

## Research Article

Cite this article: Muthohharoh, N. M., Aini, N. K., Aziz, M. A., Huda, H., & Bariroh, A. M. (2026). A Cognitive-Based Phonetic Method for Memorizing Texts: The Lam Strategy in Islamic Education. *Educational Process: International Journal*, 22, e2026038. <https://doi.org/10.22521/edupij.2026.22.38>

Received October 16, 2025


Accepted December 23, 2025

**Keywords:** Islamic Pedagogy, LAM Method, Memorization Strategies, Structurally-Similar Content.

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## A Cognitive-Based Phonetic Method for Memorizing Texts: The Lam Strategy in Islamic Education

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**Abstract**

**Background/purpose.** Memorizing and differentiating structurally similar textual content represents a widespread pedagogical challenge across disciplines, including language learning, religious education, and medical training. Within Qur'anic education, structurally similar verses (*mutashābihāt al-alfāz*) pose challenges to systematic memorization, yet effective evidence-based methods remain underdeveloped despite growing global interest in Qur'anic memorization. This study developed and examined the LAM (*Lafal, Asosiasi, and Makna*) method, a cognitive-based instructional approach designed to enhance memorization of structurally similar content, with specific application to Qur'anic education.

**Materials/methods.** The LAM method integrates phonetic articulation, visual-associative cues, and semantic reinforcement grounded in cognitive learning theory. The method was tested through a quasi-experimental pretest-posttest design involving 44 students at an Islamic boarding school in Indonesia. Data were collected via pretest-posttest instruments, expert validations, and observation, with statistical analysis performed using the Mann-Whitney U test.

**Results.** The experimental group demonstrated statistically significant improvement in memorization quality compared to the control group ( $p < 0.05$ ), with students reporting increased recall accuracy and reduced cognitive interference. Expert validation confirmed the method's feasibility and alignment with cognitive learning principles. The 17.12% improvement in posttest scores indicated the method's effectiveness in addressing structural differentiation challenges.

**Conclusion.** The LAM method provides a validated, theoretically grounded tool to enhance memorization of structurally similar content in Qur'anic education. Its foundation in universal cognitive principles and structured, replicable design suggests potential transferability to other memorization-intensive disciplines that require precise differentiation of similar content, including foreign language acquisition, legal studies, and medical terminology.



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## 1. Introduction

The global expansion of Islamic education in the 21st century has been accompanied by unprecedented growth in Qur'anic memorization programs, with institutions across Malaysia, Turkey, Egypt, Pakistan, and diaspora communities in Western nations reporting increased enrollment and diversified pedagogical approaches (Balkis et al., 2025; Muhammad Faizal Rabbani et al., 2025). However, this expansion has revealed persistent methodological gaps in addressing complex memorization challenges, particularly the confusion arising from *Mutashābihāt al-alfāz*, Qur'anic verses that share similar linguistic structures, creating systematic difficulties for students worldwide (Hafizah Hafizah et al., 2025). Despite technological advances and pedagogical innovations in general education, effective evidence-based methods for structurally similar verse memorization remain underdeveloped (Hasibuan & Ilmi, 2023).

While this study examines the LAM method within Islamic education, the pedagogical challenge it addresses, memorization and differentiation of structurally similar content, extends across multiple educational domains. Medical students face similar difficulties in distinguishing pharmaceutical names that share prefixes or suffixes (Jayaram et al., 2020). Language learners struggle with homophones, near-synonyms, and grammatically parallel structures (Miso Kim, 2020). Legal education involves memorizing statutes with similar wording but different applications. The cognitive mechanisms underlying these challenges, interference theory, working memory limitations, and the need for semantic anchoring are universal across learning contexts (Ahmad et al., 2022a; Miso Kim, 2020; Parveen, 2021). Therefore, methodological innovations developed for one domain may offer transferable insights for others, provided they are grounded in robust cognitive principles rather than context-specific practices.

*Mutashābihāt al-alfāz*, literally meaning "similar expressions," refers to Qur'anic verses that exhibit phonetic, morphological, or syntactic resemblance, creating potential confusion during memorization and recitation (Ayanwale & Ndlovu, 2024). These verses can be categorized into several types: those with identical beginnings but different endings (such as "*wa laysa al-birru an tuwallu wujuhakum...*" in Al-Baqarah 2:177 versus similar constructions elsewhere), verses with parallel sentence structures but varying content, and passages that share common phrases or formulaic expressions but appear in different contexts. The cognitive challenges associated with *mutashābihāt* are multifaceted and rooted in well-established psychological phenomena (Ahmad et al., 2022a). Interference theory explains how similar information competes for retrieval, leading to confusion between verses that share phonetic or structural similarities. Students often experience proactive interference, in which previously memorized similar verses hinder the acquisition of new ones, and retroactive interference, in which newly learned verses disrupt the recall of previously memorized similar passages (Fornaciai & Park, 2020). This phenomenon is particularly pronounced in Arabic, where the morphological system creates numerous words with shared roots and patterns, amplifying the potential for confusion. Furthermore, the working memory limitations described by Baddeley's model become critical when students attempt to differentiate between structurally similar verses. The phonological loop, responsible for processing verbal and acoustic information, can become overloaded when processing multiple verses with similar sound patterns simultaneously. Without adequate semantic anchoring, meaningful connections to the verse's content and context, students rely primarily on rote phonetic memorization, making them vulnerable to errors during recall (Parveen, 2021).

Research in Islamic educational contexts has documented memorization error rates ranging from 15-30% related explicitly to *mutashābihāt* confusion among *hifẓ* students (Buchman et al., 2020; Rahman, 2020). These errors not only affect individual student performance but also pose broader implications for the preservation and transmission of Qur'anic text accuracy across generations. The psychological impact on students includes decreased confidence, increased anxiety during recitation,

and in some cases, abandonment of memorization programs altogether (Henrik et al., 2023; Muhammad Faizal Rabbani et al., 2025). These challenges parallel those documented in other memorization-intensive fields: medical students report 20-35% error rates when recalling similar drug names (Jayaram et al., 2020), and language learners frequently confuse grammatically similar structures in target languages (Miso Kim, 2020). The psychological impact of decreased confidence and program attrition appears consistent across educational contexts.

In the Indonesian context, home to the world's most significant Muslim population, efforts to improve Qur'anic memorization have mostly been localized and anecdotal, lacking systematic empirical validation (Muhammad Faizal Rabbani et al., 2025). Traditional methods such as *talqin* (teacher-led repetition) and *musyafahah* (face-to-face transmission) remain predominant, yet these approaches often fail to adequately address the specific cognitive demands of differentiating *mutashābihāt* (Khasanaton & Muhammad Syauqillah, 2024; Menghafaz et al., 2021). Internationally, few studies offer transferable methodologies that explicitly cater to the unique structure of *mutashābihāt*, especially those applicable across diverse learning environments such as madrasahs, *pesantren*, or Islamic schools in Western contexts. More broadly, the absence of evidence-based methods for differentiating structurally similar content represents a gap in general educational practice. While the present study focuses on Islamic education, its findings may inform pedagogical approaches in other disciplines facing analogous challenges. Globally, various memorization methods have emerged, including repetition-based, semantic reinforcement, and visual-mnemonic techniques (Suryana et al., 2024). However, a critical analysis of existing approaches reveals significant limitations in addressing the multidimensional nature of *mutashābihāt* memorization challenges.

Traditional repetition-based methods, while foundational to Islamic memorization pedagogy, operate primarily through mechanical rehearsal and do not incorporate cognitive strategies for differentiation (Ayyad, 2022; Binti Othman & Muhammad Yusof, 2023). These methods assume that sufficient repetition will automatically lead to accurate discrimination between similar verses. However, cognitive research demonstrates that mere repetition without meaningful processing often results in superficial encoding that remains vulnerable to interference (Ayyad, 2022). Students using purely repetitive approaches frequently memorize verses as undifferentiated phonetic sequences, making them susceptible to substitution errors when similar patterns are encountered.

Semantic reinforcement techniques, which attempt to connect verses with their meanings and contexts, represent an improvement over purely mechanical approaches (Amila Sholiha & Asa Ismia Bunga Aisyahrani, 2023). This limitation is not unique to religious education; semantic approaches in language learning and medical education similarly struggle when content shares both structural and thematic similarities (Jayaram et al., 2020; Miso Kim, 2020). However, existing implementations often lack systematic frameworks for creating meaningful distinctions between verses that share thematic content. For instance, verses dealing with similar concepts (prayer, charity, or moral conduct) may be semantically related yet structurally similar, creating a different type of confusion that current semantic approaches fail to address adequately. Visual-mnemonic techniques, borrowed from the general memory enhancement literature, have shown promise in some contexts but face significant limitations when applied to memorizing Arabic text (Thahir, 2023). Many existing visual methods were developed for alphabetic writing systems and fail to account for the morphological complexity and right-to-left directionality of Arabic script. Additionally, these techniques often require extensive training in visualization skills that may not be culturally appropriate or practically feasible in traditional Islamic educational settings.

Most critically, existing approaches remain linear and fail to address the dual complexity of phonetic similarity and semantic ambiguity in *mutashābihāt* verses (Kowialiewski et al., 2023). This gap extends beyond Qur'anic education. Few instructional frameworks systematically integrate

phonetic/structural differentiation with semantic understanding across disciplines that require precise memorization of similar content. Educational psychology literature addresses these elements separately, elaborative encoding, dual coding theory, and schema construction, but rarely provides integrated, teachable frameworks applicable across diverse memorization contexts (Gordon et al., 2021). Current methodologies typically address either phonetic differentiation or semantic understanding in isolation, without providing integrated frameworks that systematically combine both approaches. This separation creates artificial boundaries between different aspects of memorization that naturally occur simultaneously in human cognition (Kowialiewski et al., 2023). A significant gap exists in instructional design that integrates cognitive encoding principles with phonological precision within a structured, teachable framework. Existing methods lack theoretical grounding in cognitive psychology principles such as elaborative encoding, dual coding theory, and schema construction. Without such theoretical foundations, current approaches remain ad hoc and difficult to replicate consistently across different educational contexts (Gordon et al., 2021).

Furthermore, empirical validation of memorization methods specifically for *mutashābihāt* remains sparse (Ahmad et al., 2022b). Most studies in Islamic education focus on the effectiveness of general memorization rather than on the specific challenges posed by similar verses. This research gap means that educators lack evidence-based guidance for selecting and implementing memorization strategies that specifically target the confusion patterns associated with *mutashābihāt*. This gap mirrors broader issues in educational research: effective practices in specialized contexts often remain siloed rather than being evaluated for transferability. The present study addresses this by grounding its method in universal cognitive principles, potentially offering insights applicable beyond its immediate Islamic education context. The absence of systematic instructional models also limits the scalability and transferability of effective practices. Successful memorization strategies often remain localized within specific institutions or dependent on individual teacher expertise, preventing broader dissemination and improvement of pedagogical practices across the global Islamic education community.

## 2. Literature Review

The challenge of memorizing and differentiating structurally similar content represents a recurring theme across educational disciplines. In medical education, students struggle with pharmacological terminology sharing common roots or affixes (Miso Kim, 2020). Language learners confuse grammatically parallel structures, homophones, and near-synonyms (Miso Kim, 2020). Legal education involves distinguishing statutes with similar wording. These challenges share standard cognitive mechanisms: interference effects, working memory constraints, and inadequate semantic anchoring (Gordon et al., 2021; Jayaram et al., 2020; Miso Kim, 2020). While this literature review focuses primarily on research on Qur'anic memorization, the context of the present study situates these findings within broader cognitive learning theories applicable across educational domains. Research on Qur'ānic memorization methods has advanced through various approaches, particularly to enhance the quality of memorization of *Mutashābihāt al-alfāz* verses, which continue to pose a significant challenge for memorizers (Hidayat & Fauziyah, 2022b). These limitations echo findings from other memorization-intensive fields, where rote repetition proves insufficient to distinguish similar content (Ayyad, 2022; Jayaram et al., 2020). Several studies emphasize the importance of understanding *mutashābihāt* verses within the context of *tahfīz* education; however, no specific methods have been proposed to address the difficulty of distinguishing verses with similar structures and word choices (Hasan & Yusof, 2020). The study by Luṭfi and Shahir (2020) focused on verse identification techniques rather than strategies to optimize memorization for improved retention (Hakim et al., 2022).

Various approaches have been introduced to facilitate Qur'ānic memorization, including the repetition method (*i'ādah*), friendship-based learning, and mnemonic visualization techniques

(Ahmad et al., 2022a)(Latipah, 2022). However, these methods have inherent limitations because they predominantly rely on rote memorization rather than fostering a comprehensive understanding of the structural and semantic relationships between verses (Lestari et al., 2023; Lombardi et al., 2021). A study by Basri (2020) revealed that students relying solely on repetition-based methods often struggle to recall minor variations in *mutashābihāt* verses, hindering their memorization fluency.

To address these limitations observed in both Qur'anic memorization and analogous educational contexts, this study proposes the LAM Method (Lafal, Asosiasi, and Makna) (Phonetic, Association, and Meaning), an approach that integrates cognitive learning theories into a structured instructional framework. While developed and tested within *the context of tahfīz (Qur'anic memorization) education, the method's theoretical foundation draws on universal cognitive principles applicable across disciplines*. David Ausubel's Meaningful Learning Theory (2000) posits that recognizing the structure and interconnections of information enhances long-term memory retention (Ausubel, 1963). These theories have demonstrated effectiveness across diverse educational contexts, from medical training to language acquisition (68,70), suggesting that methods grounded in these principles may show transferability beyond their initial development context. This aligns with Thorndike's (1874) theory, which asserts that associative learning strengthens memory consolidation and accelerates cognitive processing. Building on these theoretical foundations, the LAM Method is designed to establish connections between phonetic articulation (*lafal*), meaning (*makna*), and associative patterns (*asosiasi*) among verses, enabling students (*santri*) to differentiate and retain similar verses more effectively (Saeed et al., 2020).

Methodologically, this study adopts the Research and Development (R&D) framework of Borg & Gall, aiming to develop and evaluate the LAM Method within the context of *tahfīz* education (Ong & Quek, 2023). This rigorous development process, informed by established R&D frameworks, enhances the method's potential for adaptation to other educational contexts facing similar pedagogical challenges. The research process involved a comprehensive literature review, expert validation, and both limited and extensive empirical trials conducted with groups of *santri* to assess the method's effectiveness in improving the memorization of *Mutashābihāt al-alfāz* verses (Arikunto, 2022). Preliminary findings suggest that the LAM Method demonstrates advantages over traditional memorization techniques in the studied context (Mekonnen, 2020; Nurrohim & Adyatma, 2022).

With a robust theoretical foundation and an experimental research-driven approach, this study fills gaps in *tahfīz* education research (Armai & Lubiz, 2020). It presents an innovative, evidence-based solution with immediate applicability to Islamic educational institutions and potential transferability to other educational domains requiring differentiation of structurally similar content (Hanum & Megananda, 2025). The findings are expected to advance Qur'anic memorization methodologies while contributing to broader pedagogical discourse on teaching strategies for structurally similar content across educational disciplines, promoting systematic, meaning-based, and practical approaches to memorization-intensive learning (Arwan et al., 2020; Tian et al., 2020).

### 3. Methodology

#### 3.1. Research Design

This study examines the LAM method within Islamic education while maintaining awareness of its potential applicability to other educational contexts. The research design emphasizes methodological rigor and replicability essential for evaluating innovations that may be adapted across disciplines. By grounding the study in established R&D frameworks and quasi-experimental methods, the findings can inform both Islamic education practitioners and researchers in other fields facing similar pedagogical challenges.

This study employs the Research and Development (R&D) methodology to develop and evaluate the effectiveness of the LAM (Phonetic Articulation, Association, and Meaning) method in enhancing the memorization of *Mutashābihāt al-alfāz* verses within an Islamic boarding school (*pesantren*) setting (Basri, 2020). Borg and Gall (1984) define R&D as a systematic process for designing, developing, and evaluating an educational product to enhance its effectiveness (Bennett et al., 1984; Nasheeda et al., 2019; Niu, 2023). For this study, the R&D framework was adapted from Sukmadinata (2018), comprising three key phases: (1) Preliminary Study, which includes a literature review, needs analysis, and field research; (2) Model Development, involving expert validation, a limited trial, and revisions based on expert feedback; and (3) Model Testing, which involves experimental evaluation comparing the LAM method with conventional memorization techniques (Hanum & Megananda, 2025).

During the development phase, the LAM method was validated by three subject-matter experts: one specializing in Qur'anic memorization pedagogy and two in *Mutashābihāt al-alfāz* studies. The validation process assessed the method's content feasibility, instructional effectiveness, and alignment with memorization principles for *mutashābihāt* verses. After validation, a limited trial was conducted with five students to identify challenges in implementing the method. Insights from this trial were used to refine the technique before conducting a broader trial with 20 students to evaluate its effectiveness.

Following the development phase, a quasi-experimental pretest-posttest control group design was employed to examine the effectiveness of the LAM method in improving memorization performance. The study compared two groups: the experimental group, which used the LAM method, and the control group, which continued with conventional memorization methods (Hanum & Megananda, 2025). A pretest was administered to assess baseline memorization abilities, and a posttest was administered to measure improvements. The pretest and posttest scores were analyzed using the Mann-Whitney U-test to determine significant differences between the groups (Thacker, 2020; Wijns et al., 2021). This research design, integrating R&D with a quasi-experimental design, evaluates the LAM method's theoretical foundation and empirical effectiveness in improving students' memorization accuracy and retention of *Mutashābihāt al-alfāz* verses in the Qur'anic *tahfīz* education system.

### **3.2. Brief Description of the Research Setting**

This study was conducted at *Darul Qur'an* Dormitory, *Pondok Pesantren Bidayatul Hidayah*, Mojokerto, Indonesia, an institution specializing in *tahfīz*-based learning. Established in 2013, this *pesantren* has implemented traditional memorization methods such as *ī'ādah* (repetition) and *muroja'ah* (periodic review). While these methods are effective in reinforcing memorization, challenges remain in helping students accurately distinguish *Mutashābihāt al-alfāz* verses. This specialized setting provides an ideal context for evaluating the LAM method's effectiveness in addressing a well-defined pedagogical challenge. Islamic boarding schools (*pesantren*) in Indonesia represent a significant educational sector serving millions of students, with findings from this context offering insights relevant to both Islamic education globally and, potentially, to other intensive memorization-based educational programs.

This *pesantren* was selected as the research site due to its large student population (524 students), providing a broader scope for applying the LAM method. Additionally, the institution's reliance on conventional memorization methods allows for a meaningful comparison with the LAM method. The focused learning environment ensures better control over external variables that may influence study outcomes, enhancing the internal validity of findings that may later be examined for transferability to other contexts.

### 3.3. Participants and Sampling

This study involved 75 students selected through purposive sampling based on specific inclusion criteria: students who had memorized at least 30 *juz* of the Qur'an and had prior experience with *Mutashābihāt al-alfāz* verses. The sample was divided into two groups: the experimental group (n = 38), which applied the LAM method, and the control group (n = 37), which continued with traditional methods. Practical constraints at the participating pesantren determined the sample size (n=75) and represents approximately 14% of the total student population (524 students). While adequate for detecting large effect sizes in this exploratory study, we acknowledge that the relatively small sample may limit statistical power for detecting more minor effects and restrict generalizability to broader populations. The homogeneous *pesantren* environment (intensive residential Islamic education) may further limit transferability to part-time Qur'anic learners or less intensive educational programs. Future studies should employ larger, multi-site samples across diverse Islamic educational settings to enhance external validity.

### 3.4. Data Collection

Data were collected through interviews, Focus Group Discussions (FGDs), and performance tests (pretests and posttests). Interviews and FGDs were conducted to explore challenges in memorization and evaluate the perceptions of both students and *ustādh/ustādhah* regarding the effectiveness of the LAM method. The pretest and posttest scores were analyzed using the Mann-Whitney U-Test to assess improvements in memorization.

Interviews and Focus Group Discussions (FGDs): Semi-structured interviews were conducted with *ustādh/ustādhah* (n=3) and senior students (n=5) to explore memorization challenges and evaluate perceptions regarding the LAM method's effectiveness. FGDs were held with experimental group participants (n=38, divided into four groups of 8-10 students) to gather collective insights on implementation experiences, difficulties encountered, and perceived benefits. All interviews and FGDs were audio-recorded with participants' verbal consent, conducted in Indonesian, and lasted 45-60 minutes each.

Qualitative Data Analysis: Interview and FGD data were analyzed using thematic analysis following Braun and Clarke's (2006) six-phase framework. All recordings were transcribed verbatim and reviewed multiple times to familiarize with the data. Two researchers (N.M.M. and A.M.B.) independently conducted open coding to identify preliminary patterns related to memorization challenges, experiences with implementing the LAM method, and perceived effectiveness. Initial codes were then collated and grouped into potential themes through iterative discussion. Identified themes were reviewed against coded data extracts to ensure internal consistency within themes and clear distinctions between themes. Final themes were clearly defined and named (e.g., "Structural Confusion in *Mutashābihāt* Verses," "Cognitive Benefits of Association Techniques," "Semantic Anchoring for Long-term Retention"). To ensure coding reliability, both researchers independently coded 30% of the transcripts, achieving substantial inter-rater agreement (Cohen's  $\kappa = 0.82$ ; Landis & Koch, 1977). Representative quotations were selected to illustrate each theme and integrated into the Results and Discussion sections. Qualitative findings were triangulated with quantitative test results to provide a comprehensive understanding of the LAM method's effectiveness.

Performance Tests (Pretest and Posttest): Standardized assessments of memorization quality were administered before (pretest) and after (posttest) the eight-week intervention. Tests evaluated students' ability to recite and differentiate *mutashābihāt* verses accurately, and were scored by independent assessors using a rubric that measured accuracy (40%), fluency (30%), and differentiation ability (30%). Scores ranged from 0 to 100.

**Expert Validation:** The LAM method was validated by three experts in Qur'anic learning methodologies using Likert-scale questionnaires. Validation assessed the method's theoretical soundness, pedagogical feasibility, and alignment with Islamic educational principles.

**Observation:** Classroom observations were conducted weekly during the intervention period to document implementation fidelity, student engagement, and any adaptation challenges. Field notes were systematically recorded and analyzed to complement interview and test data.

### **3.5. Validation and Feasibility Assessment**

The LAM method underwent validation by three experts in Qur'anic learning methodologies. The validation instrument consisted of a Likert-scale questionnaire, and the data were analyzed to assess the method's feasibility. The results provided insights into the method's effectiveness in addressing the memorization challenges associated with *Mutashābihāt al-alfāz* verses. The validation process consisted of a Likert-scale questionnaire, and the data were analyzed to assess the method's feasibility. Expert validation confirmed the method's appropriateness for Qur'anic education and its grounding in universal cognitive learning principles (meaningful learning, associative strengthening, dual coding) applicable beyond the specific application to *mutashābihāt* verses. Experts assessed whether the method's components, phonetic articulation, associative patterning, and semantic integration, were theoretically sound and practically implementable within *tahfīz* educational contexts.

**Implementation Protocol:** To ensure replicability, the LAM method was implemented following a standardized protocol over eight weeks (March-April 2024). The intervention consisted of 5 sessions per week (Monday-Friday), with each session lasting 60 minutes, totaling 40 hours of instructional contact time. Students additionally engaged in 30 minutes of daily individual practice. The instructional phases were structured as follows: Weeks 1-2 focused on introducing LAM method principles, conducting baseline assessments, and identifying target *mutashābihāt* verses; Weeks 3-6 involved core LAM implementation with progressive difficulty levels (simple verse pairs advancing to complex verse clusters); and Weeks 7-8 concentrated on integration, cumulative review, and consolidation of learned verses.

**Session Structure:** Each 60-minute session followed a consistent structure to ensure implementation fidelity. Minutes 0-10 involved review and preparation, including warm-up review of previously learned *mutashābihāt* verses and vocal preparation emphasizing correct articulation points (*makhārij al-ḥurūf*). Minutes 10-25 focused on the *Lafal* (Phonetic Articulation) component, in which the teacher modeled accurate pronunciation according to *tartīl* rules, followed by choral repetition (3 times) and individual student recitation with immediate error correction, emphasizing subtle phonetic differences between structurally similar verses. Minutes 25-40 addressed the *Asosiasi* (Association) component through visual presentation of 2-3 *mutashābihāt* verse pairs using comparison charts, guided identification of structural similarities and critical differences, student creation of mnemonic associations, and practice exercises for recalling verse sequences using association cues. Minutes 40-55 covered the *Makna* (Meaning) component, in which teachers explained semantic distinctions between similar verses, discussed contextual meanings (*asbāb al-nuzūl*), and students connected meanings to memory anchors to differentiate based on semantic understanding. Minutes 55-60 involved integration and daily assignment, where students recited complete verse sets integrating all three LAM components, received assignments for 10 daily repetitions using LAM techniques, and recorded their practice for subsequent review.

**Repetition and Review Schedule:** The method incorporated spaced repetition principles with daily individual practice of 10 repetitions per verse pair, weekly cumulative review of all previously learned verses (conducted every Friday), and spaced repetition intervals at days 1, 3, 7, 14, and 28 following initial learning.

Instructional Materials: Students and teachers received comprehensive materials, including a printed LAM method guidebook (48 pages) with theoretical foundations and practical examples, laminated visual verse comparison charts (A3 size) highlighting structural similarities and differences, audio recordings of correct verse pronunciation by qualified *qari'*, practice worksheets with association exercises, and progress tracking journals.

Teacher Training and Control Group Protocol: Three *ustādh/ustādhah* implementing the LAM method received two 3-hour training workshops (Week 0) covering LAM theoretical foundations and practical application, detailed lesson plans for each session, weekly 1-hour reflection meetings to discuss implementation challenges, and observation and feedback sessions by the research team. The control group continued with conventional methods, including *i'ādah* (repetition: 15-20 repetitions per verse without structured differentiation strategies), *talqīn* (direct teacher transmission with student echo repetition), and *muroja'ah* (periodic review sessions twice weekly). Importantly, session duration and frequency matched those of the experimental group (60 minutes, 5 times per week) to control for instructional time, with no explicit instruction provided on association techniques or semantic differentiation strategies.

Implementation Monitoring: Weekly classroom observations were conducted to document implementation fidelity, student engagement, and adaptation challenges. Field notes were systematically recorded, capturing both teacher delivery and student responses, to complement interview and test data and ensure the LAM method was implemented as designed.

While previous approaches have explored various memorization aids, such as mnemonic devices or repetition-based strategies, these methods often lack the integration of structured phonetic articulation and meaning-based associations (Asfahani, 2001; Oyigeya, 2021; Pakurár et al., 2019). These conventional methods emphasize rote memorization over cognitive comprehension, particularly in *mutashābihāt* verses (Azhari, 1787; Maswani et al., 2023). Similar limitations have been documented in other memorization-intensive educational contexts where rote approaches dominate (Jayaram et al., 2020; Mukhalalati & Taylor, 2019). Consequently, a significant research gap persists in developing holistic, innovative methods that bridge phonological, semantic, and mnemonic elements (Yang et al., 2019). The LAM Method addresses this gap by presenting a theoretically grounded, empirically testable framework that synthesizes phonological, semantic, and mnemonic elements, potentially providing a model applicable beyond Qur'anic education to other contexts requiring differentiation of structurally similar content (Mohd Basar et al., n.d.; Zulfikar, 2018).

### **3.6. Statistical Analysis**

Data were analyzed using SPSS Version 26.0 (IBM Corp., Armonk, NY, USA) with a significance level of  $\alpha = 0.05$  for all statistical tests. Prior to conducting comparative analyses, the normality of score distributions were assessed using Shapiro-Wilk tests for both pretest and posttest data in the experimental and control groups. Results indicated violations of normality assumptions in several distributions: Experimental group pretest ( $W = 0.942$ ,  $p = 0.041$ ), Experimental group posttest ( $W = 0.931$ ,  $p = 0.019$ ), Control group pretest ( $W = 0.938$ ,  $p = 0.033$ ), and Control group posttest ( $W = 0.945$ ,  $p = 0.048$ ). Given these non-normal distributions and the ordinal nature of memorization quality scores, non-parametric statistical procedures were deemed appropriate for subsequent analyses.

The Mann-Whitney U test was employed to compare posttest scores between the experimental and control groups. This nonparametric test is suitable for comparing two independent groups when the data violate normality assumptions and does not require homogeneity of variances. The test examines whether the distributions of the two groups differ significantly in terms of their central tendencies.

To assess practical significance beyond statistical significance, effect size ( $r$ ) was calculated using the formula  $r = Z/\sqrt{N}$ , where  $Z$  represents the standardized test statistic from the Mann-Whitney U test and  $N$  represents the total sample size (75). Effect sizes were interpreted according to Cohen's (1988) benchmarks: small effect ( $r = 0.10$ ), medium effect ( $r = 0.30$ ), and large effect ( $r = 0.50$ ). This measure provides an indication of the magnitude of difference between groups, offering insight into the practical meaningfulness of the intervention.

Additionally, 95% confidence intervals for the median difference between groups were calculated using bootstrapping methods with 1,000 iterations. This resampling technique provides robust estimates of effect magnitude that are less sensitive to distributional assumptions and outliers, enhancing the reliability of interval estimates.

Descriptive statistics were calculated for both groups to characterize score distributions and central tendencies, including means, medians, standard deviations, interquartile ranges (IQR), minimum and maximum values, and skewness coefficients. These descriptive measures provide comprehensive information about the data structure and facilitate interpretation of inferential test results. All statistical assumptions were verified, and appropriate adjustments were made when violations were detected to ensure the validity and reliability of study conclusions.

## 4. Results

### 4.1. Results Needs Analysis

The needs analysis confirmed the presence of pedagogical challenges that, while examined here in the context of Qur'anic memorization, reflect broader issues in memorization-intensive education. Students' difficulties distinguishing structurally similar content, reliance on mechanical rather than meaningful learning strategies, and the absence of visual-organizational aids represent challenges documented across diverse educational settings (Jayaram et al., 2020; Mukhalalati & Taylor, 2019). The findings presented here focus on the specific context of Islamic boarding school education while highlighting implications potentially relevant to other domains.

The *tahfīz* learning system at Darul Qur'an Dormitory, Bidayatul Hidayah Islamic Boarding School, Mojokerto, remains predominantly reliant on conventional memorization techniques such as *i'ādah* (repetition-based memorization), *muroja'ah* (periodic review), and manual recording of *Mutashābihāt al-alfāz* verses. While these methods have been extensively implemented, they have not been fully effective in assisting students to distinguish verses with similar word structures. This is evident from the stagnation in memorization exam scores, indicating that students face difficulties recalling and differentiating verses with similar structures, negatively affecting their fluency and confidence during memorization deposit sessions.

Focused Group Discussions (FGDs) with *Ustādh* and senior *Santri* further confirm that the lack of variety in memorization strategies is a key factor contributing to this stagnation. Students tend to memorize mechanically without recognizing inter-verse relationships, which makes them more vulnerable to memorization errors. *Ustādh* also emphasized that repetition alone is insufficient for distinguishing *mutashābihāt* verses, as students often rely solely on rote memory without understanding the structural relationships between the verses. Additionally, the absence of learning aids visually representing similar patterns among verses presents another challenge, making it difficult for students to identify subtle variations in verse structures.

Based on this needs analysis, the LAM (*Lafal, Association, and Meaning*) Method was developed as an innovative solution to address the challenges of memorizing *Mutashābihāt al-alfāz* verses. This method integrates memorization techniques, association, and comprehension of meaning, enabling students to remember and distinguish similar verses more easily. By utilizing an understanding-based

approach, this method not only strengthens students' memorization but also improves the quality of their understanding of the relationship patterns within the Qur'ānic text more systematically.

#### 4.2. Development in the LAM Method

The LAM (*Lafal*, *Asosiasi*, and *Makna*) method was developed based on linguistic and learning theories to improve the quality of memorization of *Mutashābihāt al-alfāz* verses in the Qur'an (Kharomen, 2015). This method aims to assist students in remembering, understanding, and distinguishing verses that share editorial similarities. The application of the LAM method involves three main techniques:

The LAM method incorporates three key techniques: the Pronunciation Technique, which emphasizes the accuracy of pronunciation and intonation of *mutashābihāt* verses based on Abul Aswad ad-Du'ali's theory; the Association Technique, which draws on Edward Thorndike's theory of association, training students to connect verses based on patterns of similarities and differences to facilitate easier memorization of their order and structure; and the Meaning Technique, grounded in David Ausubel's meaningful learning theory, helping students understand the meaning of the memorized verses, thereby strengthening their memory and enabling them to distinguish similar verses. The results indicate that the LAM method was associated with significant improvements in memorization quality of *Santri* compared to conventional methods, allowing students to memorize and distinguish *mutashābihāt* verses more effectively with systematic application.

#### 4.3. Method Expert Validation

Validation is essential to ensure the developed method is accurate, reliable, and meets the established standards. Three experts validated the development of the LAM method: a method expert, material expert 1, and material expert 2, who provided assessments and feedback through a questionnaire based on the development guide. Method expert validation was conducted by Dr. KH. A. Husnul Hakim IMZI, MA, Dean of the Faculty of Ushuluddin at PTIQ Institute Jakarta, to ensure the method's effectiveness in improving the memorization of *Mutashābihāt al-alfāz* verses. The evaluation covered teaching and memorization strategies, techniques for identifying verse differences, and learning approaches supporting improving students' memorization quality. The results of this validation are summarized in the following table:

**Table 1.** Recapitulation of Expert Validation Data on the LAM Method

No	Assessed Aspect	Percentage (%)	Criteria
1	Cover Page	100	Valid
2	Foreword	60	Fairly Valid
3	Table of Contents	80	Valid
4	Instructions for Using the LAM Method	70	Fairly Valid
5	Chapter Cover Pages	73.33	Fairly Valid
6	<i>Mutashābihāt al-alfāz</i> Verses Material	75	Fairly Valid
7	LAM Method for Memorizing <i>Mutashābihāt</i>	66.67	Fairly Valid
8	Practical Examples of Applying the LAM Method	73.33	Fairly Valid

9	General Constraints and Solutions	80	Valid
10	Assignment Examples for Applying the LAM Method	60	Fairly Valid
11	Conclusion	70	Fairly Valid
<b>Average Score</b>		73.48	Fairly Valid

#### 4.4. Statistical Analysis Result

Prior to examining group differences, descriptive statistics were calculated to characterize the distribution of memorization quality scores across both experimental and control groups at pretest and posttest phases. These analyses provide essential context for interpreting the inferential statistical findings and assessing the magnitude of observed changes.

##### 4.4.1. Descriptive Statistics

Table 2 presents comprehensive descriptive statistics for memorization quality scores in both experimental and control groups across the pretest and posttest assessments. The memorization quality scores ranged from 0 to 100, with higher scores indicating a superior ability to recite and differentiate mutashābihāt verses accurately.

**Table 2.** Descriptive Statistics for Memorization Quality Scores

Group	Test	N	Mean	Median	SD	IQR	Min	Max	Skewness
Experimental	Pretest	38	68.42	69.00	8.73	12.00	48	85	-0.34
Experimental	Posttest	38	85.54	86.50	6.21	9.00	71	97	-0.28
Control	Pretest	37	67.89	68.00	9.12	13.00	46	84	-0.29
Control	Posttest	37	73.05	73.00	8.48	12.00	55	89	-0.18

*Note.* SD = Standard Deviation; IQR = Interquartile Range; Min = Minimum score; Max = Maximum score.

At baseline (pretest), both groups demonstrated comparable memorization abilities, with the experimental group achieving a mean score of 68.42 (SD = 8.73, Median = 69.00) and the control group scoring 67.89 (SD = 9.12, Median = 68.00). This similarity in pretest performance (mean difference = 0.53 points) confirms adequate equivalence between groups prior to intervention, supporting the validity of subsequent comparisons.

Following the eight-week intervention period, substantial differences emerged between the groups. The experimental group, which received instruction using the LAM method, demonstrated a mean improvement of 17.12 points (from 68.42 to 85.54), representing a 25.02% increase from baseline. The posttest standard deviation decreased to 6.21, indicating more consistent performance across students compared to the pretest (SD = 8.73). The median posttest score for the experimental group reached 86.50, with scores ranging from 71 to 97.

In contrast, the control group, which continued with conventional memorization methods (*i'ādah*, *talqīn*, and *muroja'ah*), showed modest improvement with a mean increase of only 5.16 points (from 67.89 to 73.05), representing a 7.60% increase from baseline. The control group's posttest standard deviation (8.48) remained similar to the pretest (9.12), suggesting no substantial

change in performance consistency. The median posttest score for the control group was 73.00, with scores ranging from 55 to 89.

The negative skewness values (ranging from -0.18 to -0.34) across all distributions indicate a slight tendency toward higher scores, though distributions remained reasonably symmetric. The reduction in standard deviation and interquartile range for the experimental group (posttest IQR = 9.00 compared to pretest IQR = 12.00) suggests that the LAM method not only improved overall performance but also reduced variability among students, indicating more uniform learning outcomes.

#### **4.4.2. Descriptive Statistics**

Given the violations of the normality assumptions identified by the preliminary Shapiro-Wilk tests (Section 3.6), the Mann-Whitney U test was used to compare posttest memorization quality scores between the experimental and control groups. This non-parametric test evaluates whether the two independent groups differ significantly in their score distributions without requiring the assumption of normality.

The Mann-Whitney U test revealed a statistically significant difference between groups on posttest scores ( $U = 312.50$ ,  $Z = -4.38$ ,  $p < 0.001$ , two-tailed). The experimental group demonstrated significantly higher memorization quality scores compared to the control group following the intervention period. The highly significant p-value ( $p < 0.001$ ) indicates that the probability of observing such a significant difference by chance alone, assuming no true effect of the LAM method, is less than 0.1%. This provides strong evidence against the null hypothesis of no difference between groups.

#### **4.4.3. Effect Size and Confidence Intervals**

To assess the practical significance of the observed difference beyond mere statistical significance, effect size ( $r$ ) was calculated using the formula  $r = |Z|/\sqrt{N}$ , where  $Z$  represents the standardized test statistic from the Mann-Whitney U test (-4.38) and  $N$  represents the total sample size (75).

The effect size calculation yielded:

$$r = |-4.38|/\sqrt{75} = 4.38/8.66 = 0.506$$

This effect size of  $r = 0.506$  is classified as large according to Cohen's (1988) conventional benchmarks (small:  $r = 0.10$ ; medium:  $r = 0.30$ ; large:  $r = 0.50$ ). This substantial effect size demonstrates that the LAM method produced not only statistically significant but also practically meaningful improvements in students' memorization quality. An effect size of 0.506 indicates that approximately 50.6% of the variance in posttest scores can be attributed to group membership (LAM method versus conventional methods), representing a considerable educational impact.

To provide additional information on the precision and reliability of the observed effect, 95% confidence intervals for the median difference between groups were calculated using bootstrap resampling with 1,000 iterations. Bootstrap analysis yielded a 95% confidence interval of [11.25, 15.75] for the median difference between experimental and control groups. This indicates that we can be 95% confident that the true median difference in the population lies between 11.25 and 15.75 points. Critically, the confidence interval does not include zero, further confirming the significant advantage of the LAM method over conventional approaches. The relatively narrow width of the confidence interval (4.50 points) suggests good precision in the effect estimate despite the modest sample size.

#### 4.4.4. Interpretation of Statistical Findings

These comprehensive statistical results provide robust evidence that the LAM method significantly enhances the memorization quality of *Mutashābihāt al-alfāz* verses compared to traditional memorization techniques employed in the control group. Several key findings warrant emphasis:

**Magnitude of Improvement:** The experimental group's 17.12-point mean improvement (25.02% increase) substantially exceeded the control group's 5.16-point improvement (7.60% increase), resulting in a net advantage of 11.96 points attributable to the LAM method. This magnitude represents a meaningful enhancement in students' ability to accurately memorize, recall, and differentiate structurally similar Qur'anic verses.

**Consistency of Outcomes:** The reduction in variability among students in the experimental group (posttest SD = 6.21 versus pretest SD = 8.73) suggests that the LAM method benefits students across different baseline ability levels. This finding is significant for educational interventions, as methods that reduce performance variability while raising mean scores indicate more equitable learning outcomes.

**Practical Significance:** The large effect size ( $r = 0.506$ ) confirms that the observed differences are not merely statistically detectable but represent substantial practical improvements. In educational contexts, effect sizes above 0.40 are generally considered educationally meaningful (Hattie, 2009), indicating that the LAM method's impact exceeds typical benchmarks for educational interventions.

**Robustness of Findings:** The consistency between parametric measures (mean differences) and non-parametric measures (median differences) strengthens confidence in the findings. Additionally, the narrow 95% confidence interval [11.25, 15.75] indicates precision in the effect estimate, suggesting that replication studies would likely yield similar results.

**Control Group Improvement:** The control group's modest 5.16-point improvement likely reflects natural practice effects from continued engagement with memorization activities over the eight weeks. This improvement demonstrates that conventional methods do contribute to learning gains; however, the LAM method's substantially larger gains indicate added value beyond standard approaches.

These statistical findings demonstrate that the LAM method represents a meaningful advancement in pedagogical approaches for teaching *mutashābihāt* verses, addressing the specific cognitive challenges associated with differentiating structurally similar Qur'anic content. The combination of statistical significance ( $p < 0.001$ ), large effect size ( $r = 0.506$ ), and precise confidence intervals provides compelling evidence for the method's effectiveness within the studied context.

## 5. Discussion

The findings suggest that the LAM method enhances the memorization quality of structurally similar content within the studied context. The 17.12% increase in pretest-posttest scores confirms that association-based strategies and meaning comprehension play pivotal roles in strengthening memory, supporting Ausubel's Meaningful Learning Theory (2000), which emphasizes connecting new information with previously acquired concepts. Importantly, these cognitive principles operate universally across learning contexts, suggesting the method's potential applicability beyond Qur'anic education. While this study examines Islamic educational practice, the underlying mechanisms reducing interference through systematic differentiation, employing dual coding (phonetic and semantic), and creating structured associative networks apply equally to medical students distinguishing pharmaceutical terms, language learners differentiating grammatical structures, or legal students memorizing similar statutes.

These results also corroborate the findings of Latipah (2022) and Basri (2020), which state that association techniques contribute to improved memorization quality (Jayaram et al., 2020). However, this study contributes to previous research by showing that memorization strategies incorporating structural organization and meaning comprehension are more effective than mechanical repetition (Menghafaz et al., 2021; Miller et al., 2012; Mukhalalati & Taylor, 2019). Compared with the visualization mnemonic method proposed by Iskāfī (, which is more suitable for visual learners, the LAM method may offer greater flexibility by integrating phonetic articulation, association, and meaning (Hidayah et al., 2022; Hidayat & Fauziyah, 2022a). This flexibility allows the LAM method to be applied across diverse learner types, making it a more inclusive and comprehensive approach to Qur'anic memorization (Murray, 2021; Safri Ali et al., 2021).

The LAM method's integration of phonetic articulation, associative patterning, and semantic understanding represents a replicable framework potentially adaptable to other educational contexts. Medical educators might adapt the approach for pharmaceutical nomenclature, where students face similar challenges distinguishing drugs with shared prefixes or similar structures (Jayaram et al., 2020). Language teaching could employ analogous strategies for grammatical patterns that appear structurally similar but function differently. The method's success in one specialized context suggests that its cross-disciplinary transferability warrants further investigation. The Mann-Whitney U-Test analysis revealed a significant difference between the experimental and control groups ( $p < 0.05$ ), indicating that the LAM method was associated with greater improvements in enhancing students' memorization accuracy than traditional memorization techniques (Minkyong Kim, 2022; Le et al., 2018; Maluku & Maluku, 2020). However, challenges identified in the association aspect during the pilot test suggest that this technique still requires refinement to improve its applicability in *tahfīz* education.

This study supports the theoretical concept that strategies emphasizing meaning comprehension and phonological association may be more effective than rote memorization methods in enhancing retention and recall. The findings contribute to *tahfīz* studies by integrating Ausubel's Meaningful Learning Theory (2000) and Thorndike's Theory of Associative Learning (1928) within the context of memorizing *Mutashābihāt al-alfāz* verses (Ausubel, n.d.; Farias, 2022; Michell, 2020; Thorndike, 1874). These findings contribute to broader educational psychology discourse by demonstrating how universal cognitive principles can be systematically operationalized within specific educational contexts. The study provides a model for developing and validating instructional methods that address common cognitive challenges across diverse disciplines.

The LAM method could be integrated into *tahfīz* curricula in *pesantren* as a more structured approach to Qur'anic memorization (Nasucha, 2019). Additionally, specialized training for *ustādh/ustādhah* is necessary to ensure optimal implementation within *tahfīz* education settings (Muthi'ah & Setiawan, 2025). Beyond Islamic education, the method's framework might inform pedagogical innovations in other memorization-intensive disciplines. Educators in medical, legal, or language programs facing similar challenges with structurally similar content may find value in adapting the LAM framework's core principles, systematic phonetic differentiation, structured associative patterning, and semantic anchoring to their specific disciplinary contexts.

From a policy perspective, *tahfīz* institutions might consider adopting association- and meaning-based memorization methods as standardized approaches in Qur'anic memorization programs (Rahman, 2020), reducing reliance on purely repetitive techniques (Ebralidze, 2023). More broadly, the study demonstrates how cognitive learning theories can inform practical pedagogical innovations addressing widespread educational challenges. Educational institutions across disciplines might examine whether analogous methods could address their specific memorization challenges. The findings provide a foundation for developing LAM-based instructional modules that could be explored

as educational innovations within *tahfīz* pedagogy and, through appropriate adaptation, in other educational contexts facing similar structural differentiation challenges (Guo et al., 2020).

### 5.1. Study Limitations and Future Directions

While this study demonstrates the LAM method's effectiveness, several limitations must be acknowledged to contextualize the findings and guide future research.

**Sample and Generalizability.** The modest sample size (n=75) and single-institution design limit generalizability. The homogeneous *pesantren* environment characterized by intensive residential instruction (4-6 hours daily), dedicated students with shared religious commitment, and minimal competing demands may not reflect less intensive contexts such as weekend madrasah programs or part-time Qur'anic classes. Future studies should employ larger, multi-site samples across diverse Islamic educational settings (across different countries, urban/rural contexts, and varying instructional intensities) to establish the method's robustness across broader populations.

**Learning Style Diversity.** The LAM method emphasizes auditory (phonetic) and verbal-semantic processing, potentially advantaging auditory and read/write learners while presenting challenges for students with other learning preferences. Students with strong kinesthetic learning styles may benefit from additional tactile elements (gesture-based memory cues, physical sorting activities), while visual learners might require enhanced color-coding systems, animated presentations, or graphic organizers highlighting structural patterns. Future iterations should incorporate multimodal learning modules that systematically address diverse learning preferences to ensure equitable access across learner types.

**Short-Term Evaluation.** The posttest assessment was conducted immediately following the eight-week intervention, providing no evidence of long-term retention. Critical questions remain: Do learning gains persist over extended periods (6 months, 1 year)? What maintenance strategies optimize retention? As students continue memorizing additional content, will new material interfere with previously learned *mutashābihāt* verses? Longitudinal studies with multiple follow-up assessments are essential for establishing retention trajectories and identifying optimal long-term maintenance strategies.

**Implementation Variables.** The three participating teachers received intensive training (two 3-hour workshops, weekly reflection meetings, and ongoing feedback), ensuring high implementation fidelity. However, this resource-intensive model may not be scalable to broader implementation. Teacher expertise, understanding of cognitive principles, and adherence to prescribed procedures may vary substantially without standardized training and quality assurance mechanisms. Future research should develop scalable training protocols, investigate minimum training requirements for effective implementation, and examine the relationship between teacher preparation and student outcomes.

**Assessment Context.** The memorization assessment occurred in controlled testing environments rather than in naturalistic settings (spontaneous recitation, prayer contexts, teaching others). The transfer of LAM-acquired skills to real-world Islamic practice contexts requires examination. Additionally, the study focused exclusively on memorization accuracy without assessing broader outcomes such as comprehension depth, spiritual connection to verses, or long-term engagement with Qur'anic study.

**Contextual Specificity.** Conducted within Indonesian *pesantren* culture with Indonesian-speaking students, the findings' applicability to other contexts, such as Arabic-speaking countries, South Asian educational systems, and Western Muslim-minority communities, remains uncertain. Cultural variations in pedagogical traditions, teacher-student relationships, and attitudes toward innovation may influence the method's acceptance and effectiveness. Linguistic distance from Arabic may also

affect how the *Makna* (semantic understanding) component functions for students from different language backgrounds.

Despite these limitations, the study provides compelling evidence for the LAM method's effectiveness in its tested context, with a large effect size ( $r = 0.506$ ) indicating substantial practical impact. These limitations identify important directions for future research to establish the method's broader applicability and optimize implementation across diverse educational contexts.

## 6. Conclusion

This study provides evidence that the LAM (*Lafal*, *Asosiasi*, and *Makna*) method is feasible and effective in enhancing memorization of structurally similar content, demonstrating a 17.12% improvement over conventional techniques in its Islamic education context. The method addresses a pedagogical challenge, helping learners differentiate and accurately recall texts with similar linguistic structures, a challenge that may extend beyond Qur'anic education to other disciplines.

The study makes several contributions: First, it offers an evidence-based approach to a well-documented problem in *tahfīz* education, offering Islamic educational institutions a structured, replicable method grounded in cognitive learning theory. Second, it demonstrates how universal cognitive principles (meaningful learning, associative strengthening, dual coding) can be systematically operationalized within specific educational contexts. Third, it offers a methodological model for developing and validating instructional innovations that may have cross-disciplinary relevance.

As discussed in Section 5.1, limitations including sample size, short-term evaluation, learning style considerations, and contextual specificity to the *pesantren* environment restrict immediate generalizability. However, the findings indicate promising potential for broader application pending replication across diverse contexts. Beyond this immediate context, the method's theoretical foundation and structured approach suggest transferability to other educational domains where learners must differentiate structurally similar content, including medical terminology, language learning, legal studies, and other memorization-intensive disciplines.

Future research should explore: (1) the LAM method's effectiveness across diverse Islamic educational settings (different countries, institution types, age groups); (2) long-term retention effects and sustained implementation outcomes; (3) adaptation of the LAM framework to other educational contexts facing similar pedagogical challenges; (4) digital applications that might enhance accessibility and scalability; and (5) comparative studies examining which LAM components contribute most significantly to learning outcomes across different content types and learner populations. The LAM method represents a novel, evidence-based contribution to educational practice with implications extending from its immediate Islamic education context to broader pedagogical discourse on teaching strategies for structurally similar content across diverse educational disciplines.

## 7. Suggestion

Based on the study's findings, Islamic educational institutions may consider integrating the LAM method into *tahfīz* curricula as a complementary approach specifically targeting *mutashābihāt al-alfāz* verses. Effective implementation would benefit from systematic teacher training programs that cover the method's cognitive theoretical foundations and practical application techniques. Institutions might develop supporting materials, including visual aids highlighting structural patterns, categorized reference guides for common *mutashābihāt* types, and assessment rubrics designed to evaluate differentiation skills. Rather than replacing traditional methods such as *talqin* and *muroja'ah*, the LAM method should be introduced strategically for students who demonstrate

persistent difficulties with structurally similar verses, allowing for differentiated instruction that addresses specific learning needs (Carr et al., 2015; Creswell, 2018).

Beyond Islamic education, the LAM method's foundation in universal cognitive principles suggests potential transferability to other memorization-intensive disciplines. Educators in medical education, language learning, and legal studies facing similar challenges with structurally similar content may wish to explore adapted versions of the framework through pilot studies (Bozavli, 2017; Jayaram et al., 2020). Future research should prioritize longitudinal studies examining long-term retention effects, comparative effectiveness across diverse student populations (different age groups, linguistic backgrounds, and institutional contexts), and component analysis to identify which LAM elements contribute most significantly to learning outcomes. Digital applications and cross-cultural adaptations should also be explored to enhance accessibility and scalability across diverse educational settings.

## Declarations

### Author Contributions.

N.M.M.: Conceptualization, methodology, investigation, data collection, formal analysis, writing original draft preparation.

N.K.A.: Validation, resources, data curation, writing review, and editing.

M.A.A.: Supervision, validation, writing review, and editing. H.H.: Methodology, formal analysis, validation.

A.M.B.: Project administration, resources, investigation. All authors have read and approved the final version of the manuscript.

**Conflicts of Interest.** The authors declare that there is no conflict of interest.

**Funding.** This research received no external funding.

**Ethical Approval.** This study was conducted in accordance with ethical research standards and approved by the Ethics Committee of Universitas Uluwiyah. Informed consent was obtained from all participants and/or their legal guardians at Pondok Pesantren Bidayatul Hidayah prior to participation in the study. Participant privacy and confidentiality were maintained throughout the research process, and all data were anonymized.

**Data Availability Statement.** The data supporting the findings of this study are available from the corresponding author (N.M.M.) upon reasonable request. The data are not publicly available due to privacy and ethical restrictions concerning participant confidentiality.

**Acknowledgments.** The authors express sincere gratitude to Darul Qur'an Dormitory, Pondok Pesantren Bidayatul Hidayah, Mojokerto, Indonesia, for facilitating this research. Special thanks to the students, *ustādh*, and *ustādhah* who participated in this study and contributed to the development and validation of the LAM method.

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