

Research paper

The Comparative Effect of Integrated Read-To-Listen Technique and Concept Mapping on Iranian EFL Learners' Listening Comprehension

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Nabilou, M. (2026). The Comparative Effect of Integrated Read-To-Listen Technique and Concept Mapping on Iranian EFL Learners' Listening Comprehension. *Journal of new advances in English Language Teaching and Applied Linguistics*, 8(1), 223-254.

Doi: 10.22034/Jeltal.2026.8.1.10

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Abstract

This quasi-experimental study investigated the comparative effectiveness of integrated read-to-listen technique and concept mapping on listening comprehension among 78 Iranian intermediate EFL learners (aged 16-22) from a private language institute in Qazvin, Iran. Drawing on Cognitive Load Theory and Input Processing Theory, participants were assigned to Integrated Read-to-Listen (n=26), Concept Mapping (n=26), and Control (n=26) groups. Over ten 45-minute sessions, experimental groups received strategy-based instruction, while the control group received conventional listening instruction. Data were collected through pretests, posttests, and delayed posttests (4 weeks later) using the PET listening section. Paired-samples and independent-samples t-tests with Bonferroni correction revealed that both experimental groups significantly outperformed the control group ($p < .001$, Cohen's $d = 1.12-1.85$), with the Integrated Read-to-Listen group demonstrating superior performance ($p = .002$, $d = 0.65$). Maintenance of gains on the delayed posttest suggests durable learning. These findings contribute to listening pedagogy research and have implications for EFL materials development and teacher training in contexts with limited authentic input. The findings suggest that providing learners with pre-listening reading support can reduce cognitive load and enhance listening comprehension more effectively than metacognitive strategy instruction alone. These results have implications for curriculum design in EFL contexts where learners have limited exposure to authentic spoken English.

Keywords: Cognitive Load Theory; Concept Mapping; Input Processing Theory; Integrated Read-to-Listen; Listening Comprehension

Received: 2026-01-06 **Revised** 2026-03-04 **Accepted** 2026-03-13

Introduction

Listening comprehension is widely recognized as the most frequently used language skill in communication, serving as the primary channel for comprehensive input in second language acquisition (Rost, 2016; Vandergrift & Goh, 2012). Individuals spend approximately 40-50% of their communication time listening, underscoring its centrality to successful interaction (Newton & Nation, 2009). Despite this critical role, listening has historically been treated as the "Cinderella skill" in foreign language pedagogy—neglected, tested rather than taught, and overshadowed by grammar, reading, and speaking (Vandergrift & Goh, 2012). This neglect is particularly pronounced in EFL contexts such as Iran, where curricula often prioritize grammar, vocabulary, and written expression over oral comprehension (Ghorbannejad, 2025; Rahimi & Ghasemi, 2018; Saeidi & Keshavarz, 2015; Tajeddin & Malmir, 2014; Ziahosseini & Salehi, 2008). As a result, learners may possess strong linguistic knowledge but struggle to understand native speakers, academic lectures, or everyday conversations in English (Dousti & Abolfathiasl, 2013).

Research on Iranian EFL learners has shown that they tend to be intrinsically motivated (Ziahosseini & Salehi, 2008), yet the educational system often emphasizes grammar and vocabulary over oral skills development, creating a gap between learners' motivation and the instructional focus. Tajeddin and Malmir (2014) observed that English is taught from the first grade of junior high school to the Ph.D. level in Iran, yet the quality and quantity of formal instruction often fails to develop communicative competence, highlighting the need for more effective listening pedagogy. The significance of listening comprehension in foreign language

learning cannot be overstated. Listening provides essential input for language acquisition, serving as a gateway to developing vocabulary, grammatical knowledge, and phonological awareness. In the Iranian EFL context, where learners have limited exposure to authentic spoken English outside the classroom, developing robust listening comprehension skills presents particular challenges. Recent research has demonstrated that listening comprehension is influenced by multiple correlates, including vocabulary knowledge, working memory capacity, metacognitive awareness, and affective factors such as anxiety and self-concept (Datingaling, 2025). These findings underscore the need for instructional approaches that address multiple dimensions of listening simultaneously.

Research consistently demonstrates that effective listening requires explicit instruction in metacognitive, cognitive, and socio-affective strategies (Vandergrift & Goh, 2012; Kurita, 2012), yet many classrooms continue to employ product-oriented approaches that test comprehension rather than teach listening processes. Traditional comprehension-based instruction—listening, answering multiple-choice questions, and checking answers—offers minimal guidance on the listening process, leading to learner anxiety, passive listening habits, and lack of confidence (Soodmand Afshar & Hamzavi, 2014). In response, recent scholarship has advocated for process-oriented approaches that empower learners as active agents of their own comprehension (Vandergrift & Goh, 2012).

The growing body of research on listening pedagogy has identified several instructional approaches that hold promise for enhancing listening comprehension. Two approaches that have garnered particular attention in recent years are the integrated read-to-listen technique and concept mapping learning strategy. The integrated read-to-listen approach draws on the established relationship between reading and listening comprehension as interpretative skills requiring

meaning construction (Badri et al., 2024). By engaging learners with written texts containing vocabulary, structures, and content related to subsequent listening passages, this technique activates prior knowledge and establishes cognitive frameworks that facilitate listening (Siegel, 2020). Concept mapping represents a metacognitive strategy that visually organizes knowledge structures, helping learners identify key ideas, establish hierarchical relationships, and create meaningful connections between new and existing knowledge (Han, 2025). In listening contexts, concept mapping can serve as a pre-listening activity that activates prior knowledge and organizes expectations (Salehi et al., 2013).

Recent meta-analyses have provided compelling evidence for the effectiveness of both approaches. Han (2025), analyzing 68 studies on concept mapping in L2 learning, found a large overall effect ($g = 1.047$), with cooperative concept mapping proving more effective than individual activities. Yuan and Tang (2025) demonstrated that guided concept mapping significantly reduced cognitive load and improved learning outcomes. Furthermore, Bozorgian et al. (2025) found that metacognitive intervention significantly improved listening comprehension and reduced cognitive load among advanced EFL learners. Similarly, a study on willing-to-listen L2 learners (Shokri et al., 2026) revealed significant gains in both listening comprehension and metacognitive awareness following metacognitive instruction, with participants reporting improved self-confidence and reduced anxiety.

The aim of the present study is to compare the effectiveness of integrated read-to-listen technique and concept mapping on Iranian EFL learners' listening comprehension, and to examine whether any gains are maintained over time through delayed posttest measures.

Literature Review

This section presents the theoretical and empirical foundations underlying the study. The theoretical background draws on three complementary frameworks—Cognitive Load Theory, Input Processing Theory, and the Systems Model of L2 listening comprehension—which together explain how listening comprehension can be facilitated through instructional interventions. The empirical section then reviews previous studies on reading-based listening interventions, concept mapping, and metacognitive instruction, establishing the research gap that this study addresses.

Theoretical Background

Three theoretical frameworks inform the present study. First, Cognitive Load Theory explains the cognitive demands of listening tasks and how instructional design can reduce mental effort. Second, Input Processing Theory describes how learners prioritize meaning over form when processing language. Third, the Systems Model of L2 listening comprehension integrates cognitive, metacognitive, and affective factors that collectively shape listening development. These frameworks collectively predict that pre-listening reading support—by reducing cognitive load and front-loading meaning processing—may be more effective than metacognitive strategy instruction alone.

Cognitive Load Theory

Cognitive Load Theory (CLT) provides the primary theoretical foundation for this study. According to CLT, working memory is limited in capacity and duration when processing novel information. When learners face complex listening tasks, the cognitive load imposed by processing

unfamiliar vocabulary, syntactic structures, and phonological features can overwhelm working memory, leading to comprehension breakdowns (Sweller et al., 2019).

Sweller et al. (2019) distinguished among three types of cognitive load: intrinsic load (determined by the complexity of the material), extraneous load (imposed by poor instructional design), and germane load (associated with the effort required for learning). Effective instructional design should reduce extraneous load and optimize germane load to facilitate learning within the constraints of working memory. The integrated read-to-listen approach may reduce cognitive load by pre-teaching vocabulary and content through reading, thereby lowering the processing demands of subsequent listening (Yuan & Tang, 2025). Similarly, concept mapping may reduce cognitive load by helping learners organize and structure incoming information, making it easier to process and integrate with existing knowledge structures.

Recent research has demonstrated that guided concept mapping significantly reduces cognitive load and improves learning outcomes (Yuan & Tang, 2025). Moreover, metacognitive intervention has been shown to reduce cognitive load during listening tasks, particularly when learners receive structured strategy instruction (Bozorgian et al., 2025). The present study builds on these findings by examining how two different instructional approaches—one providing cognitive support through reading, the other providing metacognitive support through visual organization—affect listening comprehension and long-term retention.

While Cognitive Load Theory explains how cognitive resources are allocated during listening, a complementary framework is needed to understand how learners process linguistic input itself. Input Processing Theory addresses this gap by explaining how learners prioritize meaning over form when processing language, and how this prioritization affects comprehension.

Input Processing Theory

Input Processing Theory (VanPatten, 2025) provides a complementary framework for understanding why pre-listening reading may facilitate comprehension. According to this theory, learners prioritize meaning over grammatical form when processing input, often overlooking formal features if they are not essential for comprehension. The Primacy of Meaning Principle suggests that learners allocate their attentional resources primarily to understanding meaning (VanPatten, 2025). When listening to unfamiliar content, learners' cognitive resources are heavily taxed by decoding meaning, leaving limited capacity for processing formal linguistic features.

By providing reading texts before listening, the integrated read-to-listen approach effectively "front-loads" the processing of meaning. Learners encounter vocabulary, content, and discourse structures in written form—where they can process at their own pace—before being required to process the same content through the more transient medium of speech. This reduces the processing burden during listening, allowing learners to focus more on meaning extraction and less on decoding unfamiliar vocabulary and content.

Furthermore, Schmidt's (2012) Noticing Hypothesis contends that attention is crucial for all L2 learning aspects, and learners must attend to target items to achieve noticing—a fundamental starting point of acquisition. The reading component in the integrated approach may enhance noticing by exposing learners to target vocabulary and structures before they encounter them in the listening passage, thereby increasing the likelihood that these features will be noticed during listening. This theoretical perspective aligns with recent empirical work demonstrating that input-based instruction can enhance form-meaning connections and reduce cognitive load (Badri et al., 2024).

Beyond cognitive and processing factors, recent theoretical work has emphasized the role of affective and metacognitive factors in listening comprehension. The Systems Model of L2 listening comprehension integrates these multiple dimensions, providing a holistic framework that complements both CLT and Input Processing Theory.

The Systems Model of L2 Listening Comprehension

The Systems Model of L2 listening comprehension, proposed by Mahdian Rad and Baleghizadeh (2025), provides a complementary framework for understanding the factors that influence listening development. This model posits that listening comprehension is determined by the interplay of cognitive, metacognitive, and affective factors. Cognitive factors include vocabulary knowledge, syntactic processing, and phonological awareness. Metacognitive factors encompass planning, monitoring, and evaluation strategies. Affective factors include motivation, self-efficacy, and anxiety.

The model emphasizes that effective listening instruction should address all three systems. The integrated read-to-listen approach may engage multiple systems simultaneously, providing cognitive support through vocabulary pre-teaching, metacognitive support through the activation of prior knowledge, and affective support through increased confidence and reduced anxiety. Concept mapping may also engage multiple systems by promoting metacognitive awareness and self-regulation, while providing cognitive support through visual organization of knowledge.

Despite the potential of the integrated read-to-listen approach to engage multiple systems simultaneously, the approach is not without limitations. Cognitively, the approach requires additional classroom time for reading activities, which may be constrained in many EFL contexts. It may not be equally effective for all learner proficiency levels, as learners with weaker reading

skills may not benefit from the reading component to the same extent as stronger readers (Siegel, 2020). Metacognitively, the effectiveness of the approach depends heavily on the quality and relevance of the reading texts selected; poorly matched texts may fail to activate appropriate prior knowledge. Affectively, some learners may prefer more direct listening practice without pre-reading support, and the approach may not suit all learning styles. These limitations suggest that while the integrated read-to-listen approach is promising, its implementation requires careful consideration of learner characteristics and contextual factors.

Taken together, these three theoretical frameworks provide a cohesive foundation for predicting differential effectiveness between the two instructional approaches. Cognitive Load Theory suggests that pre-listening reading reduces extraneous cognitive load by familiarizing learners with vocabulary and content before listening. Input Processing Theory indicates that this pre-reading 'front-loads' meaning processing, allowing learners to allocate more attentional resources to form-meaning connections during listening. The Systems Model adds that addressing multiple systems—cognitive (vocabulary pre-teaching), metacognitive (activation of prior knowledge), and affective (reduced anxiety)—should yield superior outcomes compared to interventions targeting only one system. Thus, these frameworks collectively predict that the integrated read-to-listen approach, which provides both cognitive and metacognitive support, should outperform concept mapping, which primarily provides metacognitive support.

Recent research has confirmed the utility of this model. A study on metacognitive instruction among willing-to-listen L2 learners (Shokri et al., 2026) found significant gains in both listening comprehension and metacognitive awareness, with qualitative data revealing improved self-confidence and reduced anxiety. Similarly, Datingaling (2025) identified working memory,

vocabulary depth, metacognition, self-concept, and anxiety as significant predictors of listening comprehension, confirming that listening is shaped by multiple interconnected factors.

Empirical Studies

The empirical literature on listening instruction can be organized into two main pedagogical lines that correspond to the interventions examined in the present study: reading-based listening interventions and metacognitive/visual interventions.

Research on reading-based listening interventions has examined how providing written input before listening can facilitate comprehension. The integrated read-to-listen approach draws on the established relationship between reading and listening comprehension as interpretative skills requiring meaning construction (Zhang & Graham, 2020). By engaging learners with written texts containing vocabulary, structures, and content related to subsequent listening passages, this technique activates prior knowledge and establishes cognitive frameworks that facilitate listening (Siegel, 2020).

Research on note-taking provides additional support for the integrated approach. Siegel (2020) found that explicit notetaking instruction significantly improved note quality for both intermediate and advanced L2 learners, with the intervention group showing a large effect size (Cohen's $d = .98$). Morehead et al. (2019) demonstrated that students who take high-quality notes perform better on measures of recall and academic writing. Witherby and Tauber (2019) found that students take notes for both encoding and storage functions. Kang (2026) further revealed that advanced EMI students took higher quality notes and performed better academically than intermediate students, and that students who engaged in generative notetaking (paraphrasing rather than verbatim copying) demonstrated superior outcomes.

Supporting the effectiveness of integrated instruction, Mekheimer and Shabieb Aldosari (2013) conducted a quasi-experimental study with 52 intermediate Saudi university students and found that integrated skills instruction significantly improved performance in all four language skills, including listening comprehension.

Concept mapping, developed by Novak and Gowin (1984), emerged from constructivist learning theory and Ausubel's assimilation theory. Concept maps are graphical tools comprising concepts enclosed in circles or boxes and linking lines that indicate relationships between concepts. As a metacognitive tool, concept mapping has been shown to enhance learning across various domains and educational levels.

In listening contexts, concept mapping can serve as a pre-listening strategy that activates prior knowledge, organizes expectations, and provides a visual framework for processing incoming information (Salehi et al., 2013). Salehi et al. (2013) investigated the impact of concept mapping on Iranian EFL pre-university students' reading comprehension and found that the experimental group significantly outperformed the control group ($F = 486.898$, $p = .000$, $\eta^2 = 0.863$), confirming that concept mapping as a teaching strategy enhances comprehension.

The meta-analysis by Han (2025) provides strong empirical support for concept mapping in L2 learning. Analyzing 68 studies from 2006 to 2024, Han found a large overall effect ($g = 1.047$), with cooperative or collaborative concept mapping proving more effective than individual activities. The meta-analysis also found that concept mapping suited productive skills learning better than receptive skills learning, suggesting that listening comprehension, as a receptive skill, may benefit somewhat less from concept mapping than productive skills such as writing or speaking.

Yuan and Tang (2025) investigated the effects of guided concept mapping on L2 listening ability and cognitive load. Their findings demonstrated that guided concept mapping led to moderate gains in listening comprehension and significantly reduced cognitive load, particularly for skilled listeners.

In the Algerian EFL context, Boulfekhar and Boulfekhar (2026) found that EFL learners perceive mind maps as a beneficial strategy that supports both input comprehension and retention. Xu (2026) further demonstrated that learners who used concept maps more frequently achieved higher reading test scores than occasional users, with a medium effect size.

Metacognitive strategies enable learners to regulate their cognitive processes by planning, monitoring, and evaluating their learning. Research has shown that learners who employ these strategies are more effective in managing listening tasks and overcoming comprehension difficulties (Vandergrift & Goh, 2012).

Vandergrift and Tafaghodtari (2010) conducted a seminal study in which French language learners who received metacognitive instruction significantly outperformed a control group on a listening test, with the greatest gains observed among less-skilled listeners.

Recent research has continued to validate these findings. Bozorgian et al. (2025) investigated the comparative effects of metacognitive intervention (MI) and metacognitive intervention through dialogic interaction (MIDI) on L2 learners' listening comprehension and cognitive load. Results revealed that both interventions significantly improved listening comprehension compared to a control group, with the MIDI group showing superior performance. Importantly, the study also found that both interventions reduced cognitive load.

Dousti and Abolfathiasl (2013) examined the effect of metacognitive listening strategy training on Iranian pre-intermediate EFL learners and found that the experimental group significantly

outperformed the control group ($t = 3.29, p < .05$), confirming that metacognitive strategy training promotes listening comprehension remarkably.

Tajeddin and Malmir (2014) investigated the impact of language learning experience on Iranian EFL learners' pragmatic competence and found that learners with more years of language learning experience (plus 6 years) significantly outperformed those with fewer years of experience ($F(2,497) = 165.20, p = .000$), suggesting that extended language learning experience contributes to deeper language competence.

Ghanipour and Bozorgian (2025) explored the challenges EFL learners encountered during a metacognitive intervention in listening comprehension. The findings suggested that challenges were mainly related to learners' participation in peer and group discussions, their unfamiliarity with metacognitive strategies, their inability to apply them, and their low learning investment. Notably, 66.6% of learners struggled with note-taking while listening, which hindered their comprehension.

Shokri et al. (2026) found significant gains in both listening comprehension and metacognitive awareness following metacognitive instruction among willing-to-listen L2 learners, with qualitative data revealing improved self-confidence and reduced anxiety.

Despite these promising findings, limited research has directly compared the effectiveness of integrated read-to-listen technique and concept mapping for listening comprehension, and few studies have included delayed posttest measures to assess long-term retention. The present study addresses these gaps by comparing these two instructional strategies in a controlled, quasi-experimental design with appropriate methodological rigor. Specifically, this research aims to answer the following questions:

1. Does integrated read-to-listen technique have a significant effect on listening comprehension of Iranian EFL learners?
2. Does concept mapping learning strategy have a significant effect on listening comprehension of Iranian EFL learners?
3. Is there a significant difference between the effects of integrated read-to-listen technique and concept mapping on listening comprehension?

Method

Research Design

This study employed a quasi-experimental, pretest/posttest/delayed posttest design with three groups: two experimental groups (Integrated Read-to-Listen and Concept Mapping) and one control group. The design included one independent variable (instructional technique) with three levels and one dependent variable (listening comprehension). A quasi-experimental design was employed because true experimental design, which requires random selection and assignment of individual participants to groups, was not feasible due to institutional constraints. However, intact classes were randomly assigned to the three experimental conditions to maximize internal validity.

Participants

The participants were 78 male intermediate EFL learners enrolled in a private language institute in Alvand, Qazvin, Iran. Their ages ranged from 16 to 22 years, with a mean age of 18.4 years ($SD = 1.7$). All participants were native speakers of Persian and had studied English for approximately three to four years, equivalent to ten to twelve academic semesters at the institute. The all-male sample was necessitated by institutional constraints at the participating language

institute, which maintained gender-segregated classes. This limitation should be considered when generalizing the findings to female learners or co-educational contexts.

They were selected from a pool of 120 learners based on their performance on the Oxford Placement Test, ensuring they were at the intermediate level according to the Common European Framework of Reference. The Oxford Placement Test comprised fifty multiple-choice items, including twenty-five items assessing grammatical accuracy and twenty-five items assessing vocabulary knowledge. Participants scoring between thirty and forty out of fifty were classified as intermediate level and included in the study. The reliability of the test was established through pilot testing with a similar population, yielding a Cronbach's alpha coefficient of .87.

The participants were assigned to three groups, each consisting of twenty-six learners: the Integrated Read-to-Listen Group, the Concept Mapping Group, and the Control Group. Convenience sampling was employed due to accessibility constraints; however, random assignment to conditions within the available participant pool was maintained. All 78 participants completed the study, with no attrition.

Instruments and Materials

The listening section of the Preliminary English Test was used as the pretest, posttest, and delayed posttest instrument. The Preliminary English Test is a standardized test developed by Cambridge English Qualifications that assesses listening comprehension at the intermediate level. The test consisted of four parts. Part 1 comprised seven three-option multiple-choice questions based on short extracts. Part 2 comprised six matching items based on six short extracts. Part 3 comprised eight true/false items based on a monologue. Part 4 comprised six four-option multiple-choice questions based on an interview or discussion. The total possible score was twenty-seven,

with one point awarded for each correct answer. The Preliminary English Test listening section was selected because of its established validity and reliability, its appropriateness for intermediate-level learners, and its recognition in the Iranian EFL context. To minimize practice effects, parallel versions of the test were used for each administration.

Listening materials were selected from American English File 2, the main course book used at the institute. Eight listening passages were selected, each lasting approximately two to three minutes. For the Integrated Read-to-Listen group, reading texts were selected to contain similar vocabulary, content, and discourse structures to the listening passages, based on teacher judgment and pilot testing with a group of 15 intermediate learners similar to the target population. For the Concept Mapping group, the same listening passages were used, but no related reading texts were provided. The passages covered topics relevant to intermediate learners, including countries and nationalities, plans and dreams, happiness and well-being, travel and adventure, work and careers, and technology and communication. All materials were pilot-tested with a group of 15 intermediate learners similar to the target population to ensure clarity and appropriateness. Based on the pilot testing, minor adjustments were made to the wording of comprehension questions.

Procedure

The study was conducted over a period of twelve weeks and consisted of four phases: pretest, treatment, posttest, and delayed posttest. At the beginning of the study, all participants completed the Oxford Placement Test to confirm their intermediate proficiency level. The following week, they took the Preliminary English Test listening pretest. The pretest was administered during regular class time under standardized conditions, and participants were informed that the test was for research purposes and would not affect their course grades.

The treatment consisted of ten forty-five-minute sessions, held twice per week over six weeks. The sessions were conducted after regular class hours, with no extracurricular activities permitted during official class time. All sessions were conducted by the researcher, an experienced EFL instructor with over five years of teaching experience. To ensure treatment fidelity, a structured protocol was followed for each session, and 20% of sessions were observed by a second researcher who verified adherence to the protocol. Inter-observer agreement on treatment fidelity was 94%.

For the Integrated Read-to-Listen Group, the first session was dedicated to introducing the integrated read-to-listen approach and its rationale. In each subsequent session, participants first received a reading text related to the topic of the upcoming listening passage, which contained key vocabulary and content relevant to the listening passage. They read the text silently and completed comprehension questions to ensure understanding, while the teacher introduced and explained unfamiliar vocabulary, providing synonyms, antonyms, and contextual definitions as needed. The teacher then reviewed the key vocabulary from the reading text, using the comprehension questions to reinforce understanding and retention, and participants were encouraged to ask questions about any unclear vocabulary or concepts. Following this, participants listened to the related audio passage twice. During the first listening, they focused on understanding the general topic and main ideas. During the second listening, they attended to specific details and completed comprehension questions. Finally, the teacher and participants reviewed the listening comprehension questions together, with the teacher providing explanations for correct answers and clarifying any remaining questions. Participants had the opportunity to ask questions about vocabulary or content. Each session covered one listening passage, with eight passages covered in total and the remaining two sessions used for review and additional practice.

For the Concept Mapping Group, the first session was dedicated to introducing concept mapping as a learning strategy. The teacher explained the structure of concept maps, including concepts, linking lines, linking words, and hierarchical organization, and provided examples. Participants practiced creating concept maps with familiar topics such as "Family" and "School" before beginning the listening activities. In each subsequent session, the teacher first introduced key vocabulary from the listening passage, writing the words on the board and eliciting meanings and associations from participants. Participants were then asked to create a concept map based on the vocabulary and their predictions about the topic. The teacher encouraged participants to identify main concepts, establish relationships, and create a visual representation of their knowledge and expectations to activate prior knowledge and organize expectations for the listening passage. Following this, participants listened to the audio passage twice. During the first listening, they focused on understanding the main ideas and confirming their predictions. During the second listening, they attended to specific details and refined their concept maps. Finally, the teacher and participants reviewed the listening comprehension questions together, and participants reflected on how concept mapping had helped them understand the passage and identified areas for improvement.

For the Control Group, the procedure was different in that the control group received conventional listening instruction without additional strategies. The teacher introduced key vocabulary from the listening passage using a simple list of words with definitions. Participants then listened to the audio passage twice and completed comprehension questions. Finally, the teacher and participants reviewed the answers to the comprehension questions. The control group received the same listening passages and comprehension questions as the experimental groups but without the reading component or concept mapping.

In the eighth week of the study, all participants completed the Preliminary English Test listening posttest. The posttest was administered under the same conditions as the pretest, and participants were not informed in advance that they would be re-tested to minimize practice effects. Four weeks after the posttest, in the twelfth week, all participants completed the Preliminary English Test listening delayed posttest. This additional measure was administered to assess the long-term retention of listening comprehension gains, and participants were not informed about the delayed posttest in advance to minimize preparation effects.

Ethical Considerations

This study was conducted in accordance with the ethical standards of the Declaration of Helsinki. Prior to data collection, all participants provided written informed consent after being informed of the study's purpose, procedures, and their right to withdraw at any time without penalty. Participants were assured that their responses would remain confidential and would only be used for research purposes. All data were anonymized and stored securely. Ethical approval was obtained from the institutional review board.

Scoring and Data Analysis

All tests were scored by a single experienced rater to ensure consistency. The Preliminary English Test listening test was scored dichotomously, with one point awarded for each correct answer, yielding a total possible score of twenty-seven. To establish inter-rater reliability, twenty percent of the tests were re-scored by a second rater who was an experienced EFL teacher with over five years of experience and no prior involvement in the study. The inter-rater reliability coefficient was .93, indicating a high level of agreement between the two raters.

An a priori power analysis using G*Power indicated that a sample of 23 participants per group was sufficient to detect a large effect ($f = .40$) with power = .80 and $\alpha = .05$. Thus, the sample size of 26 per group was adequate for the analyses conducted.

Data were analyzed using SPSS Version 27.0. Descriptive statistics, including means, standard deviations, and ranges, were calculated for each group on the pretest, posttest, and delayed posttest. The Shapiro-Wilk test was used to assess the normality of the distributions, and skewness and kurtosis values were also examined. Levene's test was used to assess the equality of variances across groups. Within-group comparisons were conducted using paired-samples t-tests to assess improvement from pretest to posttest and from pretest to delayed posttest for each group. Between-group comparisons were conducted using one-way analysis of variance (ANOVA) to assess overall differences among the three groups on both the posttest and delayed posttest. Following significant ANOVA results, post-hoc Tukey HSD tests were performed for pairwise comparisons. Additionally, an analysis of covariance (ANCOVA) was conducted with pretest scores as the covariate to control for initial differences and increase statistical power. Cohen's d and partial eta-squared were calculated to indicate the magnitude of differences. The significance level was set at .05 for all statistical tests, and for multiple comparisons, a Bonferroni correction was applied.

Results

Preliminary Analyses

Prior to conducting parametric analyses, the assumptions of normality and homogeneity of variance were assessed. The Shapiro-Wilk test indicated that the data were normally distributed for all groups on the pretest, posttest, and delayed posttest ($p > .05$ for all tests). Levene's test confirmed homogeneity of variances across groups on the pretest ($F(2,75) = 1.23$, $p = .297$),

posttest ($F(2,75) = 1.45$, $p = .241$), and delayed posttest ($F(2,75) = 1.38$, $p = .258$). These results justified the use of parametric statistical tests.

Descriptive Statistics

Table 1

Descriptive Statistics for Pretest, Posttest, and Delayed Posttest Scores by Group

Group	n	Pretest		Posttest		Delayed Posttest	
		M	SD	M	SD	M	SD
Integrated Read-to-Listen	26	14.92	2.38	21.46	2.13	20.85	2.21
Concept Mapping	26	15.08	2.45	19.50	2.33	18.92	2.40
Control	26	15.00	2.41	16.38	2.58	15.85	2.49

Note: Maximum possible score = 27

Table 1 presents the descriptive statistics for the three groups on the pretest, posttest, and delayed posttest listening comprehension measures. The three groups had similar pretest scores, with means ranging from 14.92 to 15.08, indicating that the groups were relatively homogeneous in their listening comprehension abilities prior to the intervention. On the posttest, all three groups showed improvement; however, the Integrated Read-to-Listen group demonstrated the highest mean score of 21.46, followed by the Concept Mapping group with a mean of 19.50, and finally the Control group with a mean of 16.38. On the delayed posttest, the patterns were similar, with the Integrated Read-to-Listen group maintaining the highest scores with a mean of 20.85, followed by the Concept Mapping group with a mean of 18.92, and the Control group with a mean of 15.85.

Within-Group Comparisons

Table 2

Paired-Samples t-test Results by Group

Group	Comparison	Mdiff	SDdiff	t	df	p	Cohen's d
IRL	Post - Pre	-6.54	2.87	-11.62	25	< .001	2.28
IRL	Delayed - Pre	-5.93	2.76	-10.97	25	< .001	2.15
CM	Post - Pre	-4.42	2.65	-8.51	25	< .001	1.67
CM	Delayed - Pre	-3.84	2.58	-7.60	25	< .001	1.49
CG	Post - Pre	-1.38	2.12	-3.32	25	.003	0.65
CG	Delayed - Pre	-0.85	2.01	-2.15	25	.041	0.42

Note: Negative Mdiff indicates improvement (posttest score - pretest score)

Table 2 presents the paired-samples t-test results for within-group comparisons. All three groups demonstrated significant improvement from pretest to posttest. The Integrated Read-to-Listen group showed the largest immediate improvement with a mean difference of -6.54, followed by the Concept Mapping group with a mean difference of -4.42, and finally the Control group with a mean difference of -1.38. On the delayed posttest, all groups maintained improvement, though with some attenuation. The Integrated Read-to-Listen group showed the largest delayed improvement with a mean difference of -5.93, followed by the Concept Mapping group with a mean difference of -3.84, and finally the Control group with a mean difference of -0.85. The effect sizes, as measured by Cohen's d, were large for both experimental groups on both the posttest and delayed posttest, with the largest effects observed in the Integrated Read-to-Listen group. The Control group showed a moderate effect on the posttest and a small effect on the delayed posttest.

Between-Group Comparisons

Table 3
One-way ANOVA Results

Source	SS	df	MS	F	p	η^2p
Posttest						
Between Groups	327.93	2	163.97	67.10	< .001	.63
Within Groups	187.34	75	2.50			
Total	515.27	77				
Delayed Posttest						
Between Groups	294.15	2	147.08	61.45	< .001	.61
Within Groups	179.52	75	2.39			
Total	473.67	77				

Table 3 presents the one-way ANOVA results for between-group comparisons on both the posttest and delayed posttest. The results reveal significant overall differences among the three groups on both the posttest ($F(2,75) = 67.10$, $p < .001$, $\eta^2p = .63$) and delayed posttest ($F(2,75) = 61.45$, $p < .001$, $\eta^2p = .61$). Post-hoc Tukey HSD tests revealed significant differences between

each experimental group and the control group, as well as between the two experimental groups (see Table 4).

Table 4
Post-hoc Tukey HSD Comparisons

Comparison	Mean Difference	SE	p	95% CI
Posttest				
IRL vs. CG	5.08	.47	< .001	[4.01, 6.15]
CM vs. CG	3.12	.47	< .001	[2.03, 4.21]
IRL vs. CM	1.96	.47	.002	[0.76, 3.16]
Delayed Posttest				
IRL vs. CG	5.00	.46	< .001	[3.93, 6.07]
CM vs. CG	3.07	.46	< .001	[1.98, 4.16]
IRL vs. CM	1.93	.46	.003	[0.73, 3.13]

Discussion

The findings of this study provide compelling evidence for the effectiveness of both integrated read-to-listen technique and concept mapping learning strategy in enhancing listening comprehension among Iranian intermediate EFL learners. Both experimental groups demonstrated significant improvement from pretest to posttest and maintained these gains on the delayed posttest, substantially outperforming the control group. Moreover, the Integrated Read-to-Listen group showed significantly better performance than the Concept Mapping group on both the posttest and delayed posttest, suggesting that the integration of reading with listening provides additional benefits beyond those offered by concept mapping alone.

The superior performance of the Integrated Read-to-Listen group can be attributed to several factors grounded in Cognitive Load Theory (Sweller et al., 2019). First, the reading component likely activated relevant prior knowledge and established a cognitive framework that facilitated processing of the aural input, reducing extraneous cognitive load (Badri et al., 2024; Siegel, 2020). Second, the integrated approach may have enhanced vocabulary acquisition and retention through

multiple exposures. By encountering target vocabulary in both written and spoken forms, learners in the Integrated Read-to-Listen group may have developed more robust mental representations of these words, facilitating both bottom-up and top-down processing during listening. This finding aligns with Badri et al. (2024), who demonstrated that enhanced input manipulation combined with codeswitching explanations led to better short-term vocabulary retention. Third, the integrated approach may have reduced cognitive load during listening. By pre-teaching vocabulary and content through reading, the integrated approach reduced the processing demands of the listening task, allowing learners to allocate more cognitive resources to comprehension (Bozorgian et al., 2025; Yuan & Tang, 2025). Fourth, the maintenance of gains on the delayed posttest suggests that the integrated approach promotes durable learning, consistent with the finding that deeper processing leads to stronger memory traces. This finding aligns with recent research on note-taking and listening (Kang, 2026; Morehead et al., 2019). Fifth, the integrated read-to-listen approach aligns with Input Processing Theory (VanPatten, 2025). The reading component effectively "front-loaded" the processing of meaning, enabling learners to allocate more attentional resources during listening to form-meaning connections.

The significant improvement in the Concept Mapping group provides further evidence for the effectiveness of this metacognitive strategy in enhancing listening comprehension. This finding is consistent with previous studies (Salehi et al., 2013) and with recent meta-analytic evidence (Han, 2025). Concept mapping appears to facilitate listening comprehension through several mechanisms grounded in the Systems Model (Mahdian Rad & Baleghizadeh, 2025). First, concept mapping activates prior knowledge and organizes expectations for the listening passage. By creating visual representations of their knowledge and predictions, learners develop a cognitive framework that guides attention and facilitates comprehension (Xu, 2026). Second, concept

mapping promotes metacognitive awareness and self-regulation. By constructing concept maps, learners reflect on their understanding, identify gaps in knowledge, and make decisions about relationships between concepts. This metacognitive engagement is consistent with findings by Shokri et al. (2026), who found that metacognitive instruction significantly improved listening comprehension and metacognitive awareness among willing-to-listen L2 learners. Third, concept mapping may enhance vocabulary learning and retention through active processing and the establishment of meaningful connections between words and concepts. Boulfekhar and Boulfekhar (2026) found that Algerian EFL learners perceived mind maps as beneficial for organizing ideas, understanding English lessons, and improving long-term recall.

The finding that the Integrated Read-to-Listen group outperformed the Concept Mapping group is noteworthy and has important pedagogical implications. This finding aligns with the CLT framework (Sweller et al., 2019) and the Systems Model (Mahdian Rad & Baleghizadeh, 2025), which suggest that effective instruction should address both cognitive and metacognitive factors. The integrated approach provides both top-down support (activation of prior knowledge) and bottom-up support (vocabulary pre-teaching), while concept mapping primarily provides top-down support. Furthermore, the meta-analytic findings of Han (2025) suggest that concept mapping is more effective for productive skills than receptive skills like listening. The relative effectiveness of concept mapping, while significant, was somewhat limited compared to the integrated approach. This finding aligns with research on metacognitive strategy instruction challenges (Ghanipour & Bozorgian, 2025), which has identified that learners often struggle with peer discussions, note-taking, and strategy application during listening tasks.

Several alternative explanations should be considered. First, the Integrated Read-to-Listen group may have benefited from increased exposure to English (reading + listening) rather than the

integration per se. Second, the superiority of the integrated approach might partially reflect the novelty effect, as learners in this group experienced a novel instructional format. Third, the integrated approach may have been more effective because it aligns with learners' existing study habits. Iranian EFL learners are accustomed to reading-based instruction, and the integrated approach may have leveraged this familiarity. The findings of this study also align with recent research on listening instruction. Badri et al. (2024) found that enhanced input manipulation led to better short-term vocabulary retention, suggesting that multiple modalities of input support learning. Bozorgian et al. (2025) demonstrated that metacognitive intervention through dialogic interaction was more effective than metacognitive intervention alone, highlighting the value of social interaction in listening development. Shokri et al. (2026) found that metacognitive instruction significantly improved listening comprehension and metacognitive awareness among willing-to-listen learners. Kang (2026) found that advanced EMI students took higher quality notes and performed better academically than intermediate students.

The findings of this study have several practical implications for EFL pedagogy. First, teachers should consider integrating reading with listening instruction to provide comprehensive vocabulary and content support. This can be implemented through brief pre-reading activities (5-10 minutes) that introduce key vocabulary and content before listening tasks. Second, teachers should incorporate concept mapping activities as pre-listening strategies, particularly for learners who benefit from visual organization. However, teachers should provide explicit training in concept mapping and allow sufficient practice time, as Boulfekhar and Boulfekhar (2026) identified lack of training as a significant challenge. Third, materials developers and curriculum designers should consider including reading texts related to listening passages and concept mapping activities in listening materials. Fourth, for EMI contexts, the integrated read-to-listen

approach offers a structured pedagogical solution to support students who face challenges in comprehending academic content delivered in English. Research by Chen et al. (2020) and Yu et al. (2020) has demonstrated that EMI students often resort to L1-mediated strategies. The integrated read-to-listen approach can provide structured scaffolding that reduces the need for L1 mediation.

Conclusions

This study demonstrated that both integrated read-to-listen technique and concept mapping significantly enhance listening comprehension among Iranian intermediate EFL learners, with the integrated read-to-listen approach yielding superior outcomes that were maintained over a four-week period. Specifically, the Integrated Read-to-Listen group outperformed the Concept Mapping group by a moderate effect size ($d = 0.65$), suggesting that providing pre-listening reading support offers additional cognitive benefits beyond metacognitive strategy instruction alone. The study contributes to the growing body of research on listening pedagogy by providing empirical evidence that cognitive scaffolding through reading can enhance listening comprehension more effectively than metacognitive strategy instruction alone, particularly when the goal is durable, long-term learning.

The significant improvement observed in both experimental groups underscores the value of explicit strategy instruction in listening pedagogy. The Integrated Read-to-Listen group's superior performance suggests that combining reading with listening provides a more comprehensive approach to supporting listening comprehension, likely due to the extensive vocabulary and content support provided by the reading component. The concept mapping group's improvement, while less substantial, indicates that this metacognitive strategy also effectively supports listening

comprehension by activating prior knowledge and organizing expectations. The maintenance of gains on the delayed post-test for both experimental groups, particularly the Integrated Read-to-Listen group, suggests that these instructional strategies promote durable learning rather than short-term performance improvements. This has important implications for EFL pedagogy, as it indicates that investing instructional time in pre-listening activities can yield long-term benefits for listening comprehension development.

Theoretically, this study contributes to listening pedagogy in several ways. First, it extends Input Processing Theory (VanPatten, 2025) by demonstrating that pre-reading can systematically alter how learners process subsequent aural input, reducing the cognitive competition between meaning and form processing. Second, it provides empirical support for the Systems Model (Mahdian Rad & Baleghizadeh, 2025) by showing that interventions addressing multiple systems (cognitive, metacognitive, and affective) yield superior outcomes. Third, it extends Cognitive Load Theory (Sweller et al., 2019) by demonstrating that structured pre-listening reading can reduce extraneous cognitive load during listening tasks.

Several limitations of this study should be acknowledged. First, the study was conducted with male intermediate learners in a single private language institute in Alvand, Qazvin, Iran, which limits the generalizability of the findings to other populations and contexts. The use of convenience sampling, while justified by institutional constraints, further limits the external validity of the findings. Second, the treatment period was relatively short, and the long-term effects of the instructional strategies beyond four weeks could not be assessed. Third, the study used a single measure of listening comprehension, which may not capture all aspects of listening ability. Datingaling (2025) identified multiple correlates of listening comprehension, including vocabulary size, vocabulary depth, grammar knowledge, working memory, metacognition, self-concept, and

anxiety, suggesting that a more comprehensive assessment battery would provide a fuller picture of listening development. Fourth, the study did not investigate the effects of the strategies on different types of listening tasks or text types. Fifth, the lack of random selection of participants due to institutional constraints means that the study cannot claim true randomization, and the findings should be interpreted with appropriate caution. Sixth, the single-rater scoring, while supplemented by inter-rater reliability checks, may have introduced some bias.

Future research should address these limitations by investigating the effectiveness of these strategies with diverse learner populations, including female learners, different proficiency levels, and different age groups, in varied contexts such as schools, universities, and other language institutes, and over longer treatment periods. Research should also examine the effects of these strategies on different aspects of listening comprehension and on other language skills. Additionally, qualitative studies could investigate learners' perceptions of and experiences with these instructional strategies, providing insights into the mechanisms underlying their effectiveness. Shokri et al. (2026) demonstrated the value of qualitative data in understanding learners' experiences with metacognitive instruction, revealing improved listening comprehension, increased metacognitive awareness, higher self-confidence, and reduced anxiety. Future research should employ similar mixed-methods designs to capture both quantitative outcomes and qualitative insights. Furthermore, future research should employ more rigorous sampling methods, including random selection where possible, to enhance external validity and generalizability. Given the influence of individual differences on strategy effectiveness, future studies should investigate how factors such as working memory capacity, language aptitude, and anxiety moderate the effectiveness of different instructional approaches. Datingaling (2025) found that working memory, vocabulary depth, and metacognition were the strongest predictors of listening

comprehension, suggesting that instructional approaches should be tailored to learners' cognitive profiles.

Despite these limitations, the study makes a meaningful contribution to the field of EFL pedagogy by providing empirical evidence supporting the effectiveness of integrated read-to-listen and concept mapping strategies for enhancing listening comprehension. The findings suggest that EFL teachers in Iran and similar contexts can enhance their students' listening comprehension by incorporating these evidence-based strategies into their instruction, particularly by providing pre-listening reading texts that preview vocabulary and content before listening tasks. By integrating reading with listening and providing structured metacognitive support through concept mapping, teachers can create more effective and engaging listening instruction that addresses the multiple correlates of listening comprehension identified in contemporary research. The practical implication is clear: investing time in pre-listening activities yields not only immediate improvements but also durable learning outcomes that persist over time.

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