Journal of Interdisciplinary Research in English Language Communication
E-ISSN: 3060-7655 – https://irelc.znu.ac.ir – Published by University of Zanjan

Please cite this paper as follows:

Sadeghpour, E., & Najafi Sarem, S. (2025). The effect of metacognitive scaffolding strategies on listening anxiety and behavioral engagement among Iranian EFL learners. *Journal of Interdisciplinary Research in English Language Communication*, *1*(2), 52-65. https://doi.org/10.30470/IRELC.2025.2055656.1015

University of Zanjan

Research Paper

The Effect of Metacognitive Scaffolding Strategies on Listening Anxiety and Behavioral Engagement Among Iranian EFL Learners

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Received: 11/03/2025 Accepted: 11/06/2025

Abstract

This paper examined how metacognitive scaffolding techniques influenced EFL learners' listening-related anxiety and their active participation. From the original pool of 80 students, 60 male EFL learners from the ages of 16 to 25 were selected. The EFL learners were drawn from the Kish and Pardis language institutes from Hamadan, Iran. Initially, all participants achieved homogeneity via the Oxford Placement Test. Following this, the 60 EFL students were randomly allocated to either an experimental group or a control group, with the latter receiving conventional instruction lacking specific strategic teaching. To assess the intervention's impact, both the Foreign Language Listening Anxiety Scale and the Student Engagement Questionnaire were administered as pre- and post-tests. Subsequent analysis using independent samples t-tests revealed that participants in the experimental group experienced a statistically significant reduction in listening anxiety and a notable improvement in behavioral engagement when compared to their counterparts in the control group. Incorporating metacognitive scaffolding strategies can have implications for teacher's instruction, course designers', and material developers' practices, to help address learner's affective and behavioral issue while providing evidence for the importance of listening instruction in EFL contexts.

***Keywords*:** Metacognitive Scaffolding Strategies; Listening Anxiety; Behavioral Engagement; EFL Learners; Language Instruction.

1. Introduction

Listening is critical in everyday communication and is widely regarded as the most fundamental language skill (Oxford, 1992). As noted by Goh and Vandergrift (2021), listening remains the most challenging skill to acquire among the four language skills due to its implicit nature and the cognitive demands it places on learners. Similarly, Zhang and Shen (2023) highlight the complex cognitive and affective factors that make listening particularly difficult for EFL learners. Traditionally, listening has been treated as a passive skill that develops naturally through exposure rather than requiring explicit instruction (Field, 2008; Rost, 2011). This issue is particularly evident in Iran's educational context, where limited emphasis on auditory input has relegated listening to a peripheral role in foreign language instruction (Vandergrift, 2007; Zareian & Nimehchisalem, 2015).

The influence of anxiety further compounds the complexities involved in second-language (L2) auditory comprehension. Foreign language listening anxiety (FLLA), a specific form of apprehension associated with listening in a second language, significantly impairs learners' ability to process auditory input and strains working memory (Saito, 2023; Rajab, 2012). While foreign language anxiety has been extensively studied (Dewaele & MacIntyre, 2014). FLLA has received comparatively less attention, particularly concerning its effects on listening comprehension and learner engagement, despite recent studies investigating these relationships (Karakus Taysi, 2019; Melanlioglu, 2013; Golchi, 2012; Dalman, 2016). While earlier investigations have emphasized the connection between anxiety and the employment of language learning strategies (e.g., Liu, 2016; Chen et al., 2014), more contemporary research has started to elucidate the particular contribution of metacognitive strategies in alleviating L2 listening anxiety (Movahed, 2014; Fathi,

Derakhshan, & Torabi; 2020; Öztürk, 2021). Nevertheless, further research is still needed to fully understand their effectiveness across diverse contexts.

Strategies classified as metacognitive require individuals to plan, oversee, and assess their mental operations which are essential tools for enhancing listening comprehension and fostering self-regulated learning (Anderson, 2002; Vandergrift, 2003). These strategies provide learners with a structured framework for navigating the challenges of L2 listening. However, existing research has primarily focused on their effects on listening performance, with limited attention to their impact on affective variables such as anxiety. Moreover, scaffolding techniques rooted in Vygotskian sociocultural theory, particularly metacognitive scaffolding, have shown promise in addressing learners' cognitive and affective challenges. Scaffolding involves providing learners temporary support to perform tasks beyond their current capabilities, gradually reducing assistance as their competence grows (Molenaar & Roda, 2008). However, research applying scaffolding to alleviate L2 listening anxiety is scarce, especially in contexts like Iran, where sociocultural approaches are underutilized (Beheshti & Ahmadi Safa, 2020).

Another critical but underexamined dimension in L2 instruction is behavioral engagement, which encompasses learners' active participation and sustained involvement in language tasks (Philp & Duchesne, 2016; Aubrey, 2022). Behavioral engagement denotes the extent to which students actively participate in their educational journey, demonstrating persistence, attention, effort, and participation in tasks (Kim, 2021; Fredricks et al., 2004). It is particularly relevant in listening tasks, where learners must remain focused and interactive to achieve meaningful outcomes. In the context of listening, behavioral engagement includes active listening, note-taking, responding to questions, and other behaviors that demonstrate attentiveness and involvement (Irgin, 2025; Zhang, 2021). Although studies have explored the relationship between engagement and language performance, few have examined how scaffolding strategies influence engagement alongside anxiety.

Given these gaps in the literature, this current investigation examines the influence of metacognitive scaffolding strategies on both listening anxiety and active participation among Iranian EFL learners. Through its focus on both cognitive and affective factors, this inquiry seeks to enhance the understanding of processes underpinning successful L2 listening pedagogy. Consequently, the subsequent research questions and their corresponding null hypotheses were posited:

Q1: Is there a statistically significant influence of metacognitive scaffolding strategies on EFL learners' foreign language listening anxiety?

Q2: Is there a statistically significant influence of metacognitive scaffolding strategies on EFL learners' behavioral engagement?

H01: Metacognitive scaffolding strategies exhibit no statistically significant effect on EFL learners' foreign language listening anxiety.

H02: Metacognitive scaffolding strategies exhibit no statistically significant effect on EFL learners' behavioral engagement.

2. Literature Review

2.1. Theoretical Background

Although listening is a primary skill to develop in second language (L2) acquisition (Flowerdew & Miller, 2010), it has received limited instructional treatment compared to similar language skills (Goh & Vandergrift, 2021). Earlier pedagogical models typically emphasized, either linguistic decoding (bottom-up) or schematic information processing (top-down), recent models have proposed instruction that is integrated and has metacognitive reconstruction (Hinkel, 2006; Goh & Vandergrift, 2021). Instead of understanding listening as a passive process, the literature has foregrounded listening as an active, regulated process that engages a variety of strategies. For these reasons, and with the plethora of research on strategic listening, few studies have actually researched the educational practice of using metacognitive scaffolding to reframe both cognitive processes and affective difficulties, especially listening anxiety, in EFL contexts.

Building on this foundation, metacognitive strategy instruction constitutes the chief teaching approach of listening in EFL situations. Vandergrift and Tafaghodtari (2010) contend that learners must receive explicit instruction on applying metacognitive strategies so that they can better manage the listening process. This implies that learners are

provided with strategy tools to plan before listening, monitor comprehension during listening, and evaluate the results after listening. Giving learners consciousness of their cognitive processes develops their autonomy and self-regulation and makes them more potential listeners (Vandergrift, 2003; Graham & Santos, 2015). In addition, SLA research has provided consistent evidence that metacognitive awareness differentiates good listeners from less good ones (Vandergrift et al., 2006; Goh, 2017). Learners who constantly reflect on and modify their strategies seem to fare much better because they can quickly adapt to the demands imposed by different listening tasks.

Foreign language listening anxiety and the ability to comprehend spoken language are thus tightly intertwined and highly influential in learner performance, perception, and behavior. With the more contemporary understanding of what auditory comprehension entails, it is seen as an active process having a cognitive structure. There is an assortment of cognitive operations involved, including processing auditory input, activating background knowledge, and determining meaning (Field, 2008). Byrnes (1984, as cited in Osada, 2004) goes on to describe listening comprehension as a "highly complex problem-solving activity" that allows for the simultaneous operation of numerous cognitive processes occurring "under constraint." Brown (2001) names eight processes involved in listening, one of which is to process raw speech and the others to identify basically different types of speech events, to evaluate the intent of the speaker, to put literal meaning on the speech being heard, and to select key details. Building upon such basic models, modern research has highlighted the significance of cognitive flexibility and strategic processing in efficient L2 listening. For example, Zhang and Shen (2023) show that L2 listeners who self-regulate and strategically listen attain better L2 comprehension and suffer less from anxiety. Goh and Vandergrift (2021) also discuss that good listening comprehension in an L2 would require the constant monitoring and adjusting of strategies based on ongoing comprehension, which strongly supports the development of metacognitive awareness as a vehicle for managing real-time listening challenges.

Given the dynamic nature of these processes, it is not surprising that learners often experience listening anxiety—a specific subset of foreign language anxiety (FLA). Recent studies such as Fathi et al. (2020) and Movahed (2014) have delved into the association among listening comprehension, anxiety, and instruction in metacognitive strategies., finding that strategy-based interventions significantly reduce anxiety and improve listening performance. Additionally, Xie and Li (2021) found that listening anxiety is particularly pronounced in low-proficiency learners, and strategies such as focused listening practice and task simplification can mitigate this anxiety. This research further underscores the critical role that both cognitive and affective factors play in successful listening comprehension in foreign language learning contexts. Defined as the apprehension learners feel during listening tasks in an L2 (MacIntyre & Gardner, 1994; Najafi Sarem et al., 2025), listening anxiety can stem from unclear speech, perceived task difficulty, and fear of failure (Elkhafaifi, 2005). Research has shown that listening anxiety can significantly hinder comprehension and negatively impact learners' performance (Nunan, 2003). For instance, Elkhafaifi (2005) identified a robust inverse relationship between anxiety experienced during listening and performance on tests, while Brunfaut and Revesz (2015) similarly reported that learners with lower anxiety demonstrated higher comprehension. However, other studies, such as Liu (2016), found no significant correlation, highlighting the need for further research to explore how listening anxiety interacts with strategy use and other variables across different learning contexts.

To mitigate challenges associated with listening comprehension and anxiety, scholars underscore the significance of scaffolding approaches rooted in Vygotsky's sociocultural theory (SCT). A key tenet of SCT is the zone of proximal development (ZPD), defined as the difference between a learner's autonomous capabilities and their potential with guidance (Vygotsky, 1978, as cited in Nunan, 2003). Scaffolding involves providing temporary support to learners as they work toward acquiring skills or knowledge, gradually reducing assistance as learners become more proficient (Wood et al., 1976, as cited in Ahmadi Safa & Motaghi, 2024). Donato (1994, as cited in Brown, 2007) further elaborates that scaffolded learning occurs through interaction, where the learner's knowledge is co-constructed and internalized. In listening instruction, scaffolding can be pre-listening activities, guided practice, and reflective tasks that help learners manage their cognitive processes more effectively (Molenaar et al., 2011).

Finally, fostering student academic engagement has been identified as critical in improving listening outcomes and overall language learning success. Academic engagement refers to learners' active involvement in learning, encompassing behavioral, emotional, and cognitive dimensions (Skinner et al., 2009). In EFL contexts, student engagement is particularly vital, as it correlates with effort, persistence, and successful language acquisition (Mercer, 2019; Khajavy, 2021). As Sang and Hiver (2021) note, learners engaged in both frequency and quality of participation are more likely to achieve their learning goals. Educators, therefore, must identify strategies that promote sustained

engagement, such as incorporating interactive activities, providing constructive feedback, and creating supportive learning environments.

2.2. Previous Studies

Even with the growing body of literature on listening strategy pedagogy in L2 and EFL environments (e.g., Goh, 2017; Graham, 2017; Ngo, 2019; Vandergrift & Tafaghodtari, 2010; Yeldham, 2016), empirical investigations into the effects of scaffolding metacognitive strategy instruction on affective and personal variables in L2 listening remain scarce. The next studies contribute some understanding of this area.

Dong et al. (2018) investigated how metacognitive awareness mediated the relationship among listening anxiety, test anxiety, and listening proficiency. This study (N=402 Chinese EFL learners) used structural equation modeling which showed metacognitive knowledge had a significant moderating effect on those relationships, demonstrating a benefit of metacognitive knowledge and its ability to dampen anxiety in terms of performance.

Fathi et al. (2020) conducted a quasi-experimental study with 52 university students, investigating the pedagogical impact of a listening strategy on Iranian EFL learners' listening comprehension, anxiety, and self-efficacy. Collectively, the instruction in listening strategies led to a significant enhancement in students' listening comprehension and a decrease in their listening anxiety; however, it did not significantly impact self-efficacy.

Ahmadi Safa and Motaghi (2021) compared cognitive and metacognitive scaffolding strategies in improving listening comprehension. Their study, involving 90 intermediate EFL learners, found that metacognitive scaffolding significantly outperformed cognitive scaffolding and traditional instruction, with participants expressing higher satisfaction with the metacognitive approach.

Similarly, Ahmadi Safa and Rozati (2017) evaluated the impact of scaffolding strategies provided by expert and equal-proficiency peers. Results indicated that expert-peer scaffolding was most effective, followed by equal-peer scaffolding, with both approaches outperforming independent learning.

Movahed (2014) and Rahimirad and Zare-ee (2015) presented findings concerning the influence of metacognitive strategy instruction on Iranian EFL learners. Movahed found that instruction resulted improvements in listening achievement, metacognitive awareness, and anxiety reduction; whereas Rahimirad and Zare-ee found improvements in self-efficacy with respect to listening after extensive strategy instruction.

Other studies, such as that of Mohamadpour et al. (2019), emphasised that models of strategy instruction (e.g., Vandergrift's Metacognitive Pedagogical Sequence) resulted in decreased student listening anxiety. Additionally, Golzadeh and Moiinvaziri (2017) reported an inverse relationship, indicating that greater metacognitive awareness and proficiency corresponded with reduced listening anxiety during performance. In less focused studies, Cross (2009) and Graham and Macaro (2008), while addressing a range of strategy instruction, showed that Instruction in listening strategies has generally led to improved listening comprehension, better listening performance, and reinforced self-efficacy beliefs across diverse language settings.

Beyond anxiety, behavioral engagement stands out as a crucial indicator of success in L2 learning. Behavioral engagement, defined as observable effort, attention and participation by learners in instructional tasks (Fredricks et al., 2004), is especially important in listening activities, which require learners' sustained attention and efforts to actively engage. Recent studies have persistently shown that students who are more behaviorally engaged perform better in language comprehension tasks. For example, Philp and Duchesne (2016) found that learners high in engagement demonstrated greater uptake, and retention, of language input during interactive tasks. Aubrey (2022) also reported a positive relationship between behavioral engagement with cognitive processing and L2 achievement in communicative tasks. Zhang (2023) demonstrated that task related engagement significantly predicted the students' performance on a listening test, among EFL university learners. In addition, Chero (2023) investigated the influence of metacognitive instruction on EFL learners' listening proficiency and their metacognitive awareness. The results suggest that this type of instruction not only enhances listening comprehension but also cultivates greater learner engagement by employing metacognitive strategies. This aligns well with the dual function of metacognitive scaffolding you're aiming to emphasize. An inquiry into the implications of metacognitive instruction alongside multimedia input on EFL learners' listening comprehension was carried out by Shamsi and Bozorgian (2024). Their findings highlight that such instruction not only improves comprehension but also fosters increased learner engagement through collaborative activities and the use of

metacognitive strategies. Collectively, these studies appear that behavioral engagement is instrumental in L2 listening and should be explicitly addressed when investigating the effects of strategic instruction and affective factors.

Despite the extensive research on listening comprehension and its associated challenges, gaps remain in exploring the interplay between listening anxiety, behavioral engagement, and the role of metacognitive scaffolding strategies in addressing these issues. While previous studies have primarily focused on the cognitive benefits of metacognitive strategy instruction, limited attention has been given to its affective impact, particularly on alleviating listening anxiety among Iranian EFL learners. Moreover, the potential application of Vygotskian sociocultural theory in mitigating listening anxiety remains underexplored. This research aims to fill these lacunae by exploring the success of metacognitive scaffolding techniques in mitigating listening anxiety and cultivating behavioral involvement within Iranian EFL learners.

3. Methodology

3.1. Participants

This study selected 60 males, aged 16-25, male intermediate EFL learners from a possible sample of 80 intermediate learners enrolled at language institutes at Kish and Pardis language institutes in Hamadan, Iran. All participants were Persian speakers.

The participants were first given the Oxford Placement Test (OPT) to make sure the selected sample was homogenous. 60 participants who were in one standard deviation from the mean of the OPT were selected out of 80 participants total. The 20 participants outside of one standard deviation were rejected due to their following test scores: significantly higher or lower than one standard deviation. 60 Intermediate EFL learners were randomly assigned to an experimental group (30 Intermediate EFL learners who learned metacognitive scaffolding strategies) and a control group (30 Intermediate EFL learners who learned in a more traditional manner).

3.2. Materials and Instruments

3.2.1. Oxford Placement Test (OPT)

The Oxford Placement Test (OPT) is a widely recognized tool for assessing English proficiency. It consists of two parts: Part A (40 items) includes five multiple-choice pictorial questions, 15 multiple-choice cloze items, and 20 grammatical multiple-choice questions. Part B (20 items) is divided into ten multiple-choice cloze items and ten vocabulary questions. The test was administered within a 50-minute timeframe to determine participants' language proficiency.

3.2.2. Foreign Language Listening Anxiety Scale (FLLAS)

The Foreign Language Listening Anxiety Scale (FLLAS), an instrument designed by Kim (2000), served as the primary measure to assess listening anxiety levels before and after the intervention. Adapted from Horwitz et al.'s (1986) FLA scale, this 33-item self-report questionnaire assesses three distinct dimensions of listening anxiety: namely, tension and worry (with 10 items), lack of confidence (7 items), and problems encountered (16 items). The scale demonstrated strong internal consistency with a coefficient of .93 in Kim's original study and a reliability coefficient of .88 in this study.

3.2.3. Student Engagement Questionnaire (SEQ)

The Student Engagement Questionnaire (SEQ) was conceptualized to measure behavioral engagement in the classroom. The SEQ was created by Kember and Leung (2009) and consists of 35 items with a Likert scale of five sub-questions. The SEQ measures four areas: Student Engagement in Schools, Motivational Beliefs, Social-Relatedness Contexts, and Student Outcomes; 13 domains, and 15 sub-domains. The questionnaire requires about 35 minutes to complete and has a reliability coefficient of 0.76.

3.2.4. Instructional Materials

Tactics for Listening (3rd Edition) by Richards (2011) and New Headway (Fifth Edition) by Soars and Soars (2013) were the instructional materials used in this study, and there was also a collection of animated cartoons, authentic

videos, and soundtracks. The instructional materials were selected to match the participants at the intermediate level and increase their listening comprehension.

3.4 Procedures

The research was implemented in three phases: baseline assessment, the intervention, and the follow-up assessment.

At baseline, the Oxford Placement Test (OPT) was administered among 80 learners to establish groups of homogeneity. After the OPT was administered, 60 learners were targeted based on their scores within one standard deviation of the mean, and were randomly assigned to the treatment group consisting of metacognitive scaffolding strategies or to the control group.

The first phase involved assessing the participants' baseline anxiety levels using the Foreign Language Listening Anxiety Scale (FLLAS), followed by the Student Engagement Questionnaire (SEQ) to evaluate their behavioral engagement. The experimental group was then exposed to a series of instructional sessions focusing on metacognitive scaffolding strategies. These sessions included content previewing, pronunciation rehearsal, and setting listening purposes, followed by strategies for selective listening, note-taking, and evaluating comprehension. In each session, learners engaged with listening tasks, such as categorization, comparison, and narrative completion, while practicing strategies such as listening for gist, taking notes on important content words, and using prior knowledge to check comprehension. A lesson plan based on Vandergrift's (2003) model was followed, comprising four phases: planning and predicting two stages of verification, and reflection. Learners were briefed on the lecture topic during the planning phase and asked to predict the content. In the verification stages, they validated their predictions, adjusted their understanding, and clarified any ambiguities through group discussions. The final stage focused on resolving remaining comprehension gaps, and in the reflection phase, learners reviewed and documented the strategies that had been most effective.

A conventional approach to listening instruction was employed with the control group. The listening material was played once, and learners were instructed to listen and repeat specific segments. Afterward, they answered related questions. This method was applied consistently across all groups for eight one-hour sessions.

After the intervention, both groups again completed the FLLAS and SEQ assessments to evaluate any changes in their listening anxiety and behavioral engagement.

4. Results and Discussion

4.1. Results

The results section comprehensively analyzes the collected data to answer the research questions. It begins with descriptive statistics, summarizing the pre-test and post-test scores for the dependent variables. This is followed by the examination of statistical assumptions, including normality of data distribution (Kolmogorov-Smirnov and Shapiro-Wilk tests), homogeneity of error variances (Levene's test), and linearity of regression slopes (scatterplot analysis), to ensure the appropriateness of the chosen statistical tests. Finally, the section presents the primary analyses, which evaluate the impact of metacognitive scaffolding strategies on foreign language listening anxiety and behavioral engagement through independent-sample t-tests for hypothesis testing.

4.1.1. Descriptive Statistics

Descriptive statistics regarding participants' language listening anxiety and behavioral engagement are displayed in the accompanying tables, showing both pre-test and post-test scores.

Table 1. *Descriptive Statistics of the Experimental and Control Groups' Listening Anxiety*

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Experimental (anxiety pre-test)	30	53.00	78.00	64.26	7.96	.13	.42	-1.23	.83
Experimental (anxiety post-test)	30	33.00	58.00	44.26	7.96	.13	.42	-1.23	.83
Control (anxiety pre-test)	30	53.00	78.00	64.30	7.90	.12	.42	-1.18	.83
Control (anxiety post-test)	30	53.00	78.00	64.33	7.96	.16	.42	-1.23	.83
Valid N (listwise)	30								

Table 2. *Descriptive Statistics of the Groups' Behavioral Engagement*

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Experimental (engagement pre-test)	30	35.00	58.00	44.56	7.56	.25	.42	-1.25	.83
Experimental (engagement post-test)	30	65.00	88.00	74.56	7.56	.25	.42	-1.25	.83
Control (engagement pre-test)	30	35.00	58.00	44.53	7.52	.24	.42	-1.25	.83
Control (engagement post-test)	30	35.00	58.00	44.50	7.46	.22	.42	-1.28	.83
Valid N (listwise)	30								

4.1.2. Normality of Distribution of Test Scores

It is critical to check that the dependent variable scores have a normal distribution at all levels of the independent variable. The Kolmogorov-Smirnov and Shapiro-Wilk tests were carried out to test the assumption. The results drawn from the Kolmogorov-Smirnov and Shapiro-Wilk tests are provided in Table 4.3.

Table 3. *The Kolmogorov-Smirnov and Shapiro-Wilk tests Applied to Check Data Distribution Normality*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Experimental (anxiety pre-test)	.086	30	.200*	.942	30	.103
Experimental (anxiety post-test)	.086	30	.200*	.942	30	.103
Control (anxiety pre-test)	.089	30	.200*	.944	30	.119
Control (anxiety post-test)	.088	30	.200*	.938	30	.080
Experimental (engagement pre-test)	.108	30	.200*	.924	30	.065
Experimental (engagement post-test)	.108	30	.200*	.924	30	.065
Control (engagement pre-test)	.108	30	.200*	.925	30	.077
Control (engagement post-test)	.109	30	.200*	.925	30	.075

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Since the Kolmogorov-Smirnov and Shapiro-Wilk test statistics were not statistically significant, the assumption of normality was met.

Normality of the test scores was confirmed, as shown in Table 3 (P>.05).

4.1.3. Homogeneity of Error Variances

The homogeneity of variances was assessed using Levene's statistic, which evaluates the assumption that the dependent variable's error variance is equal across all groups.

Table 4. *Levene's Test of Equality of Error Variances*[a]

	Levene Statistic	df1	df2	Sig.
Anxiety (pre-test)	.009	1	58	.926
Anxiety (post-test)	.000	1	58	.997
Engagement (pre-test)	5.193	1	58	.076
Engagement (post-test)	.006	1	58	.941

As evidenced in Table 4 above, the results of Levene's tests showed non-significant differences for the anxiety pre-test (F = .00, Sig= 0.92, P > .05), the anxiety post-test (F =0.00 Sig= 0.99, P > .05), the behavioral engagement pre-test (F = 5.19, Sig= 0.07, P > .05) and the behavioral engagement post-test (F =0.00, Sig= 0.94, P > .05. Therefore, no statistically significant disparities in variances were found between the groups.

4.1.4. Linearity of Slope of Regression Lines

A scatterplot was generated to assess this assumption. Figure 1 clearly illustrates a linear relationship between the pre-test and post-test scores, thereby confirming the linearity assumption for the regression lines.

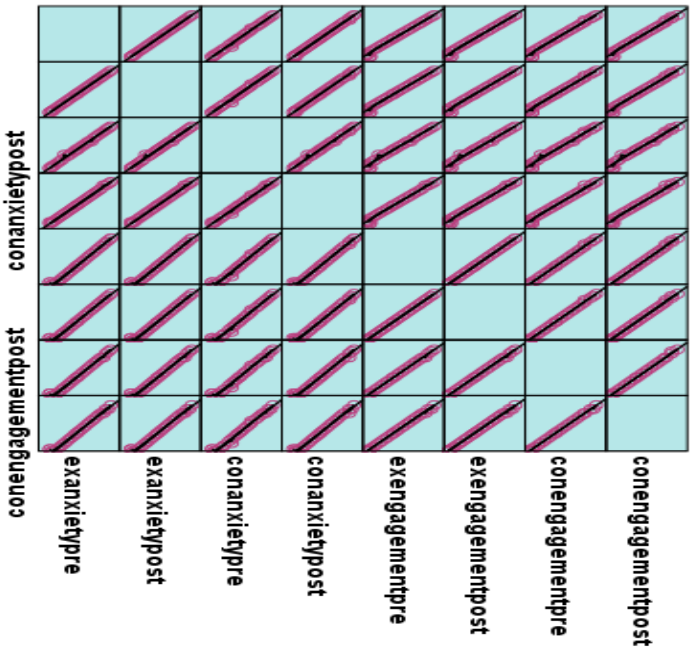

Figure 1. Linear Relationship among Regression Lines

4.2 Analyzing the Research Hypotheses

4.2.1. Testing the First Research Hypothesis

Our first research hypothesis posited that metacognitive scaffolding strategies would not significantly influence EFL learners' foreign language listening anxiety. With regard to listening anxiety, means and standard deviations are presented in the following two categories: the threshold mean (post-test results) and the comparison mean (initial mean). Even though a t-test is not required to simply report these numbers, in order to determine if the mean difference was statistically significant, the independent-sample t-test was carried out and the results can be found in Table 5. The experimental group had a mean of 44.26 (SD = 7.96) for post-test while the control group had a comparison mean of 64.33 (SD = 7.96) indicating that the experimental group had a lessening of listening anxiety.

With 95% confidence, Table 5 illustrates a statistically significant disparity in the post-test mean scores when comparing the experimental and control groups ($t = 9.75$, $p < 0.05$). This research puts the case for metacognitive scaffolding strategies contributing meaningfully to decreases in the instance EFL learners are adversely affected by foreign language listening anxiety. Thus, the first research hypothesis is rejected.

Table 5. Independent Samples T-Test between the Post-tests

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Anxiety (post-test)	.00	.99	-9.75	58	.000	-20.06	2.05	-24.18	-15.94
			-9.75	58.000	.000	-20.06	2.05	-24.18	-15.94

4.2.2. Testing the Second Research Hypothesis

Regarding the second research hypothesis, which posited that metacognitive scaffolding strategies would not exert a statistically significant influence on EFL learners' behavioral engagement, the descriptive statistics presented a considerable disparity in post-test scores. Specifically, the experimental group reported a mean of M=74.56 (SD=7.56), notably higher than the control group's mean of M=44.50 (SD=7.46). To ascertain whether this observed difference was statistically significant, an independent-samples t-test was subsequently performed, with its results delineated in Table 6 below.

Table 6. *Independent Samples T-Test Between the Post-Tests*

	Levene's Test		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Engagement (post-test)	.00	.94	15.48	58	.00	30.06	1.94	26.18	33.95
			15.48	57.99	.00	30.06	1.94	26.18	33.95

Table 6 reveals a statistically significant difference in the average post-test scores between experimental and control group status at the 95% level of confidence ($t = 15.48$, $p < 0.05$). This indicates that metacognitive scaffolding strategies have a strong effect on EFL learners' behavioural engagement, leading to the rejection of the second research hypothesis.

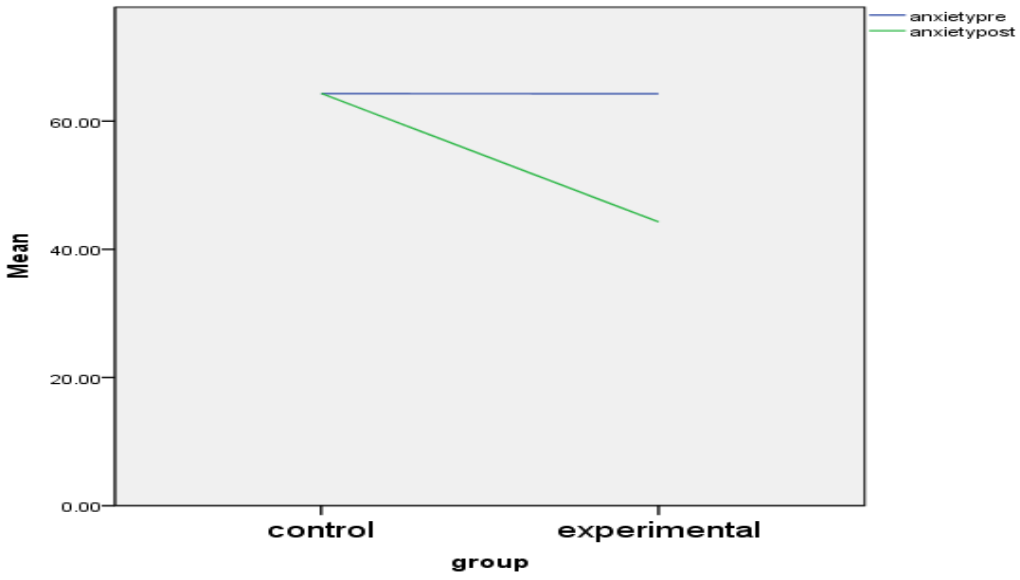

Figure 2. The Two Groups' Mean Scores in the Pre-Test and the Post-Test

Figure 2 indicates that the experimental group obtained lower scores in the post-test (listening anxiety) than the control group.

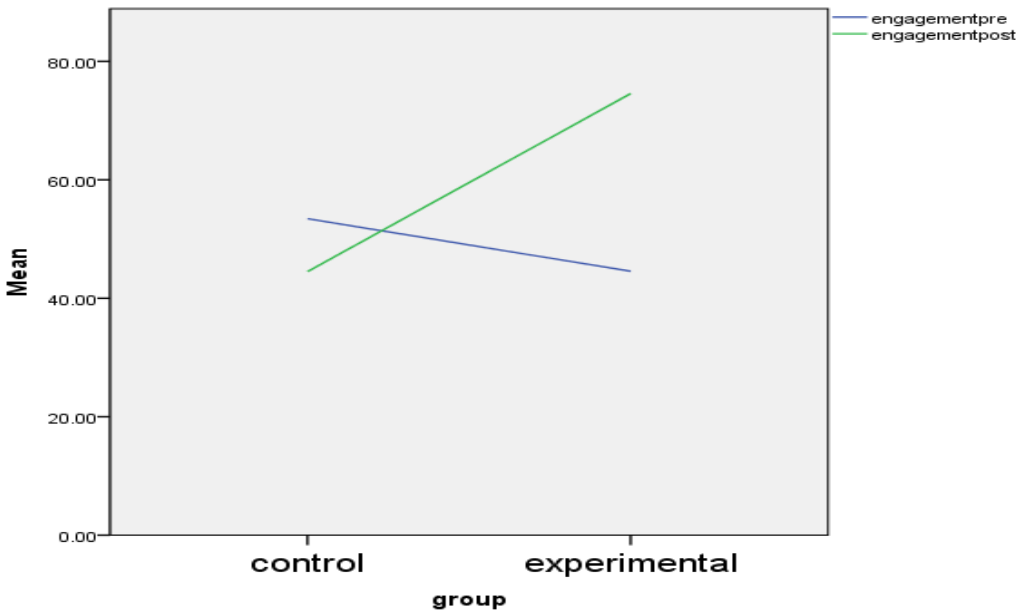

Figure 3. The Two Groups' Mean Scores in the Pre-Test and the Post-Test

5. Discussion

This study investigated the effect of metacognitive scaffolding strategies on Iranian EFL learners' listening anxiety and behavioral engagement. The findings contribute to the growing literature on strategy-based instruction in EFL contexts. The findings in the areas of the first research question revealed the experimental group performed statistically significantly better, confirming that metacognitive scaffolding strategies for listening can work toward reducing anxiety in the listening process. This is in harmony with earlier investigations that emphasized answers as to how metacognitive strategies can reduce L2 listening anxiety (Goh & Taib, 2006; Vandergrift, 2004; Mohamadpour & Tabatabaei, 2022). Likewise, Golzadeh and Moiinvaziri (2017) along with Xu and Huang (2018) have found a negative correlation between strategy use and listening anxiety; hence, anchoring the concept that proper employment of strategies can assist learners in alleviating the anxiety associated with L2 listening tasks. More recently, Chero (2023) and Shamsi and Bozorgian (2024) established that metacognitive instruction boosts listening comprehension while it simultaneously alleviates students' listening-related anxiety when involved in guided and collaborative strategy use. This, therefore, validates the conclusion that scaffolding can assist learners in managing the cognitive load of listening tasks regarding their emotional regulation. Conversely, according to one now taken, metacognitive strategies may reduce anxiety but with variations potentially attributed to learner proficiency levels and the complexity of listening tasks (Rahimi & Katal, 2012). The mentioned results call for further consideration of tailoring scaffolding techniques to learners' needs, as overreliance on these techniques without adequate practice may limit their long-term effectiveness.

However, some studies suggest that while metacognitive strategies help reduce anxiety, their effectiveness may vary based on learners' proficiency levels and the complexity of listening tasks (Rahimi & Katal, 2012). Öztürk (2021) further highlights that advanced learners benefit more from metacognitive strategies in complex listening tasks, whereas less proficient learners may struggle to apply these strategies effectively without adequate practice and guidance. Such findings indicate the necessity of tailoring scaffolding techniques to learners' needs, as over-reliance on these strategies without sufficient task-related support may limit their long-term effectiveness.

Moreover, Movahed (2014) emphasized the importance of differentiated scaffolding in language classrooms, recommending that tailored scaffolding strategies be employed based on learners' proficiency and the specific challenges they face in L2 listening comprehension. This approach ensures that strategy instruction remains effective and that students can apply it successfully to a wide range of listening tasks.

Concerning the second research question, the findings demonstrated that the experimental group exhibited significantly higher behavioral engagement than the control group. This observation corroborates the results of studies

highlighting the role of metacognitive strategies in enhancing learners' active participation and interaction during L2 tasks (Vandergrift & Goh, 2012; Wang & Li, 2020). By promoting consistent feedback and fostering closer student-teacher interactions, metacognitive scaffolding strategies appear to foster a more captivating and participatory learning atmosphere. This finding also parallels the results of studies by Tseng and Tsai (2010) and Zhang (2016), which emphasized the importance of strategy-based instruction in cultivating a supportive learning atmosphere that encourages student participation and reduces perceived teacher-student distance. However, some researchers, such as Dornyei (2001), have cautioned that while strategy-based instruction can enhance engagement, its effectiveness depends on factors like teacher expertise, the nature of the strategies employed, and learners' initial motivation levels.

6. Conclusion

In the realm of second language acquisition literature, listening is consistently acknowledged as an exceptionally challenging skill for learners to master (e.g., Kim, 2000; Kobayashi, 2018;), arguably more than writing, primarily due to their perceived lack of control and autonomy over the listening process (Graham, 2006). Consequently, it is not unexpected that listening can emerge as a significant source of anxiety among learners (Kim, 2000), which can subsequently lead to feelings of frustration (Liu, 2016) and diminished motivation (Graham, 2006), ultimately culminating in a decline in learners' self-efficacy (Nunan, 2003).

Considering the positive outcomes reported by this study regarding students' behavioral engagement and recognizing that an increased sense of control is believed to mitigate levels of listening anxiety (Graham, 2006), it is posited that the listening strategies employed in the present study may therefore yield advantageous outcomes for learners in similar EFL settings within Iran or comparable educational contexts in the region. The findings corroborate the hypothesis that strategy-based listening instruction through metacognitive scaffolding strategy instruction can alleviate learners' listening anxiety (Graham & Macaro, 2008). Consequently, the evidence suggests that metacognitive scaffolding strategies have facilitated EFL learners in attaining greater awareness of their cognitive processes and engaging in more structured and intentional listening activities. Moreover, such strategies have empowered learners to gradually exert control over their listening comprehension processes, lowering their listening anxiety.

Based on the research outcomes, it appears that the mitigation of EFL learners' listening anxiety can be effectively facilitated through participation in collaborative activities wherein a more knowledgeable peer consistently supports those with lesser knowledge. Nevertheless, in instances where all learners possess equivalent levels of listening comprehension ability, they can still provide mutual assistance and enhance their proficiency through interactive group work. This underscores the necessity for EFL educators to furnish their students with increased opportunities for interaction and to render scaffolded support to their peers.

The present study's findings have fruitful pedagogical implications for language teachers and material developers. This study underscores the efficacy of metacognitive listening strategies for enhancing learners' listening comprehension and reducing listening anxiety. By engaging learners in tasks that encourage the use of these strategies, the study demonstrates how scaffolding can empower learners to take control over their listening processes, leading to more intentional and effective learning. The results suggest that incorporating metacognitive strategies into listening instruction can be a powerful tool for improving language proficiency, particularly in EFL contexts where listening skills often receive limited attention. Such interactions may hold greater significance for certain learners. Educators aspiring to elicit this type of motivational opportunities should prioritize grounding the listening activities in localized, real-world topics.

Moreover, educators must expand their comprehension of strategy-based instruction to effectively equip their learners with the requisite strategies for various tasks within and beyond classroom settings. Therefore, educators must emphasize the methodologies of listening and actively involve learners in enhancing their listening comprehension through metacognitive instruction, thereby fostering their autonomy in overseeing and adjusting their learning. The outcomes of this research may also motivate language learners to employ more social and collaborative methods within the language acquisition framework and engage in cooperative learning, which necessitates the involvement of peers who afford opportunities for self-correction and the acquisition of strategic processes essential for mastering new and complex skills.

The findings yield empirical support for the concept that metacognitive instruction delivered through a meticulously structured intervention program can benefit learners and foster their listening proficiency development. The

insights derived from this study may offer valuable guidelines for educators and teacher trainers regarding promoting learners' metacognitive listening strategies through process-oriented approaches to listening. A pivotal strategy for enhancing learners' metacognitive awareness involves integrating the principles of process-based instruction into the design of EFL instructional materials and activities. This is particularly salient, given that most instructional materials and textbooks in EFL contexts inadequately address activities pertinent to learning strategies. Hence, it is imperative to advocate for fundamental reforms in the design of EFL syllabi and instructional resources. In pursuing this objective, educators will be afforded numerous opportunities to familiarize learners with language learning strategies, which can enhance their understanding of listening tasks and strategies, thereby facilitating the listening process. Consequently, curriculum developers and textbook authors need to incorporate and emphasize listening strategies and metacognitive scaffolding strategies within educational texts. Simultaneously, it's crucial to allot adequate time for each listening task, which underscores the significance of integrating listening strategies into classroom instruction.

Conflict of Interest

The authors have no conflicts of interest to declare.

Funding

Not applicable.

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