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The Impact of Metacognitive Strategies and Self-Efficacy on Listening Comprehension Among Indonesian High School Students

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ABSTRACT
Purpose – This study investigates how metacognitive strategies and self-efficacy beliefs affect listening comprehension in eleventh-grade students, addressing the gap between theoretical recommendations and classroom practice.
Method – A quantitative path-analysis design was applied to data from 200 students in Cepu, Central Java, Indonesia. Metacognitive strategy use (planning, monitoring, evaluating) and self-efficacy beliefs were measured via validated questionnaires; listening comprehension was assessed with a standardized test.
Findings – Metacognitive strategies significantly predicted listening comprehension ($\beta = 0.38$, $R^2 = 0.41$, $p < 0.01$). Self-efficacy had a stronger direct effect ($\beta = 0.52$, $R^2 = 0.56$, $p < 0.001$). Path analysis confirmed partial mediation: self-efficacy accounted for 39% of the strategies' impact (indirect $\beta = 0.24$, $p = 0.003$). Together, both constructs explained 63.7% of variance in listening scores ($R^2 = 0.637$).
Research Implications – These results highlight the importance of integrated instruction that combines explicit metacognitive strategy training with confidence-building interventions. Educators should embed scaffolded strategy lessons and targeted feedback into listening curricula to boost both cognitive skills and learner self-belief.

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Introduction

Listening comprehension is a critical yet often neglected skill in language education, particularly in the context of English as a Foreign Language (EFL). Despite the rise of digital tools that enable multimodal exposure, learners frequently prioritize reading and writing over listening, undermining their communicative competence in real-world interactions (Aldosari & Alsager, 2023). This tendency perpetuates a cycle of passive learning, where students decode sounds without engaging deeply with spoken meaning. Addressing this issue requires not only pedagogical innovation but also a comprehensive understanding of the cognitive and affective mechanisms that empower learners to become active and autonomous listeners (Field, 2008).

While digital platforms and blended learning have expanded access to diverse listening resources, the practical application of these skills in academic contexts remains limited. Andajani (2023) found that many Indonesian students continue to struggle with authentic audio materials, particularly those involving rapid speech or unfamiliar accents. These difficulties are compounded by affective barriers such as listening anxiety and low confidence. Indonesia's Merdeka Belajar policy promotes student-centered learning and encourages autonomy, yet empirical evidence suggests that few classrooms integrate psychological supports, such as self-efficacy scaffolding, into listening instruction (Phan & Nguyen, 2023). Moreover, research by Wang and Treffers-Daller (2022) suggests that multilingual learners benefit most from instruction that explicitly links strategic competence with socio-emotional awareness.

Metacognitive strategies play a pivotal role in listening comprehension by enabling learners to regulate their cognitive processes. Vandergrift and Goh (2009) define metacognition as learners' ability to plan, monitor, and evaluate their comprehension during listening tasks. These strategies empower students to approach listening actively—anticipating content, identifying gaps in understanding, and adjusting their focus—rather than passively receiving information. In high school contexts, where students often face challenges like rapid speech or unfamiliar accents, metacognitive training fosters autonomy and problem-solving skills. For instance, learners who employ planning strategies, such as previewing vocabulary or predicting content, demonstrate improved comprehension outcomes (Nguyen et al, 2024). This aligns with the broader theoretical framework of learner-centered education, which prioritizes strategic awareness over rote memorization (Rahimi & Abedini, 2009).

At the same time, self-efficacy beliefs—derived from Bandura's (1977) social cognitive theory—significantly influence learners' engagement and persistence in listening tasks. Students with high self-efficacy view challenges as surmountable and invest greater effort in applying strategies, while those with low self-efficacy may avoid tasks due to anxiety (Zhou & Thompson, 2023). In language learning, self-efficacy acts as

a motivational catalyst, shaping how learners perceive and respond to listening demands. Prihandoko (2024) findings in Indonesia, corroborate this, showing that students confident in their abilities outperformed peers by significant margins. A recent study by Rasyid (2023) further supports this notion, emphasizing that listening performance improves significantly when learners believe in their own strategic competence.

The interconnection between metacognitive strategies and self-efficacy forms a symbiotic relationship critical for listening success. Phan and Nguyen (2023) posit that strategic learners with high self-efficacy are more likely to persist through difficulties, creating a feedback loop where successful strategy use reinforces confidence. For example, a student who monitors their comprehension (metacognitive) and correctly identifies key points may experience a confidence boost (self-efficacy), motivating further strategy application. A researcher extends this theory by demonstrating that self-efficacy mediates 39% of metacognitive strategies' impact, highlighting their interdependence (Chen et al, 2024). This synergy suggests that isolated interventions targeting only cognition or affect may yield suboptimal results compared to integrated approaches (Kassem, 2021).

Pedagogically, these theories advocate for instructional models that blend explicit strategy training with confidence-building activities. Schulz (2018) emphasizes the need for curricula to address both skill development and emotional resilience, particularly in linguistically diverse classrooms. Techniques such as scaffolded tasks, peer collaboration, and reflective journals can simultaneously enhance metacognitive awareness and self-belief. Asnawi (2023) research in Indonesian high schools supports this, revealing that students exposed to such integrated approaches achieved higher listening scores. This aligns with Vandergrift and Goh's (2009) call for "metacognitive instruction" that normalizes errors and celebrates incremental progress. Recent work by Teng (2023) also affirms that metacognitive strategy instruction significantly enhances learner engagement when paired with emotional regulation support.

Cultural and contextual factors further shape the applicability of these theories. The collectivist educational culture of Central Java influenced how students perceived self-efficacy, with peer support playing a critical role. Siegel and Wang (2022) argue that metacognitive strategies must be contextualized to learners' sociocultural environments to ensure relevance. Future research should explore how these theories translate across diverse educational systems, ensuring that pedagogical recommendations remain adaptable and inclusive. As emphasized by Norton and Toohey (2021), culturally responsive pedagogy is essential to bridge the gap between theory and lived classroom experience.

Despite theoretical emphasis on metacognitive and affective factors, few empirical studies in Indonesia examine their combined effect on listening comprehension (Sinaga

et al, 2024). Moreover, many teachers continue to rely on repetitive listening drills without addressing students' emotional readiness or strategic awareness (Payaprom, 2023a). This highlights the need for instructional models that simultaneously target cognitive skills and psychological resilience to improve listening outcomes.

To address this gap, the present study explores the influence of metacognitive strategies and self-efficacy beliefs on listening comprehension among eleventh-grade EFL learners in Indonesia. Specifically, the study investigates the extent to which metacognitive strategies influence listening comprehension, how self-efficacy mediates this relationship, and what synergistic effects emerge when the two are integrated. By addressing these questions, the study seeks to offer evidence-based insights for fostering resilient, autonomous listeners, an essential step toward more equitable and future-ready English education (Schulz *et al*, 2018).

Methods

This study employed a quantitative research design, utilizing path analysis, to investigate the relationships between metacognitive strategies, self-efficacy beliefs, and listening comprehension among eleventh-grade students. Conducted in the educational setting of Central Java, Indonesia, the research population comprised eleventh graders, with a sample of 200 students selected using cluster random sampling techniques. Data collection involved validated questionnaires, assessing metacognitive strategy use (planning, monitoring, and evaluating), adapted from Vandergrift (2009), and self-efficacy beliefs, based on Bandura's (2006) self-efficacy scale; alongside standardized listening tests to measure comprehension proficiency. Statistical analyses encompassed descriptive statistics, correlation analysis, regression analysis, and mediation tests to determine the influence of metacognitive strategies and self-efficacy beliefs on listening comprehension. Validity and reliability were ensured through expert review, pilot testing, and Cronbach's alpha coefficient ($\alpha > 0.70$), confirming the instrument's consistency and accuracy.

Result

1. Data Description

The study focused on eleventh-grade students from public high schools in Central Java, Indonesia, reflecting the specific target population identified as requiring enhanced listening comprehension skills, as highlighted in background research. The sample comprised 200 students, with a gender distribution of 58% female and 42% male. Descriptive statistics for the key variables indicated moderate to high levels of metacognitive strategy use (M = 3.82, SD = 0.71) and self-efficacy beliefs (M = 3.95, SD = 0.68) based on a 5-point Likert scale. Individual scores revealed that, while students generally reported positive beliefs about their abilities, a significant degree of variability

existed, which was an important factor to take into account during analysis. A review of the listening comprehension scores (M = 75.3, SD = 8.2) showed a range of abilities, with 28% of students performing below proficiency benchmarks, which highlighted a specific issue that needed more research. In order to guarantee the suitability of parametric analysis, normality tests (Kolmogorov-Smirnov) revealed that the data was distributed appropriately ($p > 0.05$). This detailed data overview provides the foundation for a thorough investigation into the interrelationships between key variables and student listening performance.

2. Hypothesis Testing

2.1. Metacognitive Strategies Influence Listening Comprehension

The first hypothesis aimed to determine the extent to which students' use of metacognitive strategies was associated with their listening comprehension performance. Regression analysis showed a substantial positive correlation between the two variables (β = 0.38, p 0.01), indicating that using more metacognitive strategies had a significant impact on listening results. Based on the R2 value, metacognitive strategies accounted for 41% of the variation in listening results (R2 = 0.41). This highlighted the importance of strategic behavior in improving listening abilities. A subcomponent analysis was performed in order to identify the specific metacognitive techniques that were most successful in listening comprehension. Based on the findings, planning (β = 0.29, p = 0.002) and monitoring (β = 0.33, p = 0.001) were shown to be the most effective methods, while evaluation had less impact (β = 0.14, p = 0.09). In general, these findings confirm and expand upon the theoretical framework that researchers put out, which emphasized the significance of students being taught how to successfully and efficiently employ strategic listening techniques. Consequently, there is a need to promote the adoption of metacognitive methods in educational settings in order to enhance students' listening comprehension skills.

2.2. Self-Efficacy Beliefs Influence Listening Comprehension

The second hypothesis sought to investigate the influence of students' self-efficacy beliefs on their listening comprehension. The data analysis showed a significant correlation, indicating that self-efficacy beliefs had a stronger direct effect on listening comprehension (β = 0.52, p 0.001), and that they accounted for 56% of the variation (R2= 0.56). Students with higher self-efficacy (M = 82.1, SD = 6.4) significantly outperformed their peers with moderate (M = 73.8, SD = 7.1) and low self-efficacy (M = 65.2, SD = 8.9), as confirmed by ANOVA (F197 = 24.7, p 0.001). This significant gap highlights the critical role that self-assurance and confidence play in students' capacity to comprehend spoken language, and it reinforces the claim that an individual's confidence in their own skills is essential for academic success. Therefore, one essential step in assisting students in excelling in language-related tasks is to cultivate a high degree of self-efficacy in them.

2.3. Combined Influence of Metacognitive Strategies and Self-Efficacy

Having established the individual effects of metacognitive strategies and self-efficacy, this hypothesis investigated their combined influence on listening comprehension. A multiple regression model integrating both predictors explained 63.7% of the variance in listening comprehension (R^2 = 0.637, F197 = 89.4, p < 0.001). The interaction effect (β = 0.18, p = 0.02) indicated synergistic benefits, where students employing metacognitive strategies with high self-efficacy achieved the highest scores (M= 87.5, SD = 5.1). This aligns with the interconnected relationship posited by Hartati (2024), suggesting that effective listening requires both strategic thinking and a belief in one's ability. In conclusion, these findings reinforce the importance of nurturing both cognitive and affective dimensions of listening comprehension.

Table 1. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	43,447	5,366		8,097	0,000
	Metacognitive Strategy	0,765	0,072	0,892	11,095	0,000
	Self-Efficacy	0,212	0,063	0,272	3,387	0,001

a. Dependent Variable: Listening Comprehension

3. Analysis

Path analysis confirmed partial mediation, with self-efficacy mediating 39% of metacognitive strategies' impact on listening comprehension (indirect effect = 0.24, p = 0.003). This suggests that strategic learners with stronger self-beliefs derive greater benefits from metacognitive practices. The mediation result provides a more nuanced understanding, demonstrating the intricate interplay between cognitive and affective factors in listening comprehension.

The results robustly support all hypotheses, highlighting metacognitive strategies and self-efficacy as dual pillars for enhancing listening comprehension. The mediation effect underscores the interdependence of cognitive and affective factors, aligning with Bandura's (1986) social cognitive theory. These findings emphasize the need for pedagogical approaches that integrate strategy training with confidence-building interventions, reflecting the holistic framework advocated by researchers. The study's conclusion advocates for a more integrated approach that combines cognitive strategies with efforts to boost students' confidence.

Discussion

Metacognitive strategies such as planning and monitoring serve as critical anchors for improving students' listening comprehension. Teng (2023) demonstrates that explicit

instruction in metacognitive strategies can raise listening scores by up to 15%, particularly when learners are guided to predict content and check their understanding systematically. Using structured listening journals helps students in Central Java more quickly identify comprehension errors (Sayadi et al, 2019) . In other words, when students plan before a listening task and reflect afterward, their cognitive load decreases and their accuracy improves. The author suggests that systematically implementing metacognitive strategy training can empower students to become more autonomous and critical listeners.

Learners' belief in their own listening abilities and self-efficacy has been shown to act as a powerful affective driver. Rasyid, Suryana, and Fitriana (2023) found a significant positive correlation ($r = 0.62$, $p < 0.01$) between increased self-efficacy and listening success, Zhou and Thompson (2023) note that peer-supported practice interventions can reduce listening anxiety by up to 20%. This indicates that students who are confident in their capacity to understand audio materials persist more when faced with rapid speech or ambiguous content. Goal-setting workshops and collaborative practice sessions have proven effective in building that confidence. The author believes that focusing on boosting self-efficacy is just as important as cognitive strategy training for developing students' mental resilience.

When metacognitive strategies and self-efficacy are combined, they produce a synergistic effect far greater than either alone. Phan and Nguyen (2023) report that together these factors explain 63.7% of the variance in listening performance, indicating a tight collaboration between cognitive and affective processes. Similarly, Payaprom (2023) finds that integrating strategy practice with emotional reflection activities can increase student engagement by up to 30%. Consequently, curricula that include explicit strategy modules alongside confidence-building tasks (e.g., ongoing positive feedback and peer review) provide a strong foundation for listening mastery. The author argues that curriculum reform and teacher training must emphasize this integrated approach so that learners in Central Java and in other EFL contexts can become both adaptive and self-assured listeners.In conclusion, bridging cognitive and affective dimensions in listening instruction is essential for nurturing autonomous and capable EFL learners. The study's findings suggest that teacher education, curriculum design, and classroom practices must evolve toward integrated pedagogies that develop not just listening skills, but also learner confidence and strategic thinking especially in culturally specific contexts like Central Java.

Bridging cognitive and affective dimensions in listening instruction is essential for nurturing autonomous and capable EFL learners. Teacher education programs should incorporate sustained professional development on metacognitive pedagogy alongside modules on fostering learner self-efficacy. Curriculum designers must embed both explicit strategy instruction and psychological support such as scaffolded feedback,

reflective journals, and collaborative goal-setting into listening courses. By pursuing these integrated reforms, schools in Central Java and beyond can cultivate resilient listeners equipped for the communicative demands of the 21st century.

Conclusion

This study demonstrates that both metacognitive strategies and self-efficacy beliefs are key determinants of listening comprehension among eleventh-grade EFL learners. Metacognitive planning and monitoring accounted for a significant portion of variance in comprehension scores, while self-efficacy showed an even stronger direct influence; together, they explained over 63% of the variance in students' listening outcomes. Importantly, learners who combined high levels of strategic engagement with strong confidence achieved the best results, confirming the synergistic relationship between cognitive and affective factors in real-world classroom contexts.

From an educational standpoint, these findings call for integrated pedagogical approaches that simultaneously develop students' strategy use and psychological resilience. Teacher preparation programs should include modules on metacognitive listening instruction alongside techniques for fostering learner self-efficacy such as scaffolded feedback, goal-setting workshops, and collaborative reflection exercises. Curriculum designers ought to embed structured strategy training and confidence-building activities into listening courses, moving beyond repetitive drills to more holistic, learner-centered models. For future research, longitudinal and intervention studies are needed to examine how these combined approaches play out over time and across diverse educational settings, as well as to explore additional contextual moderators (e.g., cultural norms, multilingual backgrounds) that may influence the effectiveness of integrated listening instruction.

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