Implementing The CALLA Framework And Metacognitive Approach To Overcome Difficulties In Mastering Arabic Vocabulary

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Abstract

The issue of Arabic vocabulary mastery has long been a concern among researchers and educators. In Malaysia, students' limited proficiency in Arabic vocabulary remains a persistent challenge across both school and higher education settings. Two primary shortcomings have been identified in the teaching and learning of Arabic vocabulary: (1) the lack of explicit implementation of vocabulary learning strategy training, and (2) insufficient exposure to effective vocabulary learning strategies. This paper aims to examine the challenges faced by Malaysian students in mastering Arabic vocabulary and to explore how the Cognitive Academic Language Learning Approach (CALLA) and metacognitive approach can serve as effective interventions, based on secondary sources. Students who receive explicit instruction in vocabulary learning strategies are more likely to develop greater metacognitive awareness in selecting and applying appropriate strategies, thereby improving their ability to self-regulate and manage the vocabulary learning process effectively. This paper contributes to a deeper understanding of effective vocabulary instruction strategies and offers pedagogical implications for enhancing comprehension and reducing learner errors in Arabic vocabulary learning.

Keywords: Arabic Vocabulary; Vocabulary Learning Strategies; VLS; CALLA Model; Metacognitive Approach

INTRODUCTION

Vocabulary is essential for learners to master and understand a second or foreign language. Baharun et al. (2021) explain that vocabulary is the most important measure for assessing students' proficiency in Arabic. However, the level of Arabic vocabulary mastery among students in Malaysia remains unsatisfactory (Maaruf & Samah, 2020; Maskor, 2020; Rizan & Baharudin, 2021; Samah et al., 2023; Hamid & Baharudin, 2024; Zulkepli et al., 2024). Arabic learners in Malaysia continue to face difficulties in acquiring a sufficient vocabulary size, both at the secondary school level and in higher education institutions, despite studying the language over an extended period (Husain & Mohamad, 2020; Maskor, 2020; Razak et al., 2020; Baharudin et al., 2023).This has resulted in difficulties for students in comprehending texts, constructing specific sentences in Arabic (Zumrah et al., 2020) and pronouncing words correctly (Zulkepli et al., 2024).

Furthermore, several studies indicate that the level of mastery in vocabulary knowledge remains unsatisfactory. More than 50% of respondents were unable to identify

the categories or morphological patterns of words (وَزَن) as well as their meanings. While students were able to distinguish between verbs (فِعْل) and nouns (اسم), they struggled to understand the further types or grammatical functions of these words within a sentence context (Razak et al., 2020). In addition, Hashim et al. (2020) found that one of the major factors contributing to students' weak mastery of Arabic is the difficulty associated with affixed vocabulary. These difficulties hinder learners' understanding of related word meanings and are further compounded by their limited knowledge of the root word forms. Additionally, students were reported to have difficulty applying the vocabulary they learned in actual sentence construction. These findings align with the study by Baharudin et al. (2023), which revealed that although students possessed a relatively large vocabulary size (mean = 15.26), their depth of vocabulary knowledge was only moderate (mean = 7.16), indicating an imbalance between the number of words known and their deep understanding of proper usage.

Vocabulary learning problems arise because strategy instruction is implicit, with teaching being teacher-centred and offering little active involvement from students. As noted by Baharudin and Ismail (2015), Arabic vocabulary instruction in Malaysia often occurs implicitly. Fu'adah (2021) highlighting that many teachers tend to rely solely on memorization methods in vocabulary instruction, as they are perceived to be quick and easy to implement. Typically, teachers do not provide detailed explanations about when, where why and how specific strategies should be applied in real contexts. This situation results in students not receiving sufficient exposure to effective learning strategy use (Nafi & Teh, 2020) and prevents them from understanding their active and responsible role in the vocabulary learning process, thereby hindering vocabulary mastery (Maskor et al., 2016).

In addition, this issue is also influenced by the students themselves, as some of them use learning strategies in an ineffective and inefficient manner. This can be seen in their tendency to rely on a limited range of strategies instead of diversifying their learning approaches. Razak et al. (2020) reported that over 50% of students were unable to use 30 targeted vocabulary items correctly in sentence construction, due to the absence of appropriate vocabulary learning strategies. Findings by Azrin and Baharudin (2020) showed that primary school students tend to rely more on social strategies such as asking peers for the meaning of vocabulary reflected in a high mean score of 4.20 that show strong dependence on others to acquire word meanings, rather than taking self-initiated steps. Baharudin and Ismail (2015) reported that pre-university students' use of vocabulary learning strategies was at a moderate level, showing a low preference for cognitive strategies and a tendency to choose strategies that were simple and required minimal cognitive load. This aligns with the findings of Ismail et al. (2016), who found that higher order thinking strategies were seldom employed by students, especially during learning Arabic vocabulary with affixes. Huang et al. (2024) and Amri (2024) noted that metacognitive strategies are typically employed frequently by high-achieving students, while weaker students tend to use them minimally, often only under teacher pressure and with little self-initiative. This observation is supported by Alsharif (2022), who found that learners with larger vocabulary size were more likely to use metacognitive strategies such as engaging with media like films, songs, or podcasts compared to those with limited vocabulary.

The weakness in Arabic vocabulary mastery among students can be addressed by implementing effective learning approaches. Students require an approach that promotes self-awareness of their academic strengths and weaknesses (Winne & Perry, 2000), activates cognitive processes such as thinking and self-regulation and enables them to evaluate their own knowledge (Schraw & Moshman, 1995). All these needs can be met through strategy instruction based on the CALLA model and the integration of metacognitive approaches in vocabulary learning. This is because these approaches have been reported to positively impact learners' potential to master the meanings of foreign language words (Teng & Mizumoto, 2024). To master a larger vocabulary, students should actively engage in learning by using various effective learning strategies. Accordingly, this study will discuss in greater detail how training in learning strategies through the integration of the CALLA model and the metacognitive approach can assist educators in addressing students' difficulties in mastering Arabic vocabulary. The findings of this study are important as they present a viable solution for educators to enhance the effectiveness of Arabic vocabulary teaching and learning by using strategy-based approaches guided by the CALLA model, enhance students' metacognitive awareness in their learning, and ultimately overcome the challenges of Arabic vocabulary mastery among students in Malaysia.

Vocabulary instruction in foreign language learning goes beyond simply teaching individual words, it also focuses on helping learners develop strategies to grow their vocabulary knowledge (Chamot et al., 1999; Morin & Goebel, 2001). According to Omor and Ariffin (2023), providing training in vocabulary learning strategies can enhance students' ability to acquire new words, leading to increases in both the breadth and depth of their vocabulary. Similarly, Bakker (2020) observed that learners who received such strategy instruction became more conscious of how they learn and were more inclined to use a variety of strategies, which ultimately led to improved comprehension and overall academic performance. However, most studies continue to focus primarily on descriptive observations regarding the types of vocabulary learning strategies and the frequency of their use. There remains a lack of emphasis on systematic training in vocabulary learning strategies, particularly through the Cognitive Academic Language Learning Approach (CALLA) and metacognitive approaches, despite both having been proven effective in the context of other second language learning environments.

The Cognitive Academic Language Learning Approach (CALLA), developed by Chamot and O'Malley (1986), is a widely used model in strategy-based instruction. Rooted in cognitive theory, the CALLA model aims to teach learning strategies to second or foreign language learners (Chamot & O'Malley, 1994). This study adapted four phases of the CALLA model such as prepare, present, practice, and evaluate which provide a clear framework for strategy instruction by guiding students to reflect on their learning processes, develop awareness of learning strategies, apply them in practice, and assess their effectiveness. Each of these phases highlights specific roles to be fulfilled by the teacher as a facilitator and by the learner as an active participant in the learning process. A detailed explanation of the four CALLA phases is presented in Table 1.

Table 1. Detailed Phases of Strategy Instruction Based on the CALLA Model

Phases	Objectives	Roles	
		Teacher	Learner
Preparation	Stimulating awareness of existing knowledge	i.Enhancing learners' awareness of the task and the strategies for its execution	i. Recalling information relevant to the topic.

	relevant to a specific topic.	ii.Identifying and selecting learning strategies that align appropriately with the requirements of the language task.	ii.Comparing previously used strategies in language learning.
Presentation	Guidance in the use of specific strategies.	i.Modelling, identifying, and explaining learning strategies. ii.Guiding students in the practical use of these strategies.	i.Being aware of one's own learning. ii.Taking notes and understanding the topic, task, and strategies that have been explained.
Practice	Utilising selected strategies in carrying out the given task.	i.Preparing language tasks individually or in groups. ii.Encouraging discussion and the use of learning strategies.	i.Consciously applying strategies in language-related tasks.
Evaluation	Assessment and reflection on the learning process and the use of strategies.	i.Preparing reflective questions or journals for student assessment. ii.Encouraging the use of learning journals to record the process of strategy application.	i.Conducting self-reflection on the learning process. ii.Evaluating and selecting effective strategies in learning.

These four phases play a crucial role in assisting teachers or instructors in systematically and effectively planning the implementation of learning strategy training, particularly in the teaching of Arabic vocabulary. Through the execution of these phases, teachers could identify the learning strategies employed by students and subsequently make improvements to their implementation to enhance teaching effectiveness. At the same time, students are exposed to a variety of more suitable and effective learning strategies, enabling them to apply these strategies in the form of language tasks undertaken.

The effectiveness of the CALLA approach in vocabulary acquisition is substantiated by the study conducted by Ahari et al. (2014), which demonstrated a significant increase in mean vocabulary test scores, rising from 18.12 prior to training to 22.32 following the intervention. This improvement was accompanied by enhanced utilization of cognitive, memory, metacognitive, and social strategies in vocabulary learning. Likewise, Seffar (2020) documented improvements in both memory retention and vocabulary knowledge because of direct instructional interventions. Additionally, al-Bashtawi et al. (2020) provided evidence that receptive vocabulary knowledge among students in the experimental group significantly improved after the application of CALLA, surpassing that of the control group, which received conventional instructional methods. However, it is noteworthy that this study did not address the discussion on the enhancement of learning strategies.

The enhancement of strategy knowledge is highlighted in the research conducted by Al-Qarni (2018), which found that students demonstrated a high level of awareness in using vocabulary learning strategies including determination, memory and cognitive strategies, after participating in a brief training session. The students were not only proficient in employing these strategies for vocabulary acquisition but were also motivated by the training to apply them in mastering other language skills such as reading and grammar. Seffar (2020) reported similar findings, indicating an increase in the use of learning strategies, with more than half (39 out of 60) of the vocabulary learning strategies being employed after strategy training. This aligns with the study by Bayabel and Tahir

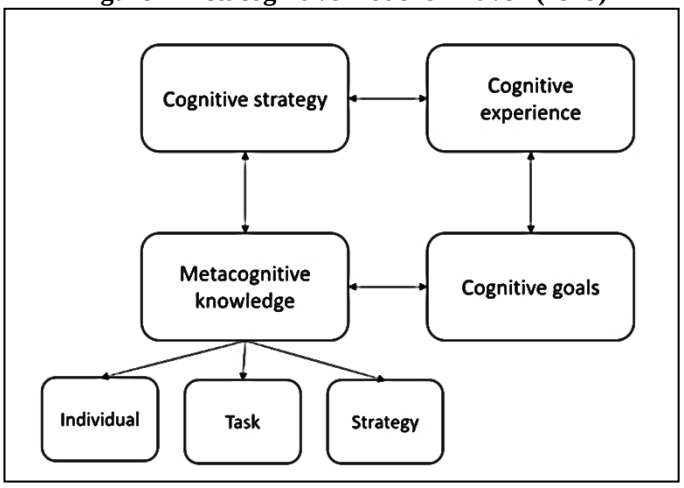
(2023), which found that training in vocabulary learning strategies such as determination strategies, social strategies, memory strategies, cognitive strategies, and metacognitive strategies significantly enhanced students' use of vocabulary learning strategies, except for reinforcement strategies.

Findings from Ayana et al. (2024) recorded positive student feedback regarding strategy training. Most students believed that the training enhanced their learning process, supported better retention of vocabulary through the application of effective strategies, increased awareness of their vocabulary learning and promoted autonomous learning among students. Furthermore, explicit training in learning strategies is closely associated with metacognitive awareness and the development of self-directed learning among students. Velandia (2015) states that self-established objectives and self-reflection assist students in maintaining focus on the specific language functions and vocabulary required to complete role-play tasks, which in turn leads to increased awareness, student confidence, and a positive self-concept.

Metacognition refers to the awareness and regulation of one's own cognitive processes, particularly in relation to learning. It encompasses a learner's ability to recognise what they know and do not know, and how to approach a learning task. Flavell (1979) characterises metacognition as not only "thinking about thinking", but as a multidimensional construct that includes knowledge of cognition, awareness of mental states, and the capacity to monitor, control and regulate learning processes.

Similarly, Wenden (1998) describes it as a form of higher order thinking that involves active and deliberate control over cognitive activity. In the context of language learning particularly vocabulary acquisition, metacognition supports learners in selecting appropriate strategies, evaluating their effectiveness and adapting their approach to achieve deeper and more sustained learning. Flavell's framework conceptualizes metacognition into several key components, as illustrated in Figure 1.

Figure 1 Metacognitive model of Flavell (1979)



Metacognitive knowledge refers to an individual's awareness of their learning strengths, the nature of the task at hand, and the most effective strategies to use. Metacognitive experiences involve the thoughts and feelings that arise during learning, such as recognizing moments of understanding or confusion. Metacognitive goals are the specific objectives that guide and shape a learner's efforts. Meanwhile, metacognitive strategies are the intentional actions taken to plan, monitor, and assess one's learning process (Flavell, 1979)

In relation to vocabulary learning strategies, Flavell's model helps explain how learners can become aware of their knowledge about vocabulary tasks (knowledge), notice their feelings of confusion when encountering new Arabic words (experience), set goals to master those words (goals) and employ strategies to enhance their vocabulary acquisition (strategy). By fostering this cycle of awareness and control over their vocabulary learning, the metacognitive framework supports learners in becoming more effective and independent language users.

In the context of vocabulary learning strategies, Flavell's metacognitive model provides valuable insight into how learners can develop greater awareness and control over their learning processes. Learners can recognize their existing knowledge about vocabulary tasks (knowledge), become aware of their confusion when encountering unfamiliar Arabic words (experience), set specific goals to master these words (goals), and apply appropriate techniques to improve their vocabulary acquisition (strategies). By promoting this continuous cycle of awareness and control over their vocabulary learning, the metacognitive framework empowers learners to become more autonomous and effective in their language learning.

The use of metacognitive approaches in the teaching and learning of languages can enhance learners' thinking skills and significantly impact their overall learning outcomes. However, second language learners have been reported to demonstrate low to moderate levels of metacognitive awareness, particularly in understanding texts in the target language (Al-Khresheh & Ali, 2023), as well as a moderate level of awareness in listening skills (Rahman & Baharudin, 2023). Furthermore, some learners still experience uncertainty, lack of understanding, and do not effectively practise key metacognitive skills such as planning, monitoring, and evaluating during the process of learning a second or foreign language (Van & Habok, 2023).

The issue of metacognitive awareness is believed to arise due to the ineffective teaching and introduction of strategy to students by teachers, which has led students to become accustomed to passive learning. As Li and Yuan (2022) argue, the inflexibility of the curriculum, combined with limited professional knowledge, hampers teachers' ability to design and deliver metacognitive instruction effectively. Moreover, the lack of sufficient teacher training and practical exposure to metacognitive techniques further exacerbates the problem. Many educators are not adequately prepared or supported to integrate these strategies into their daily classroom routines. Van and Habok (2023) highlight that without ongoing professional development and hands-on experience, teachers may feel ill-equipped to introduce metacognitive practices to their students in a meaningful way.

Metacognitive awareness which encompasses knowledge of oneself as a learner, understanding of the task, and awareness of effective strategies alongside metacognitive skills such as planning, monitoring, and evaluating one's learning (Flavell, 1979), plays a crucial role in supporting students' success in vocabulary acquisition. Abdelrahman (2020) found a significant positive correlation between these components and academic achievement, suggesting that learners with higher levels of metacognitive awareness are more likely to employ metacognitive skills effectively in managing their language learning processes.

This aligns with the findings of Teng and Mizumoto (2024), who state that elements of metacognitive awareness contribute significantly to effective vocabulary learning, particularly in recognizing, understanding the meaning of, and using words.

Moreover, metacognitive awareness also plays a role in vocabulary comprehension, making inferences, and identifying main ideas during second language listening (Fu et al., 2023). These findings are further supported by Rahman and Baharudin (2023), whose study revealed a significant correlation between metacognitive awareness and listening achievement, with a strong correlation coefficient (r = 0.92), indicating a close relationship between the two variables.

Nonetheless, Rahman and Baharudin (2023) found that students' metacognitive awareness in Arabic listening skills remained at a moderate level (M = 3.41), which closely aligned with their performance in listening comprehension (M = 3.36). These findings suggest that learners have not yet optimally applied metacognitive awareness and strategies, despite their well-established role as critical determinants of successful language learning. Many students remain unaware of the use of strategies in vocabulary learning (Zhang, 2023). Often, they are not even conscious of the existence of diverse strategies beyond using dictionaries, rote memorisation or relying on external support particularly from teachers and peers (Ismail et al., 2016). This highlights the need for instructional interventions that not only raise learners' awareness of metacognitive processes but also systematically train them to apply these strategies effectively within the language learning context.

METHOD

This paper adopts a literature synthesis approach to develop an integrated framework for vocabulary strategy training in Arabic as a second language. A comprehensive review of peer-reviewed sources from 2015–2024 was conducted via academic databases including Scopus, Google Scholar, and My CITE. Search strings combined bilingual keywords with Boolean operators, ("vocabulary learning strategies" OR "strategy instruction" OR "metacognitive awareness" OR "CALLA model" OR "*latihan strategi pembelajaran kosa kata")* AND ("Arabic" OR "second language"). Relevant studies were selected based on criteria emphasizing theoretical models, empirical insights into second language contexts, and gaps in Arabic-specific applications, followed by analysis to synthesize patterns, critique existing approaches, and propose a novel framework.

RESULTS AND DISCUSSION

Implementation of CALLA and Metacognitive Approaches in Strategy Training

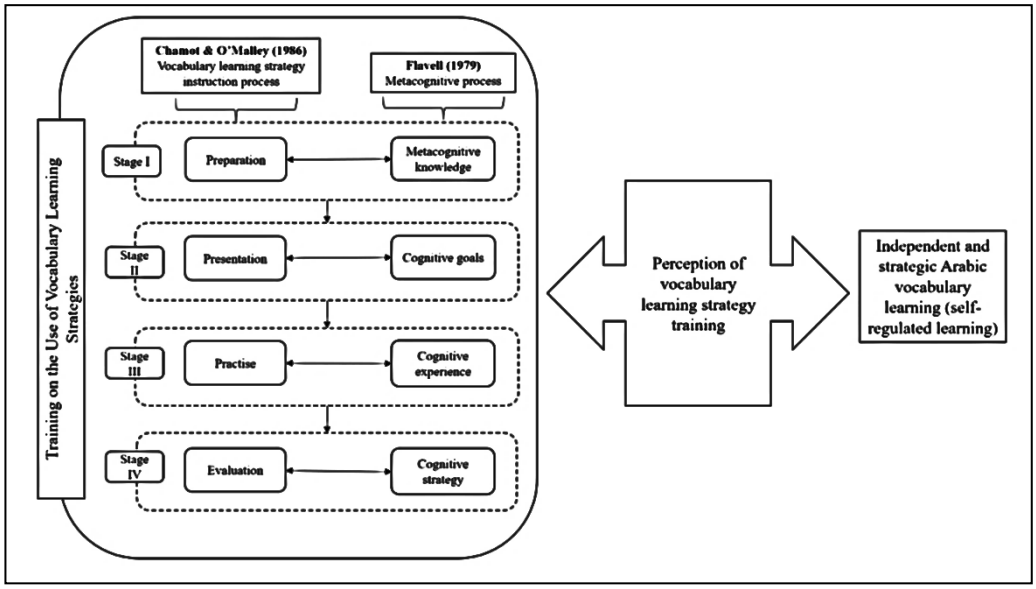
The integration of the CALLA model with metacognitive elements in strategy instruction is viewed as a holistic approach that should be explicitly implemented in Arabic vocabulary teaching in Malaysia. The CALLA model offers a systematic framework consisting of key phases, including the activation of prior knowledge, explicit strategy training, practice through language tasks, and reflective assessment (Chamot & O'Malley, 1994). At the same time, metacognitive elements such as planning, monitoring, and self-evaluation play a crucial role in enhancing learners' awareness of their own learning processes (Schraw & Dennison, 1994; Anderson, 2002).

The integration of these two approaches not only strengthens the teacher's role as a facilitator but also emphasizes the learner's active responsibility in planning and assessing the effectiveness of the strategies employed. As a result, such combined training can cultivate learners who are more autonomous, self-directed, reflective, and strategic, ultimately improving long-term vocabulary mastery (Chamot, 2009; Oxford, 2011).

Despite the potential benefits, the widespread adoption of a strategy-based instruction approach remains limited. To address this gap, it is crucial that educators implement such training systematically, with effectiveness measured not only by objective outcomes but also through students' perceptions**,** encompassing their reactions, knowledge acquisition, and attitudes toward learning.

This comprehensive evaluation ensures that learners develop the capacity to independently and strategically manage vocabulary acquisition, thereby advancing self-regulated learning within the Arabic language context. In response to this need, the researcher has developed a tailored framework for Arabic vocabulary learning strategy training in Malaysia, as illustrated in Figure 2, which aims to operationalize these principles effectively.

Figure 2 Framework of the Arabic Vocabulary Learning Strategy Training



The framework illustrates how the strategy training process involves a reciprocal interaction with four metacognitive process elements that occur sequentially through four stages (Stage I to Stage IV) as follows:

1. Preparation (Stage I) and Metacognitive Knowledge
   Learners activate their prior knowledge and metacognitive awareness by engaging in learning readiness activities. This involves becoming conscious of their cognitive strengths and challenges related to vocabulary acquisition, which aligns with metacognitive knowledge to understand oneself as a learner, the demands of the task, and the strategies available for effective learning. To facilitate this, teachers can conduct brief questioning sessions that encourage students to recall past experiences and existing knowledge, such as their familiarity with vocabulary or the use of learning strategies.
2. Presentation (Stage II) and Cognitive Goals
   During the presentation phase, learners' cognitive goals are activated. Learners are introduced to new vocabulary. The teacher or facilitator introduces a variety of learning strategies by modelling and repeating them consistently. Following this, students are trained to apply these strategies directly across different contexts, enabling them to set clear goals for their vocabulary learning.

3. Practice (Stage III) and Cognitive Experience
   Learners engage in guided practice by applying the strategies introduced by the teacher. During this phase, they complete tasks while actively drawing on both current and prior knowledge, past learning experiences, and previously learned strategies. Their metacognitive experiences are activated as they reflect on the task, assess their understanding, and make informed decisions about which strategies are most effective and manageable. This stage corresponds to cognitive experience, where learners monitor their feelings of clarity or confusion, allowing for real-time reflection and adjustment throughout the learning process.
4. Evaluation (Stage IV) and Cognitive Strategy
   This final stage involves assessing the effectiveness of vocabulary learning strategies and reflects the adoption of cognitive strategies to regulate learning, such as adjusting methods or reinforcing strategies based on evaluation outcomes. The evaluation phase takes place after students have completed their tasks using the selected strategies. At this stage, metacognitive actions are activated as learners assess whether the cognitive goals set at the beginning of the lesson have been achieved. Students are encouraged to evaluate their success or difficulties in completing the task and to reflect on the extent to which the learning strategies were effectively applied.

Effective vocabulary learning strategies must be explicitly taught and practiced in the classroom to enhance learners' metacognitive awareness, ultimately promoting the wise use of various strategies (Nyikos & Fan, 2007). Learners who receive clear guidance and instruction in vocabulary learning are more likely to actively structure their learning processes in ways that align with their personal goals. This approach encourages active learning, where students take a central role in the classroom (Voon & Amran, 2021).
Students' attitudes and awareness toward the learning process can be shaped through direct evaluation of strategy training. Their positive or negative perceptions of the training are closely linked to the development of self-regulated learning skills (Zimmerman, 2002; Teng & Zhang, 2016). Therefore, student perception not only serves as a measure of the effectiveness of strategy training but also acts as an early indicator of the potential for cultivating sustainable, self-regulated, and strategic learning habits.

CONCLUSION

The explicit implementation of vocabulary learning strategy training plays a critical role in fostering learners' self-regulated learning, particularly in the context of Arabic as a foreign language. By equipping students with structured and deliberate strategies, teachers can guide them toward greater autonomy, enhanced metacognitive awareness, and more effective vocabulary acquisition. This study supports the integration of the Cognitive Academic Language Learning Approach (CALLA) with metacognitive elements as a holistic instructional model for vocabulary learning. CALLA provides a structured framework for the explicit teaching of strategies, while metacognitive processes such as planning, monitoring, and self-evaluation ensure that learners internalize and apply these strategies meaningfully. Together, these approaches align well with learner-centred pedagogy and offer a sustainable path for improving vocabulary mastery and promoting independent learning beyond the classroom. To further strengthen the application of such training, it is recommended that future research focus on evaluating the effectiveness of strategy instruction through a combination of qualitative and quantitative methods. While learner perceptions offer valuable insights into the

training's relevance and impact, deeper understanding can be achieved through in-depth interviews, focus groups, and analysis of learners' reflective journals. These methods can reveal how learners engage with strategies over time and identify factors that support or hinder their adoption. As language learning contexts continue to evolve, especially in multilingual and multicultural settings like Malaysia, such integrative and metacognitively driven approaches offer a promising direction for both pedagogical innovation and learner empowerment.

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