

The Impact of Metacognitive Awareness on Arabic Listening Proficiency among Religious Secondary School Students



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Abstract:

Introduction: Metacognitive awareness was recognised as a key factor in shaping effective listening in Arabic as a second language, encompassing both knowledge of cognitive processes and their regulation during listening tasks. However, its impact on actual performance had been underexplored. This study examined the influence of students' metacognitive awareness on Arabic listening skills (*mahārah istimā'*), focusing on predictive strength and pedagogical implications.

Methods: 300 Form Four students were selected from 1,280 Arabic learners in Johor, Malaysia, using proportionate stratified random sampling. A quantitative survey design was employed with the Metacognitive Awareness Listening Questionnaire (MALQ) and a standardised Arabic listening test. Data were analysed using Pearson correlation and multiple linear regression in SPSS version 23. Approval was obtained from the Ministry of Education Malaysia, Johor State Education Department, school principals, and Arabic teachers. Parents were informed by class teachers through official channels, and no objections were raised, thereby confirming informed consent.

Results: Findings showed a strong positive correlation ($r = 0.92$) between metacognitive awareness and listening performance. Metacognitive awareness explained 85% of the variance in scores, demonstrating high predictive validity. Students also displayed resilience and adaptability in applying strategies to overcome listening challenges.

Discussion: The results underscored the significance of metacognitive regulation in supporting comprehension, confirming theoretical expectations and aligning with prior research.

Conclusion: The study concluded that metacognitive awareness should be prioritised in Arabic listening instruction, offering a framework for integrating strategy-based interventions to strengthen proficiency.

Keywords: Arabic language, Listening skills, Metacognitive awareness, Secondary religious school, MALQ, Special religious programmes.

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1. INTRODUCTION

Students encounter numerous challenges when acquiring a second or foreign language, particularly concerning listening skills. Listening is often regarded as one of the more challenging skills to master, requiring heightened levels of concentration and intensity to fully grasp auditory input. It serves as a receptive skill that assimilates knowledge from language learning activities [1-4]. In Malaysia, the significance of developing Arabic listening skills has not received the requisite attention in teaching and learning practices [5, 6]. The prevalent low proficiency in listening skills poses significant hurdles for students in mastering the language, attributed to a deficiency in effective listening strategies [7], a lack of student motivation [8], and an inadequate learning environment coupled with unsuitable materials.

Previous research has highlighted a lack of initiative in cultivating Arabic listening skills, citing insufficient pedagogical training specifically tailored for teaching this skill and a scarcity of learning resources, both within and beyond the classroom [6, 9, 10]. Moreover [10], study indicated that Arabic language instructors predominantly emphasise reading and writing skills, while the listening component is often overlooked in textbook development, despite its fundamental importance relative to the other three language skills [10]. Findings revealed that Arabic language textbooks for Form One and Form Two students, commencing in the 2017/2018 academic year, prioritised writing exercises over other language skills. This trend suggests that, although Arabic is purportedly focused on communicative elements, listening skills remain relegated to a secondary status [6]. Further established that inadequate mastery of listening strategies hampers students' understanding of auditory information, often resulting in a loss of focus during listening activities, which in turn fosters negative attitudes and impedes comprehension of auditory input. Additionally [4], noted that while listening skills were practised in class, the effectiveness of these practices was limited, as the employed strategies did not yield favourable outcomes.

Learning strategies represent a crucial component of metacognitive skills that should be inherent in every student. These metacognitive skills are instrumental in facilitating effective learning and can be cultivated through the enhancement of metacognitive awareness [11]. Research by Dabbagh and Noshadi [12] as well as Robillos and Bustos [13], has demonstrated a significant correlation between metacognitive awareness and proficiency in listening skills. However, specific studies assessing the level of metacognitive mastery in Arabic language skills among students remain scarce [14]. Investigating metacognitive awareness in Arabic listening skills is imperative, as findings from prior studies suggest that students' mastery of metacognitive awareness in listening is vital for improving their capabilities and proficiency in addressing learning challenges [11], which subsequently enhances their listening skills. Therefore, this study aims to elucidate the relationship and influence of metacognitive awareness on the achievements of Religious Secondary School students in Johor, Malaysia.

1.1. Listening Skills

The *International Listening Association* (1996) defines listening as a receptive skill that provides informational input regarding specific matters. In the context of Arabic language acquisition, the auditory input garnered through listening activities is processed by the brain, with feedback from this input potentially manifesting in various forms, whether verbal or physical [15]. The comprehension of language input is facilitated through the discrimination of sounds, intonation, linguistic structures, and the listener's prior knowledge [10]. This categorizes listening into two types: passive listening and active listening. The Arabic terms (سمع), meaning 'to hear,' and (استماع), denoting 'to listen,' possess distinct definitions despite sharing the same root (سمع) [10, 16]. The term 'dengar' (سمع) refers to passive listening, wherein the listener perceives input, such as sound, without focused attention. Conversely, (استماع) denotes active listening, where the listener engages in specific processes to provide feedback on what is heard, whether through verbal or physical responses [17].

Behaviourism is a traditional theory that accentuates the fundamental process of language acquisition through listening activities [18, 19]. Proponents of Behaviourist Theory, such as Skinner, assert that language acquisition can be mastered through the frequent practice of words and habituation to listening. This repetitive process becomes a behaviour, enabling the individual to attain mastery of the skill. This theory is predicated on stimulus and response (conditioning) to cultivate linguistic behaviour. In contrast, Cognitive Theory posits that listening is the primary skill to be acquired within an informal environment, as opposed to other language skills. This environment activates the Language Acquisition Device (LAD) through exemplars of language usage in the surrounding context. An analogy can be drawn with an infant who articulates their first words in accordance with the language predominantly spoken by family members, without formal instruction in that language [20].

The aforementioned language learning theories primarily emphasise listening skills within the language acquisition process [21, 22]. Proficiency in listening skills lays the groundwork for students' achievements and competencies in a foreign language [7, 23]. The lack of awareness regarding the significance of listening skills in the language learning process has emerged as a contributing factor to students' weaknesses and deficiencies in foreign language proficiency [1, 24, 25]. Studies conducted by Landry [26], and Djabbarova [5], elucidate that the neglect of foreign language listening skills arises from the presumption that students will naturally acquire this skill in the same manner as they learn to walk. In reality, this is not the case, as listening skills necessitate development through effective learning modules [27, 28]. A needs analysis of listening skills learning modules in a study by Nurhidayati *et al.* [28], involving university-level Arabic language students revealed a pressing need for methodologies and strategies to address the challenges encountered during listening activities.

Drawing from the array of theories in language learning, four predominant approaches to second language teaching have emerged: traditionalist, structuralist, rationalist, and functionalist approaches. These approaches diverge in their philosophical underpinnings and principles, resulting in controversies that directly influence language pedagogy. Nonetheless, the functionalist approach is regarded as more pragmatic in its focus on language skills, including listening skills [29]. To address the distinction between these four approaches, the traditionalist approach emphasizes rote memorisation, translation, and grammar-translation methods. The structuralist approach focuses on linguistic structures and patterns, advocating repetition and drills. The rationalist approach aligns with innatist theories, assuming learners possess internal mechanisms (*e.g.*, LAD) that aid in acquiring language through meaningful exposure. Meanwhile, the functionalist approach prioritizes language use in authentic contexts and communicative competence, especially in skills such as listening, making it the most relevant for current second language pedagogy.

1.2. Listening Arabic Skills

The comprehension of auditory information is propelled by the concurrent engagement of both linguistic and non-linguistic knowledge. The essential linguistic knowledge requisite for Arabic listening skills encompasses an understanding of phonetic elements, lexical items, syntax, semantics, and discourse structure. Non-linguistic knowledge pertinent to Arabic listening skills includes familiarity with the topic, contextual nuances of the text, and the form of the auditory information conveyed. Instruction in Arabic listening skills should prioritise the mastery of both linguistic and non-linguistic knowledge to facilitate effective language acquisition through auditory input. Furthermore [30], have delineated the sub-skills of listening that students must master, as illustrated in Table 1 below.

Table 1. Sub-skills for Arabic listening.

Skills	Sub-skills
The skills of listening to the meaning of the words	Understanding the recognition of word sounds
	Understanding the lexical meaning of words
	Understanding the contextual meaning of words
The skills of listening to the meaning of the text	Understanding the literal meaning of the text
	Understanding the inferential meaning of the text

Table 1 shows the sub-skills for Arabic listening. These listening sub-skills are aligned with the sub-skills for reading, except for the first listening sub-skill, which is the understanding of word sound recognition. This is because both listening and reading skills are receptive skills that provide input in the language acquisition process.

1.3. Metacognitive Awareness in Listening Skills

The Metacognitive Theory, from theory [31], serves as the foundational framework for the development of metacognitive knowledge [32]. This knowledge is informed by the evolution of cognitivism [33]. The term 'metacognitive,' popularised by Flavell, denotes an individual's

capacity to reflect upon their cognitive processes [34]. In the context of metacognitive learning, this concept underscores the necessity for individuals to comprehend and acquire effective learning strategies pertinent to a specific discipline. The body of research surrounding metacognition has proliferated significantly, resulting in the categorisation of its dimensions into various classifications [35].

According to Flavell and Goh, [31, 36] fundamentally delineates this theory into two principal components: cognitive knowledge and cognitive control. Nevertheless, scholars have interpreted these two facets across diverse contexts [37]. elaborate on cognitive knowledge as the awareness of the skills, strategies, and resources essential for task completion, while cognitive control pertains to the ability to discern how, when, and what actions are required to successfully execute a task [38]. Conducted a study that meticulously analysed the concept of metacognition in direct relation to listening skills. They bifurcated it into two components: metacognitive knowledge and metacognitive strategies. Consequently, the context of metacognitive awareness in this study pertains to students' cognizance of their metacognitive knowledge and strategies, as elucidated by Vandergrift *et al.* [38], specifically regarding listening skills. Overall, metacognitive awareness, as articulated by Vandergrift *et al.* [38], and represented in the Metacognitive Awareness Listening Questionnaire (MALQ), assesses five dimensions of metacognitive awareness: metacognitive knowledge and four categories of metacognitive strategies employed by students, as illustrated in Fig. (1).

The investigation conducted by Savitri and Anamafter [34], involving 80 university students learning English as a foreign language indicated that metacognitive awareness constitutes the bedrock for enhancing listening strategies among students. Findings from research corroborate this conclusion, demonstrating that metacognitive awareness significantly contributes to augmenting students' comprehension and proficiency in listening skills [39-41].

This study is also grounded in Metacognitive Theory and model of metacognitive awareness, which emphasises the elements of planning, controlling, and evaluating learning [31, 38]. In conclusion, the study's hypothesis posits a correlation between the two variables, based on the premise that a heightened level of metacognitive awareness in Arabic listening skills is associated with superior achievement in Arabic listening proficiency [42].

2. MATERIALS AND METHODS

This study employs a cross-sectional survey design, deemed appropriate as it elucidates trends in attitudes, beliefs, and opinions within a population through quantitative and numerical analysis across various groups [43]. The objective of this study is to examine the relationship between metacognitive awareness and Arabic listening proficiency among students in Johor, Malaysia, with the aim of offering contextual insights that may inform broader pedagogical practices, while recognising that findings may not be fully generalisable to other states due to cultural and curricular variations.

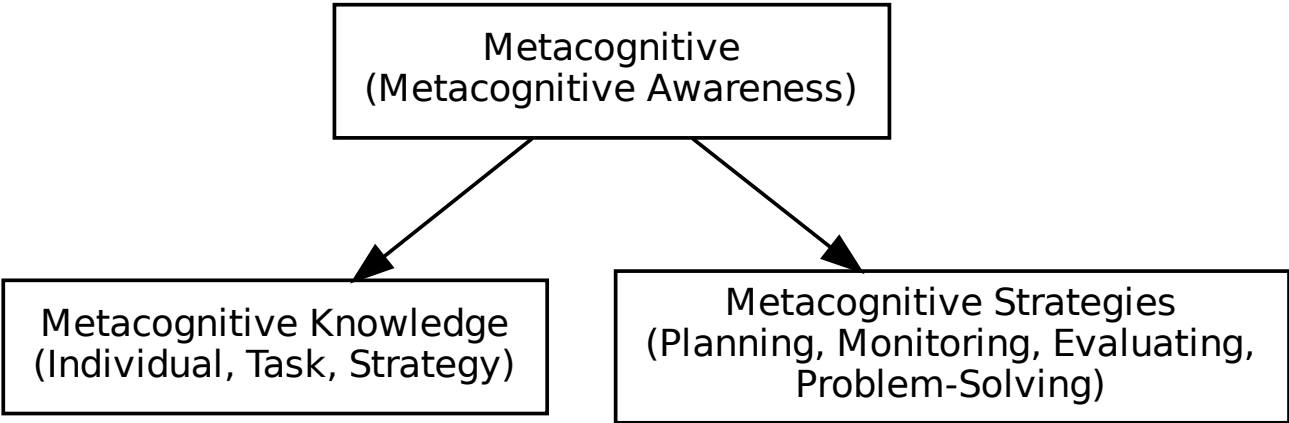


Fig. (1). Components of metacognitive awareness in listening skills [38, 42].

The focus of the study is exclusively on metacognitive awareness in Arabic listening skills and the evaluation of students' Arabic listening competencies. Quantitative data were collected through the distribution of questionnaires to Form Four students studying Arabic under the Kurikulum Standard Sekolah Menengah (KSSM) across three distinct categories of schools: Sekolah Menengah Kebangsaan Agama (SMKA), Sekolah Berasrama Penuh Integrasi (SBPI), and Sekolah Menengah Kebangsaan (SMK) for Special Religious Programmes (KAA) [42].

2.1. Population & Sampling

The study population comprised a total of 1,280 Form Four Arabic language students from SBPI, SMKA, and SMK enrolled in the KAA stream in Johor, Malaysia [42]. Johor is a southern Malaysian state bordering Singapore and is one of the most developed states in the country. It comprises a diverse population and a well-established educational infrastructure, making it a suitable setting for educational research, particularly in assessing language learning among secondary school students. This demographic spans ten districts in Johor: Johor Bahru, Kulai Jaya, Kota Tinggi, Pontian, Kluang, Segamat, Ledang, Tangkak, Muar, and Mersing. The list of schools was procured from the Chief Examiner for Arabic Oral Tests in Johor, with confirmation obtained from the International Language Unit, Language and Literature Sector, Johor State Education Department. The requisite sample size determined for this study was 300 students [42], as per Krejcie and Morgan's sample size determination table [44].

This study utilised proportionate stratified random sampling to select the number of respondents. According to [45], stratified random sampling is particularly suitable for studies based on state zones or for sample selection across multiple categories. In this instance, the number of respondents corresponds to three distinct school categories: SBPI, SMKA, and SMK (KAA) [42]. The proportionate stratified sampling technique was employed to ascertain the selection of study samples, aiming to

represent the population and provide a comprehensive overview of the phenomenon under investigation [46]. Table 2 delineates the number of Form Four Arabic language students categorised by the school types involved as study samples.

Table 2. Number of study respondents by school category [42].

School Category	Population	Percentage Sample	Number of Student
SBPI	60	5%	15
SMKA	698	54%	162
SMK(KAA)	522	41%	123
Total	1280	100%	300

The inclusion criteria were: (i) students officially enrolled in Form Four at SBPI, SMKA, or SMK (KAA) in Johor; (ii) students taking Arabic as a compulsory subject; and (iii) students present during the data collection period. The exclusion criteria were: (i) students absent on the day of data collection; (ii) students with formally diagnosed hearing impairments; and (iii) incomplete responses to either the MALQ or the listening test.

This study received formal approval from the Ministry of Education Malaysia, BPPDP (ref: KPM.600-3/2/3-eras (14158)), the Johor State Education Department (ref: JPNJ.PS.600-1/1/12 Jld.16 (56)) [42], the principals of the participating schools, and the respective Arabic language teachers. Parents were informed about the study through official WhatsApp groups by the class teachers, and no objections were raised. Informed consent was therefore considered obtained for all participants, with parental consent implicitly granted for those under 18 years of age. All demographic information, sample size, and ethical details were checked for accuracy and consistency throughout the manuscript to avoid discrepancies or duplication. All procedures strictly followed the approved protocol, safeguarding participants' rights and welfare throughout the research.

A structured pedagogical support pathway was developed in collaboration with Arabic language teachers, facilitating the timely implementation of metacognitive strategy interventions for students exhibiting substantial difficulties in Arabic listening tasks. The data from this study were analyzed using the Statistical Package for Social Sciences (SPSS) version 23 software for inferential analysis to accurately address the research questions. The Pearson correlation coefficient values were involved in the inferential analysis to determine the direction and strength of the relationship between the level of metacognitive awareness and the level of achievement in Arabic listening skills before determining the contribution value.

2.2. Research Instruments

Two types of instruments were used during the study: a questionnaire and a test. The questionnaire was used to identify the respondents' level of metacognitive awareness in listening skills, adapted and modified from the Metacognitive Awareness Listening Questionnaire (MALQ) by [39, 42]. A five-point Likert scale was used for measurement, with extreme scales at both ends-scale 1 (strongly disagree) and scale 5 (strongly agree). The questionnaire consists of two main constructs and four dimensions. The first construct is metacognitive knowledge, represented by the dimension of individual knowledge (4 items), while the second construct is metacognitive strategies, represented by the dimensions of planning-evaluation (6 items), problem-solving (6 items), mental translation (3 items), and directed attention (4 items). Modifications to the items were made to ensure that the terminology used was appropriate for the context of Arabic language learning. Terms modified include Arabic listening skills, Arabic texts, and Arabic conversations. The use of this questionnaire allows for effective data collection and minimizes time usage during the data gathering process [42, 47].

The second instrument is a listening skills test constructed according to the format of the *Goethe-Zertifikat A2 Fit in Deutsch* German language exam and based on the *Common European Framework of Reference for Languages (CEFR)* to assess the German language proficiency of students aged 12 to 16. The purpose is to identify the level of achievement in Arabic listening skills. The test contains 20 questions divided into four sections and assesses two sub-skills in Arabic listening: understanding the literal and inferential meanings of texts without viewing the text. Sections one and three are multiple-choice questions, section two consists of matching questions, and section four requires students to determine whether the given statements are true or false. Students need to listen to Arabic conversations and text readings within the allocated time before answering the provided questions. The time allotted for students to complete the test is 30 minutes. The thematic content of the questions is based on the KSSM Arabic curriculum from Form One to Form Four [42]. The interpretation of students' Arabic listening achievement was based on four performance levels, namely high, moderate, low, and very low, as outlined in Table 30. This

classification adheres to the grading standards set by the Malaysian Ministry of Education for SPM-level subjects, including Arabic. High performance corresponds to grades A+, A, and A- (excellent to highest excellent), moderate performance includes grades B+, B, C+, and C (credit to highest credit), low performance refers to grades D and E (pass and upper pass), while very low performance reflects a failing grade (G). This grading framework provides a nationally recognised benchmark for interpreting listening proficiency levels in a standardised and meaningful way.

Table 3. Interpretation of the correlation coefficient [48].

Correlation Coefficient Value	Correlation Interpretation
0.71 - 1.00	Strong
0.30 - 0.69	Moderate
0.00 - 0.29	Weak

The validity and reliability of the instruments were established to test the consistency and accuracy before conducting the pilot and actual studies. The aspect of validity refers to content validity of the items, involving four Arabic language education experts comprising senior lecturers from public universities, Chief Trainers for Arabic Language Subjects, Excellent Arabic Language Teachers, and the Chief Examiner for Arabic Oral Tests. The Cronbach's Alpha test yielded a value of 0.91, indicating a high reliability coefficient [42]. For the reliability of the Arabic listening skills test questions in the pilot study, analysis was conducted using formulas for the difficulty index and discrimination index. All test items were retained as they could differentiate respondents' achievement levels and had discrimination index scores in the range of $0.20 \leq ID < 0.40$ [42].

After all data were collected, they were entered into SPSS version 23 software and coded based on the study variables. No subgroup or interaction analyses were conducted in this study. Although the sample was stratified across three school types (SMKA, SBPI, and KAA), statistical comparisons between subgroups such as gender or school type were not performed. All data were thoroughly reviewed for completeness prior to analysis. Questionnaires and test responses that were incomplete or incorrectly completed were excluded from the final dataset. Consequently, only complete cases ($N = 300$) were retained for the final analysis. Given the minimal extent of missing data and the absence of systematic patterns across groups, no imputation techniques were deemed necessary. A complete case analysis was performed, as no missing data were identified for either the MALQ items or the Arabic listening skill scores. Given that the sample strata sizes were proportionally aligned with the population through proportionate stratified random sampling, the application of analytical weighting was deemed unnecessary.

To ensure clarity and reduce potential confusion during the data collection process, the instruments were administered face-to-face with all respondents. Prior to

completion, a detailed explanation regarding the purpose of the study and the procedures for responding to the questionnaire and test was provided. Following this, a short training session was conducted specifically for the listening test. This session aimed to familiarise the respondents with the format and expectations of the assessment, especially considering that most participants had limited prior experience with formal Arabic listening skill tests using such structured formats. This measure was taken to minimise errors, promote respondent confidence, and enhance the reliability of the data obtained, in line with standardised data collection procedures.

Data were analyzed using Pearson Correlation and Multiple Linear Regression statistical tests after all test assumptions were met. Sensitivity analyses were not conducted, as the primary regression model was determined to be sufficiently robust in capturing the relationship between metacognitive awareness and Arabic listening proficiency. A data normality test was conducted before the data analysis process to determine whether the data were parametric or non-parametric, involving Kolmogorov-Smirnov, Shapiro-Wilks, Skewness, and Kurtosis tests. Pearson correlation tests were conducted to identify the relationship between the level of metacognitive awareness and the level of achievement in Arabic listening skills. The interpretation of the relationship level between these two study variables follows the correlation coefficient table [48], as shown in Table 30.

3. RESULTS

A total of 300 Form Four students from three categories of schools-Sekolah Menengah Kebangsaan Agama (SMKA), Sekolah Berasrama Penuh Integrasi (SBPI), and Sekolah Menengah Kebangsaan (SMK) offering the Kelas Aliran

Agama (KAA) program-successfully completed both the questionnaire and the Arabic listening test. There were no refusals or exclusions, and all selected participants took part in the study as intended. No missing data were identified for either the MALQ items or the Arabic listening scores; all 300 responses were complete and included in the final analysis. This full participation enhances the representativeness of the dataset and significantly reduces the potential for non-response bias. Fig. (2) presents the participant flow diagram of the study, illustrating the number of Form Four Arabic language students categorized by school type.

This study involved 300 Form Four students, all of whom completed the required instruments with no cases of non-response or attrition. The sample included 138 male students (46%) and 162 female students (54%). In terms of school type, 162 students (54%) were enrolled in Sekolah Menengah Kebangsaan Agama (SMKA), 15 students (5%) in Sekolah Berasrama Penuh Integrasi (SBPI), and 123 students (41%) in Sekolah Menengah Kebangsaan implementing the Kelas Aliran Agama (KAA) programme.

The schools were geographically distributed across four zones: Northern (38%), Southern (30%), Western (24%), and Eastern (8%). Regarding academic streams, 170 students (57%) were from the Science stream and 130 students (43%) from the Arts stream. Notably, all participants reported receiving fewer than three listening training sessions per month, indicating a generally low exposure to formal listening instruction in their academic routine. Table 4 presents the demographic background of the respondents, detailing the distribution of Form Four Arabic language students by school type.

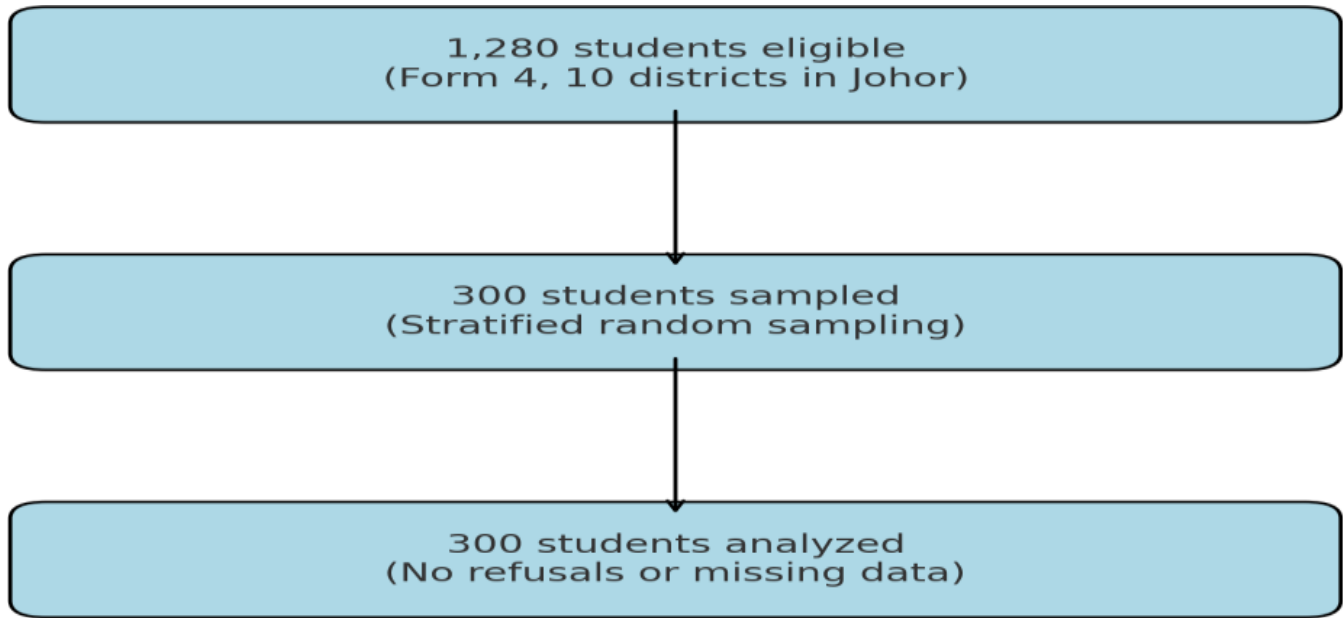


Fig. (2). Participant flow diagram of the study.

3.1. The Relationship between Metacognitive Awareness and Arabic Listening Skills

Before identifying the strength and direction of the relationship between students' metacognitive awareness and their Arabic listening skills, it is crucial to explore the structural dimensions that form the basis of this awareness. Metacognitive awareness is measured based on two main aspects: metacognitive knowledge and metacognitive strategies. The metacognitive strategies are assessed according to four strategy dimensions: planning-evaluation, problem-solving, mental translation, and direct observation. The results of data analysis using Pearson correlation tests are shown in Table 5 below.

Table 4. Demographic background of respondents.

Background	Item	Frequency	Percentage (%)
Gender	Male	138	46%
	Female	162	54%
School type	SMKA	162	54%
	SBPI	15	5%
	KAA	123	40%
School Zone	Northern Zone	115	38%
	Southern Zone	90	30%
	Eastern Zone	24	8%
	Western Zone	71	24%
Academic Stream	Science	170	57%
	Arts	130	43%
Frequency of Listening Skills Training per Month	Less than 3 times	300	100%
	3 times or more	0	0%
n=300			

Table 5. The correlation between the level of metacognitive awareness and the achievement of Arabic listening skills.

Correlation	Listening Skill Achievement		Interpretation
	r	Sig	
Metacognitive knowledge	0.845	0.00	Strong
Metacognitive strategies	0.891	0.00	Strong
- Planning-evaluation	0.845	0.00	Strong
- Problem-solving	0.801	0.00	Strong
- Mental translation	0.609	0.00	Moderate
- Direct observation	0.876	0.00	Strong
Metacognitive awareness	0.92	0.00	Strong

The study's findings reveal that the Pearson correlation coefficient between metacognitive awareness and Arabic listening skills is $r = 0.92$, with a significant relationship; $r(300) = 0.92$, $\text{sig.} = 0.00$, $p > 0.05$. A correlation value exceeding 0.70 indicates a strong positive relationship ([48] Cohen, 2017). This relationship suggests that the higher the metacognitive awareness of listening skills among students, the higher their listening skill achievement. The results also reveal that the correlation values for all dimensions within the metacognitive strategies-namely, planning-evaluation ($r = 0.845$), problem-solving ($r = 0.801$), and direct observation ($r = 0.876$)-exhibit a strong, significant relationship with Arabic listening skill achievement. However, the mental translation dimension shows a moderate positive relationship with $r(300) = 0.609$, $\text{sig.} = 0.00$, $p > 0.05$.

3.2. The Contribution of Metacognitive Awareness to the Achievement of Arabic Listening Skills

Multiple linear regression analysis was used to determine the contribution of metacognitive awareness to achievement in Arabic listening skills. This analysis was conducted to predict the factors contributing to the level of listening skill achievement. The findings are presented in Table 60.

Table 6 presents the results of a multiple linear regression analysis, which demonstrated that the overall model was statistically significant: $F(2, 300) = 860.247$, $p < 0.001$, with an R^2 value of 0.85. Both metacognitive knowledge ($\beta = 5.483$, $t(300) = 10.935$, $p < 0.001$) and metacognitive strategies ($\beta = 9.196$, $t(300) = 16.768$, $p < 0.001$) emerged as significant predictors of listening skill performance. The analysis indicates that metacognitive strategies contributed more substantially to listening skill achievement, accounting for 52.7% of the explained variance, whereas metacognitive knowledge accounted for 32.6%. The remaining 15% of the variance is presumed to be attributable to other unmeasured variables or strategies not examined in this study. The resulting regression equation is as follows: $\text{Listening Skill Achievement} = 3.950 + (5.483 \times \text{Metacognitive Knowledge}) + (9.196 \times \text{Metacognitive Strategies})$

Pearson correlation analysis also indicates that all dimensions of metacognitive aspects are correlated with listening skill achievement. Therefore, Table 7 explains the percentage contributions of the following metacognitive strategy dimensions.

The results of the multiple linear regression analysis for the dimensions of metacognitive strategies reveal that all dimensions significantly affect Arabic listening skill achievement, except for the mental translation dimension. The planning-evaluation dimension contributed the most, accounting for 21.8%. Problem-solving contributed 18.5%, while direct observation contributed 11.8%. The mental translation strategy, however, only contributed 0.6%. Nevertheless, the analysis shows no significant influence of the mental translation dimension on Arabic listening skills.

Table 6. The contribution of metacognitive awareness to achievement in Arabic listening skills.

Predictor	B	Std. Error	Beta	t	Sig	R ²	Contribution %
Constant	3.950	1.239	-	-3.188	0.002	-	-
Metacognitive knowledge	5.483	0.501	0.386	10.935	0.000	0.85	32.6%
Metacognitive strategies	9.196	0.548	0.592	16.768	0.000	-	52.7%
R ² = 0.85; F (2, 300) = 860.247, Sig. F = 0.000							

Table 7. The contribution of metacognitive strategy dimensions to achievement in students' listening skills.

Predictor	B	Std. Error	Beta	t	R ²	Contribution %
Constant	-0.082	1.801	-	-0.045	0.001	-
Planning-evaluation	3.215	0.597	0.259	5.384	0.000	21.8%
Problem solving	4.404	0.770	0.232	5.722	0.000	18.5%
Mental translation	0.146	0.443	0.011	0.330	0.742	0.6%
Direct observation	5.624	0.528	0.481	10.653	0.000	11.8%
R ² = 0.527; F (2, 300) = 860.247, Sig. F = 0.000						

4. DISCUSSION

The positive correlation between metacognitive awareness and the level of listening skill achievement is consistent with the findings of [49, 50], who found a relationship between metacognitive awareness and English listening skill achievement using the MALQ instrument. The implementation of metacognitive awareness, which encompasses both knowledge and metacognitive strategies, promotes active learning in listening skills [34], leading to better comprehension of auditory input. Emphasizing students' planning and self-evaluation in learning listening skills based on metacognitive awareness contributes to success in listening skill achievement. This is because metacognitive knowledge and strategies underlying metacognitive awareness inform students about their strengths and weaknesses, as well as the actions they need to take to achieve higher results [51].

Active learning driven by metacognitive awareness in listening skills also enhances students' confidence and motivation to complete listening tasks, ultimately leading to a good mastery of comprehension [40]. Furthermore, listening skill learning becomes more organized, and students are better prepared to solve problems arising during listening activities, allowing the learning objectives of Arabic listening skills to be met. Self-evaluation of each listening activity helps students avoid repeating mistakes, enabling them to achieve a high level of listening skill mastery. This is justified by the study findings that show a strong relationship between the planning-evaluation and problem-solving strategies with students' achievements in Arabic listening skills.

The positive correlation between metacognitive awareness and listening skill achievement suggests that efforts to enhance the level of metacognitive awareness in learning listening skills should be encouraged. Students need to understand their own level of metacognitive awareness and master the concept of implementing metacognitive awareness, which emphasizes planning, controlling, and evaluating in listening skill learning. The

relationship between metacognitive awareness and success in listening skill achievement can be observed through the strategies used by listeners after being taught effective listening approaches, management, control, and evaluation [52]. Therefore, teachers play an important role in providing students with knowledge and instruction related to metacognitive awareness.

The practice of metacognitive awareness must first be introduced to students by teachers and applied in learning Arabic listening skills. This is because a learning approach that relies solely on pre-tests without training to enhance metacognitive awareness will increase students' anxiety towards learning listening skills [13, 53]. This aligns with Vygotsky's Cognitive Theory, which suggests that teachers act as scaffolds in students' listening activities by implementing listening processes that allow students to evaluate information and determine appropriate responses [10].

Moreover, asserts that the practice of metacognitive awareness affects achievement levels, as it can increase motivation and reduce students' anxiety towards listening skills [51]. However, students' mastery of metacognitive awareness needs to be trained. The effectiveness of using metacognitive strategies through practice in listening activities enhances students' listening comprehension abilities [54]. In conclusion, the level of mastery in metacognitive awareness through metacognitive knowledge and strategies in learning listening skills needs to be improved to achieve high proficiency in Arabic listening skills, as there is a strong positive correlation between these two variables. Students must be taught about metacognitive awareness in listening skills, and the application of metacognitive knowledge and strategies should be incorporated into listening skill learning to observe its effectiveness and make it a consistent practice.

The findings of this study suggest that metacognitive awareness plays a crucial role in enhancing students' cognitive functioning [55]. Students with high meta-

cognitive awareness tend to achieve results that reflect careful thinking. The dimensions within the metacognitive strategies, particularly direct observation, show significant contributions to listening skill achievement. Direct observation emphasizes the focus and consistency of students in learning listening skills. According to Goh [53], listening skill evaluation involves a prolonged and tiring process, as students must repeatedly and carefully listen to auditory input to build understanding. If students lose focus, they are more likely to abandon the listening task. Therefore, effective strategies must be implemented to enhance students' focus. Searching for understanding through keywords and comparing auditory input with prior knowledge are examples of metacognitive strategies that influence achievement and mastery in Arabic listening skills.

Metacognitive awareness contributes to listening skill achievement and indirectly influences other aspects involved in learning listening skills. These include enhancing students' motivation levels. Students with high metacognitive awareness tend to have higher motivation in learning [41]. According to Goh [36], perception and metacognitive awareness play a role in either positively or negatively affecting students' motivation in performing listening tasks or activities. The contribution of metacognitive awareness to increased motivation results from effective listening skill management, which, in turn, boosts students' self-confidence [40]. Metacognitive strategies, particularly problem-solving strategies, help reduce students' anxiety in understanding auditory input, subsequently increasing their motivation [56].

Metacognitive awareness also contributes to creating a conducive learning environment [11]. A good Arabic learning environment can be created through the use of videos and radio broadcasts [57]. Audio broadcasts, such as radio, are one of the sources of auditory input. Furthermore [58], study found that the use of YouTube is another alternative for acquiring listening audio, which can motivate students during listening activities. Therefore, enhancing metacognitive awareness through listening practice with Arabic audio broadcasts or other audio materials can indirectly create a positive learning environment and increase students' motivation and mastery in Arabic language learning.

5. STUDY LIMITATIONS

One key limitation of this study is its reliance on self-reported data through questionnaires, which may introduce social desirability bias. Additionally, the cross-sectional design precludes establishing causality between metacognitive awareness and listening proficiency. The study's sample was limited to selected schools in Johor, which may affect generalizability to other regions. While the results provide insight into Arabic listening skill acquisition in Johor, Malaysia, their generalisability to other states or educational systems may be limited due to cultural and curricular differences. Although the primary objective of this study did not explicitly involve subgroup comparisons, the use of stratified random sampling

ensured balanced representation across three school types (SMKA, SBPI, and SMK-KAA), potentially reflecting diverse learning environments. However, the regression model did not incorporate interaction terms, and no subgroup analyses such as those based on gender or school type were conducted. Future research is encouraged to include such analyses to identify potential moderator effects that may offer deeper insights into the dynamics of Arabic language learning. Future research should focus on optimizing student dimensions, particularly through student autonomy, which has been found to directly impact comprehension of auditory input in Arabic listening skill learning. Moreover, this study suggests further exploration using more detailed analyses, such as Structural Equation Modeling (SEM), to help build models and analyze relationships between study variables simultaneously in a more effective, accurate, and efficient manner.

CONCLUSION

This study was conducted to identify the relationship and contribution of metacognitive awareness to the achievement of Arabic listening skills among fourth-year secondary school students in Johor. The study explains that metacognitive awareness of Arabic listening skills, which encompasses both metacognitive knowledge and strategies, is a key variable in determining the level of Arabic listening skill achievement. The study also proposes a paradigm shift in efforts to improve students' skills and proficiency in Arabic listening skills through comprehensive information about correct perceptions and actions in learning listening skills. The findings reveal a significant relationship between the level of metacognitive awareness of Arabic listening skills and students' listening skill achievement. However, only one dimension from the metacognitive strategy aspect, mental translation, did not significantly contribute to the level of listening skill achievement. This study reinforces the theories and models used, namely [32] Flavell's theory, and [39] Vandergrift's model, which focus on variables related to listening skills. The study also significantly contributes to the importance of fostering student autonomy in developing proficiency in Arabic listening skills.

AUTHORS' CONTRIBUTIONS

The authors confirm contribution to the paper as follows: N.F. and H.: Conceptualization; N.F. and H.: Methodology; H.: Software; N.F. and H.: Instrument validation; N.F. and H.: Data analysis; H.: Resources management; N.F.: Data collection; N.F.: Original draft preparation; H.: Review and editing; N.F. and H.: Visualization; H.: Project administration; H.: Funding acquisition. All authors have read and agreed to the published version of the manuscript.

LIST OF ABBREVIATIONS

MALQ = Metacognitive Awareness Listening Questionnaire
MOE = Ministry of Education

KSSM = Kurikulum Standard Sekolah Menengah;
 SMKA = Sekolah Menengah Kebangsaan Agama
 SBPI = Sekolah Berasrama Penuh Integrasi
 SMK = Sekolah Menengah Kebangsaan
 KAA = Special Religious Programmes
 CEFR = Common European Framework of Reference for Languages.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study received formal approval from the Ministry of Education Malaysia, Educational Planning and Research Division (EPRD) (Ref: KPM.600-3/2/3-eras(14158)), and from the Johor State Education Department (JPNJ) (Ref: JPNJ.PS.600-1/1/12 Jld.16(56)).

HUMAN AND ANIMAL RIGHTS

All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Parents were informed about the study through official WhatsApp groups by the class teachers, and no objections were raised. Informed consent was therefore considered obtained for all participants, with parental consent implicitly granted for those under 18 years of age.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of the article will be available from the corresponding author [H.B] upon reasonable request.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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