitive Academic Language Learning Approach (CALLA) Lesson plan, a checklist prepared by National Capital Language Resource Center (NCLRC), a performance checklist for listening, and *Basic Tactics for Listening* were the materials used in this study.

In this study, the CALLA was used for the purpose of metacognitive strategy training. This model has been proposed by Chamot and O'Malley (1994) and consists of five instruction components. In *preparation* part, the teacher makes the students ready to learn strategies by activating their background knowledge about the topic and the use of specific strategies, such as establishing goals, determining the purpose of a language task, overviewing and linking the task with already known material. In the second phase, or the *presentation* phase, the teacher teaches the new learning strategy and points out how and when to use it. In the third phase or *practice* phase, students practice using the strategy with regular class activities, such as asking questions and seeking practice opportunities. The fourth phase is *evaluation*; in this phase, students evaluate their use of the learning strategy and how well the strategy is working for them. In *expansion* phase, students extend the usefulness of the learning strategy by applying it to other listening activities.

A performance checklist for listening was used as a strategy training instrument. The translated version of the checklist was presented to learners in that the learners were at the basic level and was assumed to have difficulty comprehending the checklist in English. They were requested to fill in the checklist before and after each listening task in order to become familiar with various metacognitive strategies. The items in the checklist were discussed with students with reference to each listening task to enhance their metacognitive strategy awareness throughout the training and to help them use, identify, and develop learning strategies in a systematic way.

As learners were all at the high elementary level, the final six units of "*Basic Tactics for Listening*" by Richards (2010) were taught in the treatment phase.

Four instruments were used in this study. Before providing the treatment, in order to check the performance of both the experimental and control groups in listening comprehension, a pretest of listening comprehension was administered. It was taken from the *Interchange Placement and Evaluation Package* (2008). The pretest contained twelve items in the multiple choice format. The learners in the experimental group were then presented with six sessions of treatment concerning metacognitive strategy training. In each session, one category of metacognitive strategies was presented to the learners, and they were required to employ the new strategies in the listening task. The participants in the control group, on the other hand, were requested to answer the questions of the listening tasks during the six sessions without receiving any particular instruction on different metacognitive listening strategies. After the treatment stage, a posttest of listening comprehension was administered to both groups to check whether there was any significant difference between the performances of the two groups. The posttest of listening comprehension was adopted from *Interchange Placement and Evaluation Package* (2008) and contained twelve items in the multiple choice format.

Another instrument in this study was the Metacognitive Awareness Listening Questionnaire (MALQ) (Vandergrift et al., 2006). It was distributed among both the experimental and the control groups at the beginning and at the end of the study. The questionnaire consisted of 21 items, assessing language learners' awareness and the perceived use of listening strategies. Each item was rated on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree).

Another instrument of this study was Academic Self-regulated Learning Scale (A-SRL-S) which was administered to both groups at the beginning and at the end of the study. It was derived by Magno (2009) based on the model of Zimmerman and Martinez-Pons (1986, 1988) and consisted of 55 items divided into seven components: memory strategy, goal-setting, self-evaluation, seeking assistance, environmental structuring, responsibility, and organizing. The learners were asked only to consider the activities they performed in the listening classes while evaluating each of the items on a 5-point scale ranging from 1 "never" to 5 "always". In addition, the instruction to answer the items of the survey was changed to reflect the activities learners experienced in the listening comprehension classes.

Cronbach's alpha was used to estimate the consistency of participants' responses to the questionnaires. The results are presented in Table 1.

Table 1. *Reliability Coefficients of the Categories of Metacognitive Strategies and Self-regulation Strategies Scales*

Categories	At the beginning of the study	At the end of the study
1. Problem-solving	.683	.742
2. Planning-evaluation	.476	.690
3. Mental translation	.684	.700
4. Personal knowledge	.094	-.048
5. Directed attention	.266	.191
6. Memory strategies	.843	.783

7.Goal- setting	.758	.768
8.Self-evaluation	.820	.880
9.Seeking assistance	.668	.668
10. Environmental structuring	.710	.710
11. Responsibility	.858	.815
12. Organizing	.717	.743

Procedure

Before the treatment, the pretest of listening, the MALQ, and A-SRL-S were distributed among both the experimental and the control groups.

The learners in the experimental group were presented with the treatment which was metacognitive strategies training. In each session, they were familiarized with one category of metacognitive listening strategies. As this study aimed at determining the effects of the strategy instruction on EFL learners' performance, no metacognitive instruction was presented to the participants in the control group. They were only asked to listen to each question and answer any question related to the listening tasks.

The last six chapters of *Basic Tactics for Listening* by Richards (2010) were taught in both groups, and the learners were required to answer the related questions. The participants in the experimental group were also asked to fill in the performance checklist while answering the questions of the listening tasks.

After the treatment, in order to examine the effect of metacognitive strategy training on the learners' listening performance, the learners in both groups were given a posttest of listening comprehension. Additionally, the students in both groups were asked to complete the MALQ and A-SRL-S at the end of the research.

Data analysis

In order to answer the research questions of the study, the following statistical analyses were employed. First, a mann-whitney u test was used to determine the differences between the listening comprehension posttest scores of the experimental and the control groups. Second, a wilcoxon signed rank test was performed to investigate whether training in metacognitive strategy leads to a better performance in the listening skill of the learners in the experimental group. Third, a mann-whitney u test was calculated to compare the strategy use by the experimental and the control groups. Next, a mann-whitney u test was conducted to compare the performance of both groups in terms of self-regulation strategies. After that, spearman rank order correlation was used to examine the relationship between the categories of both scales, and finally, multiple regression was used to assess how well self-regulation strategies and metacognitive strategies were able to predict performance on listening comprehension test.

Results
Comparing Learners' Scores in the Pre- and Posttests of Listening Comprehension

Before investigating whether metacognitive listening strategies training led to a better performance in the listening skill of the learners, test of kolmogorov-smirnov was used to assess the normality of the distribution of the pretest and posttest scores for both experimental and control groups. The kolmogorov-smirnov statistic for both pre and posttests was significant ($p <$ .05), indicating that the distribution of scores in the pretest and posttest was not normal. Therefore, to compare learners' performance on the pre and posttests of listening comprehension, nonparametric statistical techniques were used. For instance, to find out the differences between the listening comprehension in the posttest scores of the experimental and control groups, a mann-whitney u test was used. The results are presented in Table 2.

Table 2. *Mann-Whitney U Test Comparing the Performance of the Two Groups in the Posttest*

Test	Groups	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Wilcoxon W	Z	p
Posttest of LC	Experimental	31	43.35	1344.00	51.00	486.00	-5.99	.000
	Control	29	16.76	486.00				

As Table 2 demonstrates, the mean rank in the posttest of the experimental group (43.35) was greater than that of the control group (16.76). The results of a mann-witney u test revealed a statistically significant difference in the listening comprehension of the learners in the experimental group ($Md = 5$, $n= 31$) and those in the control group ($Md = 2$, $n = 29$), $U = 51.000$, $z = -5.997$, $p = .000$, $r = .77$. In order to investigate whether training in metacognitive strategy led to a better performance in the listening skill of the learners in the experimental group, a wilcoxon signed rank test was used to compare their pre and posttest scores. Table 3 shows the experimental group's scores on the pre and posttests of listening comprehension.

Table 3. *Wilcoxon Signed Rank Test Comparing Pre and Posttest Scores of the Experimental Group*

Test of Listening		Percentiles					
	N	25th	50th	(Median)	75th	Z	p
Pretest	31	2.00	2.00		4.00	-4.662	.000
Posttest	31	4.00	5.00		7.00		

As seen in Table 3, the median in the posttest was greater than that of pretest. It can be claimed that there was an improvement in the learners' listening comprehension from the pretest to posttest ($Md_{pre} = 2.00$, $Md_{post}= 5.00$).This was proved by the results of a wilcoxon signed rank test which showed a significant difference in the experimental learners' listening comprehension scores in the pre and posttests, $z = -4.662$, $p =.000$, with a large effect size (r = .59).

The Use of Categories of Metacognitive Listening Strategies by the Experimental and Control Groups

Before investigating whether there was any significant difference between the experimental and the control groups in the use of categories of metacognitive listening strategies, test of kolmogorov-smirnov was used to assess the normality of the distribution of the metacognitive strategies in the posttest. As the distribution of all categories of the survey was not normal, a mann-widney u test was run. The learners' performances in the use of categories of metacognitive strategies are presented in Table 4.

Table 4. *Comparing Strategy Use in the Posttest by the Experimental (N=31) and the Control (N=29) Groups*

Categories	Groups	Mean Rank	Sum of Ranks	*Mann-Whitney U*	*Wilcoxon W*	*Z*	*p*
Problem-solving	Experimental Control	35.31 25.36	1094.50 735.50	300.50	735.50	-2.21	*.027*
Planning-evaluation	Experimental Control	35.63 25.02	1104.50 725.50	290.50	725.50	-2.36	*.018*
Mental translation	Experimental Control	21.06 40.59	653.00 1177.00	157.00	653.00	-4.35	*.000*
Personal knowledge	Experimental Control	23.06 38.45	715.00 1115.00	219.00	715.00	-3.44	*.001*
Directed attention	Experimental Control	32.16 28.95	932.50 897.50	401.50	897.50	-.71	*.474*

As shown in Table 4, the use of metacognitive strategies differed in the experimental and the control groups. Planning evaluation strategies received the highest mean rank (35.63) in the experimental group, while mental translation strategies received the highest mean rank (40.59) in the control group. Mental translation category received the lowest mean rank in the experimental group (21.06), whereas planning-evaluation category received the lowest mean rank (25.02) in the control group. In addition, the comparison of the mean ranks showed that for problem solving, planning evaluation, and directed attention the experimental group used more metacognitive strategies, but surprisingly for personal knowledge and mental translation the mean rank of the control group was higher than that of the experimental group. In addition, it can be argued that there was a statistically significant difference between the two groups in the use of problem-solving, planning-evaluation, mental translation, and personal knowledge categories of metacognitive listening strategies, while there was not a statistically significant difference between the two groups in the use of directed attention strategies.

Learners' Use of Self-regulation Strategies

Before investigating whether there was any statistically significant difference in the use of categories of self-regulation survey, the normality tests for the categories in the posttest were assessed. The results showed that all categories demonstrated the violation of the assumption of normality ($p < .05$). Therefore, in order to compare the performance of both groups in terms of self-regulation strategies, mann-witney u test was conducted. The results are presented in Table 5.

Table 5. *Comparing the Performance of Both Groups on the Use of Self-regulatory Strategies*

Categories	Groups	Mean Rank	Sum of Ranks	*Mann -Whitney U*	*Wilcoxon W*	*Z*	*p*
Memory Strategies	Experimental	36.45	1130.00	265.00	700.00	-2.74	.006
	Control	24.14	700.00				
Goal-setting	Experimental	39.53	1225.50	169.50	604.50	-4.14	.000
	Control	20.84	604.50				
Self-evaluation	Experimental	37.90	1175.00	220.00	655.00	-3.40	.001
	Control	22.59	655.00				
Seeking assistance	Experimental	35.18	1090.50	304.50	739.50	-2.15	.031
	Control	25.50	739.50				
Environmental structuring	Experimental	34.98	1084.50	310.50	745.50	-2.07	.038
	Control	25.71	745.50				
Responsibility	Experimental	34.50	1069.50	325.50	760.50	-1.85	.064
	Control	26.22	760.50				
Organizing	Experimental	36.50	1131.50	263.50	698.50	-2.76	.006
	Control	24.09	698.50				

As demonstrated in Table 5, the mean rank of all strategies was greater for learners in the experimental group than those in the control group. Self-evaluation strategies received the highest mean rank in the experimental group (37.90), while the highest mean rank in the control group belonged to responsibility strategies. Responsibility strategies received the lowest mean rank for the experimental group (26.22), whereas self-evaluation strategies received the lowest mean rank in the control group. In addition, the categories of self-regulation survey for the experimental group can be hierarchically ranked as self-evaluation, organizing, goal-setting, seeking assistance, environmental structuring, and responsibility strategies.

Mann-witney u tests revealed statistically significant difference in the use of: (a) memory strategies in the experimental group ($Md = 3.85$, $n = 31$) and those in the control group ($Md = 3.07$, $n = 29$), $U =$, $z = -5.997$, $p = .000$, $r = .77$; (b) goal- setting strategies in the experimental

group ($Md = 3.80$, $n = 31$) and those in the control group ($Md = 3.00$, $n = 29$), $U = 265.00$, $z = -2.740$, $p = .006$, $r = .35$; (c) self-evaluation strategies in the experimental group ($Md = 4.25$, $n = 31$) and those in the control group ($Md = 3.75$, $n = 29$), $U = 220.000$, $z = -3.400$, $p = .001$, $r = .44$; (d) seeking assistance strategies in the experimental group ($Md = 4.00$, $n = 31$) and those in the control group ($Md = 3.75$, $n = 29$), $U = 304.500$, $z = -2.155$, $p = .031$, $r = .27$; (e) environmental structuring strategies in the experimental group ($Md = 4.20$, $n = 31$) and those in the control group ($Md = 3.60$, $n = 29$), $U = 310.00$, $z = -2.070$, $p = .038$, $r = .26$; (g) organizing strategies in the experimental group ($Md = 4.50$, $n = 31$) and those in the control group ($Md = 4.00$, $n = 29$), $U = 263.500$, $z = -2.764$, $p = .006$, $r = .35$. However, mann-witney u tests did not show any statistically significant difference in the use of responsibility strategies in the experimental group ($Md = 4.20$, $n = 31$) and those in the control group ($Md = 4.00$, $n = 29$), $U = 325.500$, $z = -1.853$, $p = .064$, $r = .23$.

Correlation among Categories of Metacognitive Listening Strategies and Self-regulation Strategies

In order to examine the relationship between the categories of both scales, preliminary analyses were first performed to assess the assumptions of normality, linearity, and homoscedasticity. As there was the violation of the assumption of normality ($p < .05$) for the categories of both scales, spearman rank order correlation was conducted. The results are presented in Table 6.

Table 6. *Correlation Analysis Between Categories of Self-regulation and Metacognitive Listening Strategies Survey*

Groups	Categories	1	2	3	4	5	6	7	8	9	10	11	12
Experimental	1. Problem-solving	-			.31	.38*	.04	-.09	.10	-.01	.09	.12	.04
.54*.34*					.19	.31	.16	-.26	.32	.01	.24	.15	.14
	2.Planning-evaluation	-	.17		.34	.39*	.23	.18	-.21	.08	.15	-.14	.16
	3. Mental translation	-			-	.25	.31	.02	.02	.15	.26	.19	.25
	4.Personal knowledge				-	.01	-.02	-.14	-.17	.10	-.16	-.01	
	5. Directed attention					-	.61*	.36*	.73*	.36*	.07	.66*	
	6. Memory strategies						-	.05	.63*	.14	-.23	.35*	
	7.Goal- setting							-		.54*	.07	.35*	
	8.Self-evaluation				.48*								
	9.Seeking assistance									-		.23	.21
	10. Environmental structuring				.60*								
	11. Responsibility										-	-.00	.61*
	12. Organizing											-	.02
													-
Control	1.Problem-solving	-			.01	.24	-.17	-.00	.16	.12	- .13	.49*	.35
.45*.47*					-.05	.28	- .31	-.08	.04	.04	.29	.14	.06
	2.Planning-evaluation	-	.51*		-.01	.33	- .15	.12	-.13	.22	.10	.12	.23
	3. Mental translation	-			-	.00	.04	.00	-.11	- .15	- .07	.09	.06
	4.Personal knowledge				-	.05	.00	-.19	-.12	.12	.02	.02	
	5. Directed attention					-	.58*	.04	.34	-.07	.09	.10	

6. Memory strategies		-	.17	.45*	.06	.25 .55*
7.Goal- setting			-	.48*	.07	.33 .56*
8.Self-evaluation				-	.14	.38*.52*
9.Seeking assistance					-	.21 .25
10. Environmental structuring						-
11. Responsibility	.62*					
12. Organizing						
	-					

*. *p* < .05 (2-tailed).

The results, as appeared in Table 6, showed that the correlation between the categories of metacognitive strategies for the experimental group was positive. However, it ranged from low to high. In addition, the highest significant correlation was between problem-solving strategies and planning-evaluation ones (r=54).

Considering categories of self-regulation questionnaire, the correlation coefficients among the categories ranged from low to high; memory strategies had highest correlation (r=.73) with seeking assistance. However, the correlation between metacognitive strategies ranged from low to intermediate, with the highest correlation (r=32) belonged to planning-evaluation and self-evaluation.

Considering control group, the correlation between categories of metacognitive strategies was both positive and negative and ranged from low to high. Additionally, the highest correlation belonged to planning-evaluation and mental translation strategies. The correlation between self-regulation strategies ranged from low to high, with responsibility strategies having the highest significant correlation (r=.62) with the organizing strategies.

The results implied that learners who used more metacognitive strategies revealed a high level of self-regulation strategies use.

The Contribution of Listening Metacgnitive Strategies and Self-regulation Strategies to Listening Comprehension

Multiple regression was used to assess how well self-regulation strategies and metacognitive strategies were able to predict performance on listening comprehension test. Preliminary analyses were initially conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Table 7 shows the results of multiple regression analysis.

Table 7.*Summary of Multiple Regression Analysis*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.372	.139	.108	1.963

As Table 7 demonstrates, metacognitive listening strategies and self-regulation strategies both contributed to the model explaining 13.9 per cent of the variance in the listening comprehension. To assess the statistical significant of this result, ANOVA was conducted. The result is shown in Table 8.

Table 8. *ANOVA Results*

Model		Sum of Squares	Df	Mean Square	F	P
1	Regression	35.358	2	17.679	4.589	.014
	Residual	219.575	57	3.852		
	Total	254.933	59			

As Table 8 demonstrates, the contribution of predictors (i.e., self-regulation and metacognitive listening strategies) was statistically significant, producing R^2 = .139, $F(2, 57)$ = 4.589, p = .014. To investigate the relative contribution of each of the scales to listening comprehension, the coefficients of each scale were calculated. Table 9 presents the results.

Table 9.*Coefficients of Contribution of Metacognitive and Self-regulation Strategies to Listening Comprehension*

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	p	95% Confidence Interval for B Lower Bound	Upper Bound	Correlations Zero-order r	Partial	Part	Collinearity Statistics Tolerance	VIF
1 Constant	-.95	2.93		-.32	.74	-6.82	4.92					
Metacognitive strategies	-.23	.50	-.05	-.46	.64	-1.24	.77	-.05	-.06	-.05	1.00	1.00
Self-regulation strategies	1.55	.51	.36	2.99	.00	.51	2.59	.36	.36	.36	1.00	1.00

As can be seen in Table 9, the contribution of metacognitive listening strategies to listening comprehension is 6 %, and the contribution of self-regulation strategies is 37 %. In addition, self-regulation strategies had a higher beta value (beta=36, p = .004) than metacognitive listening strategies (beta= -.05, p = .641), indicating that in this study self-regulation strategies were the significant contributor to the listening comprehension.

Discussion

The results showed that metacognitive listening strategies training improved the listening performance of the learners in the experimental group. This might be due to the fact that metacognitive listening strategy instruction raises students' consciousness and awareness and

helps them become critical and reflective of what and how they are taught and what and how they learn. The findings of this study are in line with those of Vandergrift (2003) and Goh and Yusnita (2006) who found that strategy instruction has a direct and positive influence on listening performance.

The results also revealed that there was an improvement in the experimental learners' listening comprehension from the pretest to posttest. This implies that the strategy instruction has been effective in helping the language learners in the experimental group perform better on listening comprehension test. This result is in line with that of Goh's (2008) study in which he argued that instruction in metacognitive listening strategies can make elementary listeners benefit from the training.

These results also implied that learning metacognitive strategies helped language learners to regulate their use of self-evaluation, organizing, goal-setting, seeking assistance, environmental structuring, and responsibility strategies effectively. It is also revealed that self-regulatory capabilities can be affected by metacognitive strategies instruction in that learners who received instruction on metacognitive strategies demonstrated more progress in the use of self-regulatory strategies compared to those who did not received any instruction.

The result of this study also showed that self-regulation strategies were the significant contributor to the listening comprehension. This result implied that learners with higher scores on self-regulation strategies were expected to have better performance on listening comprehension than those who used more metacognitive listening strategies.

Conclusions

The purpose of this study was to investigate the effects of listening metacognitive strategies training on the listening comprehension and self-regulation of the EFL learners. To this end, four instruments (i.e., a pretest of listening comprehension, MALQ, A-SRL-S, and a posttest of listening comprehension) were used. Learners who received metacognitive strategies instruction demonstrated higher achievement in listening and more progress in the use of metacognitive and self-regulation strategies. For instance, the results of mann-whitney u test showed a statistically significant difference between the two groups in the use of problem-solving, planning-evaluation, mental translation, and personal knowledge categories. The mean rank of all self-regulation strategies was greater for learners in the experimental group than those in the control group. In addition, self-regulation strategies were found to be the stronger predictor of listening comprehension than metacognitive listening strategies. Findings of this study proved that listening metacognitive strategies training can have benefits on listening skill development and increase use of self-regulatory and metacognitive strategies. In other words, the findings revealed that students' self-regulatory capabilities can be affected by metacognitive strategies instruction.

The findings of this study have major implications for the importance placed on metacognitive and self-regulation awareness as means of facilitating listening comprehension. For instance, instructors are suggested to gain insight into the significant role the teaching metacognitive strategies can play in facilitating the process of learners' listening comprehension. Instructors are suggested to help learners to self-regulate their learning and effort by improving their classroom practices. In addition, this study may also have implications for syllabus designers and materials developers in that being aware of the influence of metacognitive strategies instruction on L2 listening comprehension and self-regulation enables them to make more informed decisions as to what type of teaching materials to include in the syllabus in order to allow for greater self-regulation and metacognitive strategies awareness.

Clearly, we need more research aimed at improving students' self-regulatory skills and metacognitive strategies engaged in academic learning. This study was conducted at the institute level. Another research can be conducted at university or pre-university level to investigate whether metacognitive strategies training can help learners improve their listening comprehension. Still, another area awaiting further research is to investigate the relationship between proficiency level and metacognitive listening strategies awareness. Future researchers may be interested in finding out whether metacognitive listening strategies training affects high-achievers and low-achievers differently. In addition, the age and gender of the participants were not taken into account in this study; therefore, future research can take these variables into consideration. It is also recommended combining training on self-regulation with that of metacognitive strategies to investigate their effects on enhancing self-regulation and language achievement.

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