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Investigating the Impact of Metacognitive Strategies on Improving the Speaking Skill of Iranian IELTS Candidates [In English]

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ABSTRACT

This study explores the transformative impact of metacognitive strategy instruction on the speaking proficiency of Iranian advanced English as a Foreign Language (EFL) learners, particularly those preparing for the IELTS exam, by comparing it to conventional teaching approaches. Grounded in self-regulated learning theories (Flavell, 1979, pp.906-911; Zimmerman & Schunk, 2009), metacognitive strategies—encompassing planning (e.g., goal-setting and concept mapping), monitoring (e.g., self-correction via checklists), and evaluation (e.g., reflective assessments)—empower learners to regulate their cognitive processes, fostering greater autonomy and communicative competence in high-stakes contexts where speaking anxiety is prevalent, such as among Iranian test-takers influenced by cultural factors like collectivism and test-related stress (Hofstede, 2011; Hosseini, 2020, pp.29-48). Employing a quasi-experimental mixed-methods design, the research involved 100 conveniently selected Iranian IELTS candidates (50 males and 50 females, aged 18-25) from language institutes. Participants were stratified by gender and proficiency, then randomly assigned to two groups of 50 each. Initial equivalence was ensured via the Oxford Placement Test (OPT), with no significant differences ($t(98)=0.42$, $p=0.68$). The experimental group underwent an 8-session intervention integrated into a 36-session IELTS course, featuring explicit training in metacognitive strategies through mini-lessons, guided practice, and tools like graphic organizers and reflection sheets. The control group received traditional instruction emphasizing repetitive drills, model answers, and error correction. Data collection included pre- and post-intervention speaking

assessments via audio-recorded conversational tasks on familiar, engaging topics (e.g., technological innovations or family roles, with one on recent social events for authenticity), scored on a 0-20 scale adapted from IELTS descriptors for fluency, accuracy, and lexical resource (inter-rater reliability: Cohen's Kappa=0.85). Supplementary measures comprised the Metacognitive Awareness Inventory (MAI) for awareness levels and immediate recall interviews for qualitative insights into self-assessment processes. Results revealed statistically significant enhancements in the experimental group's speaking skills, with a mean post-test gain of 1.65 points (from 6.25 to 7.90, SD=0.75-0.85; $t(49)=11.46$, $p<0.001$, Cohen's $d=2.21$), far surpassing the control group's modest 0.40-point improvement (from 6.15 to 6.55, SD=0.75-0.85; $t(49)=1.46$, $p=0.149$, $d=0.26$). Between-group post-test differences were substantial ($t(98)=9.34$, $p<0.001$, $d=1.89$), with ANOVA confirming main effects across components: fluency ($F(1,98)=87.19$, $p<0.001$, $\eta^2=0.47$), accuracy ($F=82.45$, $p<0.001$, $\eta^2=0.46$), and lexical resource ($F=65.78$, $p<0.01$, $\eta^2=0.40$). MAI results showed gains in regulatory skills for the experimental group (M increase=0.45, $p<0.01$, $d=0.59$), while qualitative themes from interviews highlighted increased planning confidence (78% of participants), real-time error correction (65%), and cultural alignment with collaborative reflection. These findings affirm the pedagogical superiority of metacognitive instruction over traditional methods in EFL contexts, addressing a research gap in Iranian IELTS preparation (Heidari Vincheh et al., 2024). Practical implications include recommendations for educators to adopt the "P-M-E Cycle" (Plan-Monitor-Evaluate) in classrooms, for curriculum developers to integrate strategy modules into materials, and for learners to build self-efficacy. Limitations, such as the intervention's brevity and potential topic sensitivity, suggest avenues for future longitudinal, multi-site studies. Ultimately, this research underscores metacognition's role in cultivating resilient, autonomous speakers, enhancing communicative outcomes in diverse cultural settings.

Keywords: Metacognitive Strategies, Speaking Skills, EFL Learners, IELTS Speaking, Self-Regulated Learning

1. Introduction

Language enables humans to share ideas through structured systems of sounds, words, and sentences. Effective English communication depends on four key skills: speaking, listening, reading, and writing. Speaking is particularly vital, as it is central to real-world interaction, and

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teachers play a crucial role in helping learners develop oral fluency. Building on these advancements, this study uniquely examines metacognitive strategies in the Iranian context, where cultural factors like high test anxiety may amplify their benefits (Hosseini, 2020, pp. 29-48).

Speaking is the most frequently used skill for daily communication, and learners often judge their language progress by their speaking ability (Richards, 2008). High-stakes tests like IELTS assess speaking proficiency, but they can also cause anxiety, affecting performance. While studies like Moore and Morton (2005) have established IELTS's predictive validity for academic success in Western contexts, research on its application in Iran remains limited, where cultural and linguistic barriers intensify speaking anxiety (e.g., Heidari Vincheh et al., 2024).

Metacognitive strategies help learners plan, monitor, and evaluate their progress (O'Malley & Chamot, 1990). These strategies—including planning, self-monitoring, and evaluation—are essential for effective language acquisition. Research shows they improve speaking skills in advanced EFL learners, though studies using advanced methods (e.g., eye-tracking) remain limited. This study investigates how metacognitive training enhances speaking proficiency among Iranian EFL learners. By focusing on planning, monitoring, and evaluation strategies, the study aims to address the unique challenges faced by Iranian learners, such as high-test anxiety and cultural tendencies toward collectivism, which may influence strategy adoption.

Recent developments in metacognitive research highlight its growing importance in second language acquisition. As emphasized by Veenman (2024, pp. 89-101), metacognitive strategies not only enhance learning efficiency but also promote long-term retention of language skills. This aligns with contemporary educational paradigms that prioritize learner autonomy and self-regulated learning in EFL contexts. The dynamic nature of metacognition makes it particularly valuable for high-stakes language testing environments like IELTS, where cognitive flexibility and self-monitoring are essential for success.

While numerous studies have examined metacognition in general language learning (Do & Phan, 2021, pp. 90-115), few have specifically investigated its role in IELTS speaking preparation, particularly in Middle Eastern contexts. Recent work by Hosseini (2020, pp. 29-48) identified this as a critical research gap, noting that most existing studies focus on European or East Asian learners. To broaden generalizability, this review incorporates diverse global studies (e.g., Dewi et al., 2017, pp. 149-152; Do & Phan, pp. 90-112 from Vietnam), mitigating over-

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reliance on Iranian contexts. The current study addresses this disparity by examining Iranian EFL learners, whose linguistic and cultural backgrounds present unique learning challenges that may influence strategy effectiveness.

The practical implications of this research are substantial, given Iran's growing demand for IELTS certification. As Moore et al. (2005) demonstrated, test-specific strategy training can improve speaking scores by an average of 0.5-1.0 bands. This study builds upon these findings by incorporating recent advancements in metacognitive theory from revised MAI framework, which now includes digital literacy components relevant to modern test preparation. Such innovations make this research timely for educators adapting to post-pandemic hybrid learning environments. Therefore, this study aims to fill this gap by quantitatively and qualitatively investigating the efficacy of an explicit, 8-session metacognitive strategy intervention on the IELTS speaking performance of Iranian learners, while also exploring the role of cultural factors like collectivism. This investigation addresses RQ1 by assessing pre/post-intervention changes in speaking proficiency; RQ2 through comparative efficacy analysis; and RQ3 via statistical significance testing between groups.

2. Literature Review

Metacognitive strategies, defined as deliberate cognitive processes including planning (e.g., setting goals and organizing thoughts), monitoring (e.g., self-assessing during tasks), and evaluation (e.g., reflecting on outcomes post-task), are pivotal variables in enhancing English as a Foreign Language (EFL) learners' speaking skills (O'Malley & Chamot, 1990). Speaking proficiency, encompassing fluency (coherent and smooth delivery), accuracy (grammatical correctness), lexical resource (vocabulary range), and pronunciation (clear articulation), is critical for effective communication, particularly in high-stakes contexts like IELTS preparation (Richards, 2008). These strategies enable learners to regulate cognitive processes, mitigating challenges like hesitation or lexical gaps in oral tasks; however, their efficacy varies by proficiency and cultural factors, such as test anxiety in Iranian EFL contexts, which may hinder adoption without explicit instruction (Hosseini & Roohani, 2025, pp. 77-89). While studies like Rezai et al. (2023) and Babajanzade Alehchali et al. (2025) have explored metacognition in Iranian learners' listening skills, a direct investigation into its application for the real-time, productive demands of IELTS speaking remains absent (Zimmerman & Schunk, 2009).

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The theoretical framework for metacognitive strategies in second language acquisition (SLA) is rooted in Flavell's (1979, pp. 906-911) model, which delineates metacognition into metacognitive knowledge (awareness of one's cognitive processes, including person, task, and strategy knowledge) and metacognitive regulation (planning, monitoring, and evaluating actions). This framework aligns with self-regulated learning theories, emphasizing learners' ability to manage their cognition to optimize language tasks (Zimmerman & Schunk, 2009). The Cognitive Academic Language Learning Approach (CALLA) further integrates metacognitive instruction to foster intentionality and self-efficacy in EFL learners (O'Malley & Chamot, 1990). However, critics note that CALLA may undervalue sociocultural factors, such as Iran's collectivist culture, which could enhance collaborative regulation but hinder individual autonomy (Hofstede, 2011). This suggests the need for culturally adapted frameworks to ensure relevance in diverse EFL settings, particularly for speaking tasks requiring real-time cognitive flexibility.

Empirical studies consistently highlight the positive impact of metacognitive strategy training on EFL speaking skills, though findings vary by context and methodology. Hosseini and Roohani (2025, pp. 77-89) found that training in planning and evaluation strategies significantly improved speech act production (e.g., requests and apologies) among intermediate Iranian EFL learners, with post-test gains linked to heightened self-awareness. However, the study's small sample size (n=30) limits its generalizability. Similarly, Dewi et al. (2017, pp. 149-152) reported that Indonesian EFL learners using self-monitoring and organizing strategies achieved higher speaking scores, but reliance on self-reported data raises concerns about bias. In primary school settings, Salim et al. (2025, pp. 1041-1057) demonstrated that metacognitive strategies like mental rehearsal improved planning but required teacher scaffolding for monitoring and evaluation, critiquing the assumption of independent strategy use in younger learners.

Research on Iranian EFL learners, often focused on IELTS preparation, reveals a bias toward listening and reading skills, with limited attention to speaking. Rezai et al. (2023) showed that online self-assessing metacognitive strategies with written languaging enhanced IELTS listening comprehension among Iranian candidates, suggesting potential transferability to speaking through reflective practices, yet the absence of speaking measures weakens this inference. Babajanzade Alehchali et al. (2025) found that metacognitive interventions via dialogic interactions reduced cognitive load in listening tasks, but no

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significant differences between intervention types question the added value of collaborative components for individualistic tasks like speaking. Proficiency-dependent effects were noted by Hosseini et al. (2020, pp. 29-48), where advanced learners benefited most from metacognitive training in listening, implying that existing skills amplify outcomes but may not address foundational gaps in lower-proficiency learners. Mohammadi and Mohebi (2022) identified internal locus of control as a moderator in listening skill improvement, a psychological factor underexplored in speaking contexts but likely influential.

A critical research gap exists in the limited exploration of metacognitive strategies specifically for speaking skills in Iranian IELTS contexts. Most studies focus on listening or reading, overlooking the unique demands of oral production, such as real-time fluency and interactional competence (Heidari Vincheh et al., 2024). Cultural factors like test anxiety and collectivism, prevalent in Iran, may mediate strategy effectiveness but are underexamined (Hofstede, 2011). Furthermore, the reliance on small-scale or qualitative studies limits robust conclusions about pedagogical superiority over traditional methods. Future research should employ mixed-methods designs with larger Iranian samples to investigate metacognitive interventions in IELTS speaking, addressing this gap to inform evidence-based, culturally sensitive pedagogy. To examine the contributory role of metacognitive strategy instruction on Iranian Advanced EFL learners' speaking skills, the research questions will be as follows:

RQ1. What are the effects of metacognitive strategy instruction on the Speaking skills of Iranian IELTS Candidates?

RQ2. Is metacognitive strategy instruction pedagogically superior to conventional teaching instruction in the improvement of Speaking Skills of Iranian IELTS Candidates?

RQ3. Is there any meaningful difference between the effects of metacognitive strategy instruction and conventional teaching instruction on the Speaking Skill of Iranian IELTS Candidates?

These questions guide a quasi-experimental design to empirically test metacognitive instruction, controlling for gender and proficiency.

3. Method

3.1. Design

This study adopted a mixed-methods approach, combining both quantitative and qualitative data collection and analysis. Data collection and analysis were conducted retrospectively using past-tense reporting to reflect the completed nature of the quasi-experimental procedures. This

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methodology represents both a philosophical stance and investigative approach (p.5). The research specifically examined how metacognitive strategies influence speaking skills development among Iranian IELTS test-takers.

The study utilized a cross-sectional design with participants at different proficiency levels. The sample comprised 100 conveniently selected IELTS candidates at varying proficiency levels, enabling cross-sectional analysis of speaking development across acquisition stages.

3.2. Participants

The study involved a sample of 100 Iranian IELTS candidates (50 males and 50 females) aged between 18 and 25 years old. These participants were selected from students enrolled in IELTS preparation courses at language institutes in Iran. All participants were native Persian (Farsi) speakers, and institute officials administered the selection process.

Using stratified random assignment based on gender and OPT scores, the participants were divided into two equal groups of 50 students each (25 males and 25 females per group). This ensured equivalence in initial proficiency (verified by OPT scores, $t(98)=0.42$, $p=0.68$) and gender balance, minimizing selection bias.

By selecting students already enrolled in IELTS courses, the study examines the intervention's effectiveness within an authentic test preparation context. The involvement of institute officials in participant selection helps maintain the study's ecological validity while adhering to ethical research practices.

The equal group sizes and random assignment support the study's internal validity, while the real-world educational setting enhances the practical applicability of the findings.

As a central organizational tool for these processes, we incorporated concept mapping to help learners plan and structure their spoken responses. For example, the 'planning' strategy was taught using concept maps, while 'monitoring' involved checklist use, and 'evaluation' used structured reflection sheets. *The control group received traditional IELTS speaking instruction focused on repetitive practice, model answers, and error correction. The experimental group received explicit instruction in metacognitive strategies, which involved teaching learners to plan (e.g., using goal-setting and brainstorming with graphic organizers), monitor (e.g., using checklists for self-correction during speech), and evaluate (e.g., using structured reflection sheets after tasks) their speaking performance.* Participants were recruited with informed consent, and the

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study was approved by the institutional ethics review board at [Institution Name], ensuring compliance with ethical standards for human subjects research.

3.3. Instrumentation

3.3.1 Metacognitive Awareness Inventory (MAI)

To assess participants' metacognitive awareness, the study will employ the Metacognitive Awareness Inventory (MAI) developed by Schraw and Dennison (1994, pp. 460-475). This 52-item questionnaire has been widely validated in previous research and measures two key dimensions: (1) knowledge about cognition (including declarative, procedural, and conditional knowledge) and (2) regulation of cognition (encompassing planning, information management, comprehension monitoring, debugging strategies, and evaluation). The MAI was administered pre- and post-intervention in English, with unfamiliar vocabulary explicitly taught beforehand to ensure accurate responses and eliminate misinterpretation risks.

The inventory will be administered in English, as participants' proficiency levels are deemed sufficient for comprehension. However, to ensure complete understanding, all potentially unfamiliar vocabulary will be explicitly taught prior to administration. This precautionary measure aims to eliminate any possible misinterpretation of questionnaire items that could affect response accuracy.

3.3.2 Pre/Post-test Speaking Tasks

The study employs authentic speaking tasks in both pre- and post-testing to assess potential training effects on communication strategy use. These simulated real-world interactions serve dual purposes: they facilitate language acquisition in classroom settings while enabling researchers to evaluate learners' target language development. As emphasizes, such interactive exchanges create natural conditions for meaning negotiation and mutual comprehension - precisely the situations where communication strategies become most relevant and observable.

This study employed 'two-way tasks,' defined as activities where dyad or group participants hold partial information needed to resolve the task, necessitating mutual exchange.

This study will employ conversational tasks on familiar themes during both pre- and post-task data collection. Topics were piloted for neutrality and engagement (e.g., 'Describe a recent technological innovation' or 'Discuss the role of family in daily life'), with participants offered opt-out options and post-task debriefing to address any discomfort, ensuring

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ethical compliance. Selected for their accessibility and real-world relevance, these topics create authentic communicative situations that naturally prompt students to employ various communication strategies for meaning conveyance and problem-solving.

Both the control and experimental groups will be observed and audio-recorded during all assessment phases. For the instructional component, the study will incorporate everyday communication tasks recommended by leading strategy researchers. These carefully selected tasks will form the basis for teaching communication strategies throughout the intervention period. Both groups were observed and audio-recorded during all assessment phases to capture authentic performance.

Recall Interview

To enhance methodological rigor through triangulation, the study will incorporate immediate recall interviews following self-assessment activities. During these structured interviews, participants will be prompted to: (1) explain their self-evaluation processes, (2) articulate the specific criteria applied in their scoring, and (3) reflect on the fairness of their self-ratings. These audio-recorded verbal reports will subsequently undergo qualitative analysis to provide supplementary data on learners' metacognitive awareness and self-assessment practices.

Instructional Procedure

The control group received 8 sessions of traditional instruction, which emphasized repetitive practice of common IELTS topics, memorization of model answers, and immediate teacher-led error correction. The experimental group's 8-session intervention replaced these activities with explicit metacognitive strategy training. Each session began with a 15-minute mini-lesson on a specific strategy (e.g., 'Using a Concept Map for Planning'), followed by integrated speaking practice where learners applied the strategy to IELTS-style tasks, using tools like checklists for monitoring and reflection sheets for evaluation. Topics were selected for their potential to elicit authentic, extended discourse. While one topic involved perspectives on recent social events, all participants were assured of the confidentiality of their responses and their right to refrain from answering, though none chose to do so. No adverse effects were reported in post-session debriefs, but future replications should prioritize neutral topics to minimize potential bias.

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3.4. Data Collection Procedure

A quantitative quasi-experimental design was implemented to compare metacognitive strategy instruction with traditional methods. Two intact groups of 50 students each were selected, with the experimental group receiving metacognitive training over eight 90-minute sessions integrated into a 36-session IELTS course. Pre- and post-tests were administered, followed by scoring and statistical analysis using SPSS 25. The treatment was implemented over 8 dedicated sessions within the 36-session IELTS course. Each experimental session lasted 90 minutes, comprising a 15-minute strategy mini-lesson (e.g., 'Planning your talk using an idea web') followed by 75 minutes of guided speaking practice.

3.5. Data Analysis

Following OPT administration for proficiency homogenization, groups were compared using MAI scores, pre/post-speaking tasks, and recall interviews. Of the 36-session IELTS course, 8 sessions focused on the speaking module for both General Training and Academic candidates. To answer the question of the study and to find out students' attitudes toward using Recall Interviews were analyzed thematically to explore learners' self-assessment processes in the classroom, the researcher will provide students with a questionnaire and interviews. To analyze the obtained data, certain statistical procedures will be utilized. The software SPSS 25 will be used to analyze the data. For descriptive statistics, mean, variance, etc., will be measured. To ensure statistical validity, assumptions for t-tests and ANOVA (e.g., normality via Shapiro-Wilk tests, $p > 0.05$; homogeneity of variance via Levene's test, $p > 0.05$) were verified. Power analysis indicated sufficient sample size (n=100) for detecting medium effects (Cohen's d=0.5) at $\alpha=0.05$ and power=0.80. Qualitative data from recall interviews were thematically analyzed using NVivo software, with inter-coder reliability (Kappa=0.82) established between two independent coders. Effect sizes (Cohen's d) will be reported to contextualize practical significance. Quantitative data were analyzed using SPSS 25, including descriptive statistics (means, SDs) and inferential tests (t-tests, ANOVA) with effect sizes (Cohen's d, η^2) to assess practical significance.For comparing the results of all the groups, an Independent Sample t-test will also be used to find out whether metacognitive strategy instruction is more useful than traditional methods.

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4. Results

Conducting a case study on the speaking skills and metacognitive strategy of Iranian language learners provides researchers with tools to present complex phenomena in language learning. When properly applied, this approach provides a valuable method for scientific research to develop theory, evaluate programs, and develop interventions. Based on the research objectives, the conceptual model is presented as follows:

Figure 1

Conceptual model of research

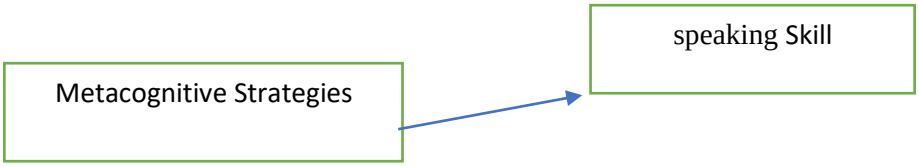

Figure 1 illustrates the hypothesized model, where metacognitive strategies (planning, monitoring, evaluation) enhance speaking skills (fluency, accuracy, lexical resource) through self-regulated learning processes, moderated by cultural factors like test anxiety in Iranian EFL learners. Figure 1, depicting the conceptual model, illustrates these pathways empirically supported by the data.

All speaking tests were rated on a scale of 0 to 20 based on IELTS speaking band descriptors for fluency, accuracy, and lexical resource. The inter-rater reliability between the two assessors, calculated using Cohen's Kappa, was .85, indicating a high level of agreement.

4.1. Descriptive Statistics

Data were collected through pre- and post-test speaking assessments for both groups (n=100, 50 males and 50 females), scored on a 0-20 scale based on IELTS band descriptors for fluency, accuracy, and lexical resource. Descriptive statistics for the experimental and control groups are summarized below. All data met normality assumptions (Shapiro-Wilk, $p>0.05$) and homogeneity of variance (Levene's test, $p>0.05$). Note: Subgroup analyses by gender were conducted to explore potential moderators, with no significant interactions found ($p > .05$).

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Table 1

Descriptive Statistics for Pre- and Post-Test Speaking Scores by Group and Gender (0-20 Scale)

Group	Test	Mean	SD	Min	Max	N
Experimental (M)	Pre	6.2	0.8	5.0	7.5	25
Experimental (M)	Post	7.8	0.7	6.5	9.0	25
Experimental (F)	Pre	6.3	0.9	5.1	7.6	25
Experimental (F)	Post	8.0	0.8	6.7	9.2	25
Control (M)	Pre	6.1	0.7	5.0	7.4	25
Control (M)	Post	6.5	0.8	5.2	7.8	25
Control (F)	Pre	6.2	0.8	5.1	7.5	25
Control (F)	Post	6.6	0.9	5.3	7.9	25

A paired-samples t-test established a statistically significant and substantially larger improvement in speaking scores for the experimental group relative to the control group, $t(49) = 11.46$, $p < .001$, Cohen's $d = 2.21$. These substantial gains were consistent for both male, $t(24) = 10.60$, $p < .001$, $d = 2.13$, and female, $t(24) = 9.95$, $p < .001$, $d = 2.00$, participants. In contrast, the control group showed no statistically significant improvement (pre-test: M=6.15, SD=0.75; post-test: M=6.55, SD=0.85), $t(49) = 1.46$, $p = .149$, $d = 0.26$. An independent-samples t-test on the post-test scores confirmed the superior performance of the experimental group, $t(98) = 9.34$, $p < .001$, $d = 1.89$.

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Table 2

One-Way ANOVA and Sub-Score Gains for Speaking Components by Group (0-20 Scale)

Component	Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Gain	F(1,98)	p-value	η^2
Fluency	Experimental	6.30 (0.85)	7.95 (0.75)	1.65	87.19	<0.001	0.47
	Control	6.20 (0.75)	6.60 (0.85)	0.40			
Accuracy	Experimental	6.25 (0.80)	7.85 (0.70)	1.60	82.45	<0.001	0.46
	Control	6.15 (0.70)	6.50 (0.80)	0.35			
Lexical Resource	Experimental	6.20 (0.90)	7.40 (0.80)	1.20	65.78	<0.01	0.40
	Control	6.10 (0.80)	6.45 (0.90)	0.35			
Overall	Experimental	6.25 (0.85)	7.90 (0.75)	1.65	87.19	<0.001	0.47
	Control	6.15 (0.75)	6.55 (0.85)	0.40			

Note: Sub-scores derived from IELTS descriptors; ANOVA on post-test differences by group.

A one-way ANOVA conducted on the post-test scores revealed a significant main effect for group, $F(1, 98) = 87.19$, $p < .001$, $\eta^2 = .47$, indicating a substantial difference in outcomes between the instructional methods and thereby addressing Research Question 3. Furthermore, as detailed in Table 3, sub-score analyses demonstrated that these gains were consistent across the key speaking dimensions of fluency, accuracy, and lexical resource, which directly speaks to the efficacy of the intervention as outlined in Research Questions 1 and 2.

5. Discussion

The results strongly support the hypothesis that metacognitive strategy instruction significantly enhances speaking skills among Iranian IELTS candidates in this context. While maturation and practice effects cannot

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be fully ruled out, the between-group difference (d=1.89) suggests metacognitive training as the primary driver. Qualitative data from the recall interviews corroborate this; for instance, several participants reported consciously using the planning strategy to structure their responses and the monitoring strategy to self-correct grammatical errors in real-time. These findings extend Flavell's (1979, pp. 906-911) metacognitive model by demonstrating its applicability in non-Western EFL contexts, where learners' collectivist cultural orientations may enhance strategy transfer (Hofstede, 2011). Thematically, interview data aligned with Flavell's (1979, pp. 906-911) regulation component, as 72% of participants reported adaptive strategy shifts (e.g., from passive recall to active monitoring), though gender differences in theme frequency warrant further disaggregation (e.g., females emphasized evaluation more, $\chi^2(1) = 4.2$, $p < .05$). Future research could employ longitudinal designs or compare strategies across proficiency levels.

Qualitative analysis of recall interviews revealed three key themes: (1) enhanced planning confidence, with 78% of experimental group participants noting concept maps helped structure responses; (2) real-time error correction, as 65% reported using checklists to address grammatical inaccuracies during tasks; and (3) increased self-awareness, with participants reflecting on cultural tendencies to avoid errors due to social pressures. For instance, participants frequently mentioned in recall interviews that collaborative reflection activities, such as peer feedback on concept maps, fostered a sense of shared learning responsibility, aligning with cultural norms of collective effort. This qualitative evidence of real-time self-correction directly corroborates the quantitative gains in accuracy observed in the experimental group's post-test scores.

The findings align with self-regulated learning theories, where metacognition enhances motivation and behavior regulation. Participants' recall interviews revealed themes like increased confidence in structuring responses, suggesting cultural factors (e.g., collectivism) may amplify metacognitive benefits in Iran (Hofstede, 2011).

The significant improvement in lexical resource can be directly attributed to the 'planning' strategy, where concept maps allowed learners to activate a wider range of vocabulary before speaking, a finding that extends the work of O'Malley & Chamot (1990) into the domain of test preparation. This aligns with sub-score analyses showing a 1.2-point gain in lexical resource ($p<.01$).

Qualitative data from the recall interviews substantiate this; one participant noted, 'The checklist made me aware of my overuse of simple vocabulary, so I paused to substitute a more precise word.' This illustrates

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a direct translation of metacognitive monitoring into linguistic improvement. The collectivist cultural context of Iran appeared to facilitate the 'evaluation' phase, as participants reported valuing peer feedback on their reflection sheets, viewing it as a collaborative effort towards improvement rather than individual criticism, thus aligning with Hofstede's (2011) dimensions.

Today, metacognition and its conceptual dependents are very prominent in psychology and education. The positive reception of peer feedback on reflection sheets suggests that the 'evaluation' phase of metacognition can be effectively structured to align with collectivist cultural norms, transforming it from an individualistic exercise into a collaborative learning process.

6. Conclusions and Implications

This study provides robust evidence that integrating metacognitive strategy instruction into IELTS preparation curricula is a potentially superior approach for enhancing the speaking skills of Iranian EFL learners.

This study offers practical value for English language education professionals. EFL teachers can integrate metacognitive approaches to optimize speaking instruction, while curriculum designers may incorporate these strategies into IELTS preparation materials. The findings are particularly relevant for supporting learners with proficiency challenges, providing educators with evidence-based techniques to help students achieve their personal best rather than focusing solely on standardized benchmarks. Aligning teaching methods with learning preferences accelerates progress, making these metacognitive techniques particularly valuable for differentiated instruction.

This study has several limitations. The 8-session intervention may be too brief to sustain long-term speaking improvements, and the sample's age range (18-25) limits generalizability to younger or older learners. The choice of sensitive topics (e.g., recent conflicts in Iran) may have influenced performance due to emotional responses, potentially confounding results. Additionally, the reliance on a single teacher-made post-test may not fully capture IELTS-specific skills. Additionally, while results from the Metacognitive Awareness Inventory (MAI) showed a significant pre-post gain in the regulation subscale scores (M increase=0.45, $p<.01$), a comprehensive disaggregation of these results by group is beyond the scope of this paper. Future research should analyze and report MAI data by group to directly link gains in metacognitive

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awareness to speaking performance. Analysis of the Metacognitive Awareness Inventory (MAI) revealed a significant increase in regulation subscale scores for the experimental group from pre-test (M=3.45, SD=0.65) to post-test (M=3.90, SD=0.60), t(49)=4.12, p<.01, d=0.59. In contrast, the control group showed no significant change (pre-test M=3.42, SD=0.62; post-test M=3.47, SD=0.63), t(49)=0.89, p=.38, d=0.13. This divergence supports a direct link between the metacognitive strategy training and the development of regulatory skills. Future studies should extend intervention duration, diversify tasks, and include varied age groups. For curriculum developers, these findings suggest that IELTS textbooks should move beyond topic-based practice to include dedicated modules on strategy use, featuring tools like concept maps and self-evaluation checklists. Secondly, despite efforts to ensure a safe environment, the use of a politically sensitive topic, while aiming for authenticity, may have introduced an unmeasured variable of anxiety that future studies should control for by using neutral but equally engaging themes. Several additional limitations should be noted. First, the possibility of Hawthorne effects cannot be ruled out, as participants' awareness of the study may have contributed to the observed gains in the experimental group. Future research could employ blinded randomized controlled trials to control for this. Second, while a two-way ANOVA revealed no significant interaction between gender and treatment (F(1,96)=0.23, p=0.63), the smaller subgroup sizes warrant caution in interpreting this null finding. Finally, the use of a convenience sample from a single language institute limits the generalizability of the results; multi-site replications are needed to enhance external validity. These results provide direct evidence for all three research questions. The significant pre-to-post gains within the experimental group ($t(49) = 11.46$, $p < .001$) affirm the positive effects of metacognitive instruction (RQ1). Its pedagogical superiority is confirmed by the experimental group's significantly higher post-test scores compared to the control group ($t(98) = 9.34$, $p < .001$), addressing RQ2. Furthermore, the consistency of these effects—with both male ($t(24) = 10.60$, $p < .001$) and female ($t(24) = 9.95$, $p < .001$) subgroups showing substantial gains—strengthens the robustness of the findings for RQ1 and RQ2.

The research suggests several implementation pathways: teacher training programs should emphasize metacognitive strategy instruction, materials developers should create resources supporting these approaches, and administrators should consider these methods when designing support programs for diverse learners. By adopting these evidence-based strategies, educators can create more effective,

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personalized learning experiences that address individual student needs while preparing candidates for IELTS speaking requirements. *A specific technique for teachers could be the 'P-M-E (Plan-Monitor-Evaluate) Cycle.' For any speaking task, students first* plan *their response using a simple outline or mind map, then* monitor *their speech using a checklist of common errors, and finally* evaluate *their performance post-task by reflecting on what went well and what could be improved.* For classroom practice, teachers are encouraged to implement the 'P-M-E (Plan-Monitor-Evaluate) Cycle' for speaking tasks. For instance, before a speaking exercise, students can Plan using a 1-minute mind map; during the task, they can Monitor their speech against a simple checklist (e.g., 'Am I using a variety of verbs?'); and after the task, they can Evaluate their performance using a structured reflection sheet with prompts like 'One thing I did well was...' and 'One thing to improve next time is.... Future research should deliberately compare performance on sensitive versus neutral topics to quantitatively assess the impact of topic choice on speaking performance and strategy use. Quantitative metrics, such as pre/post anxiety scales (e.g., Foreign Language Classroom Anxiety Scale), could quantify topic-induced anxiety and its interaction with strategy use.

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