



Trends and Innovations in Arabic Language Learning in the 21st Century

An Umbrella Review of Existing Systematic Reviews

Nanin Sumiarni¹, Nelly Husni Laely², Zakky Rafanaldi³

^{1,2,3} UIN Siber Syekh Nurjati Cirebon, Indonesia

¹sumiarninanin@uinssc.ac.id ²nellyhusni@uinssc.ac.id,

³zakkyrafanaldi.04@gmail.com

Abstract

Arabic language learning has become the subject of at least sixteen independent systematic reviews published between 2024 and 2026, each narrowly focused on a specific sub-theme such as artificial intelligence, gamification, interactive applications, songs, communicative approaches, and mobile learning. This dense and overlapping body of reviews has never been synthesized together. This study is an umbrella review that collects, appraises the methodological quality of, and synthesizes the findings of sixteen systematic reviews on Arabic language learning trends and innovations, using the Population-Concept-Context framework and the JBI Critical Appraisal Checklist for Systematic Reviews. Twelve of the sixteen reviews explicitly reported PRISMA compliance, yet none explicitly reported a quality appraisal tool for their primary studies, a recurring methodological gap across the field. Findings also show a concentration of reviews on higher education and secondary levels, with primary education remaining comparatively underexplored. This manuscript is a working draft; full-text verification of most included reviews and an exhaustive search of Indonesian repositories remain to be completed, as detailed in the Limitations section.

Keywords

Arabic language learning; systematic review; umbrella review; 21st century innovation

مستخلص البحث

أصبح تعلم اللغة العربية موضوعًا لست عشرة مراجعة منهجية مستقلة على الأقل نُشرت بين عامي 2024 و2026، ركزت كل واحدة منها على موضوع فرعي محدد مثل الذكاء الاصطناعي والتلعيب والتطبيقات التفاعلية والأنشيد والمناهج التواصلية والتعلم عبر الأجهزة المحمولة. لم يسبق توليف هذا الكم المتراكم من المراجعات معًا. هذه الدراسة هي مراجعة شاملة تجمع وتقيم الجودة المنهجية وتوليف نتائج ست عشرة مراجعة منهجية حول اتجاهات وابتكارات تعلم اللغة العربية، باستخدام إطار السكان والمفهوم والسياق وأداة تقييم الجودة الخاصة بمعهد جونا برينغز. أظهرت اثنتا عشرة مراجعة من أصل ست عشرة التزامًا صريحًا بمنهجية بريزما، لكن لم تُبلغ أي مراجعة صراحة عن أداة تقييم جودة الدراسات الأولية، وهي فجوة منهجية متكررة في هذا المجال. كما تشير النتائج إلى تركّز المراجعات على التعليم العالي والثانوي، بينما لا يزال التعليم الابتدائي أقل استكشافًا نسبيًا. هذه المخطوطة مسودة عمل، ولا يزال التحقق الكامل من نصوص معظم المراجعات المدرجة

والبحث الشامل في قواعد البيانات الإندونيسية قيد الإنجاز، كما هو مفصل في قسم القيود.

تعلم اللغة العربية: المراجعة المنهجية؛ المراجعة الشاملة؛ ابتكارات القرن الحادي والعشرين

كلمات أساسية

المقدمة

Arabic language learning in the twenty-first century has undergone substantial transformation with the introduction of digital technology, artificial intelligence, and new pedagogical approaches into the classroom (Basid & Firmansyah, 2025). This transformation has consequently triggered a wave of systematic reviews mapping the trends and innovations that have emerged. The importance of tracking this transformation is underscored by its direct implications for curriculum design, teacher training, and policy in Arabic language education across all levels, from primary madrasah to higher education.

An initial search conducted for this study, originally scoped as a single systematic literature review, revealed that this topic area is already densely populated. At least four systematic reviews with substantially overlapping scope have been published within a close timeframe, including one on trends and innovation in higher education (Basid & Firmansyah, 2025), one on interactive applications at the secondary level sourced from the Garuda database (Amalia & Marzuki, 2025), and two further reviews addressing teaching strategies and technology integration broadly (Ainun Nufus & Azis, 2025; Supriyanoor et al., 2025). Extended searches into specific sub-themes, artificial intelligence (Hady et al., 2026; Asy'ari et al., 2025; Zainuddin et al., 2026), gamification (Almelhes, 2024), mobile-assisted learning (Nurazizah et al., 2026), and augmented and virtual reality, revealed the same pattern: each sub-theme already has its own dedicated systematic review published between 2024 and 2026.

This density of overlapping, mutually unaware systematic reviews is itself a problem worth investigating. No study has yet collected what these sixteen reviews have collectively found, where their findings converge, where they diverge, what methodological gaps recur, and which parts of the field remain under-examined despite being repeatedly reviewed from different narrow angles. This gap analysis

is the central justification for reframing the present study as an umbrella review rather than a conventional systematic review.

Accordingly, the objective of this study is to collect, methodologically appraise, and thematically synthesize the sixteen systematic reviews identified on Arabic language learning trends and innovations. The primary contribution of this study is twofold: it is, to the authors' knowledge, the first umbrella review conducted in this specific field, and it surfaces a recurring methodological gap, namely the near-absence of reported quality appraisal of primary studies across the existing body of systematic reviews.

The remainder of this article is organized as follows. The Method section describes the umbrella review protocol, including the eligibility criteria, search strategy, and quality appraisal instrument. The Results and Discussion section presents the characteristics of the included reviews, their methodological quality, and the thematic synthesis of their findings. The Conclusion summarizes the main findings and outlines directions for further research.

طريقة البحث

This study employed an umbrella review design, following the Joanna Briggs Institute methodology for umbrella reviews, in which the unit of analysis was published systematic reviews rather than individual primary studies. This design was justified by the demonstrated saturation of systematic reviews on Arabic language learning trends and innovations found during the scoping search.

The review question was structured using the Population-Concept-Context (PCC) framework. Population was defined as systematic reviews addressing Arabic language learning or teaching, from primary through higher education levels. Concept was defined as trends and innovations in Arabic language learning, encompassing methods, media, technology, and instructional models. Context was defined as twenty-first century education, including digital and post-pandemic learning contexts, in Indonesia and globally.

Eligibility criteria required that a study explicitly identify itself as a systematic review or SLR, report a verifiable search protocol, be published between 2016 and 2026, and specifically address Arabic language education. Studies were

excluded if they were labeled as narrative literature reviews without an explicit protocol, were not specific to Arabic language education, or had unverifiable metadata.

Searches were conducted using the Consensus academic search connector, which indexes Semantic Scholar, PubMed, Scopus, and ArXiv, using nine keyword combinations related to Arabic language learning, trends, innovation, artificial intelligence, gamification, mobile learning, and augmented and virtual reality, restricted to publications from 2016 onward. Searches were supplemented with general web searches using Indonesian-language terms. This search has not yet systematically covered the Garuda, Moraref, and Neliti databases with a standardized search string; therefore, full saturation cannot yet be claimed, and this is treated as a limitation of the present draft.

Eighteen candidate systematic reviews were identified. Two were excluded at the title and abstract screening stage for lacking an explicit, verifiable systematic search protocol. Sixteen systematic reviews were retained for data extraction. The selection process is summarized in Figure 1, adapted from the PRISMA 2020 flow diagram template. Note that the eligibility count in Figure 1 reflects the sixteen reviews retained after abstract-level screening; the zero reports excluded at the eligibility stage is not yet a final figure, since full-text verification of most included reviews is still in progress, as detailed in the Limitations section.

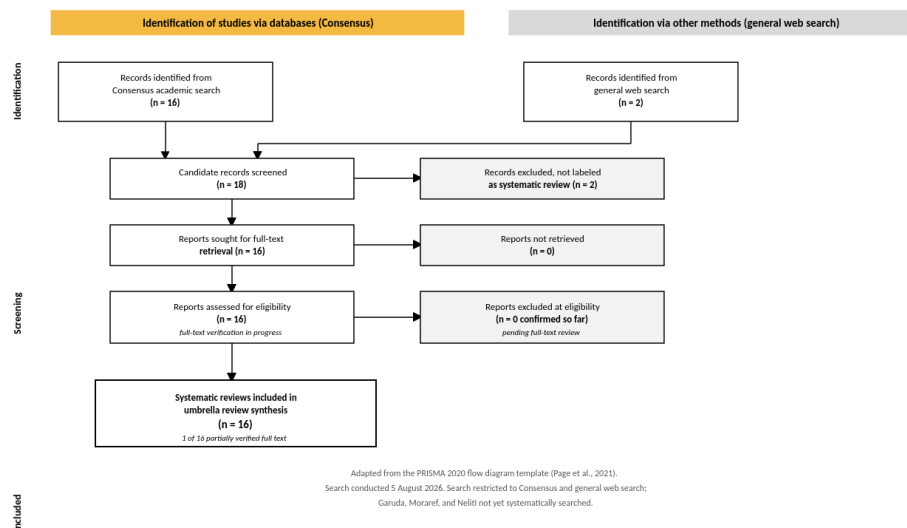


Figure 1. PRISMA-adapted flow diagram of the search and selection process for this umbrella review

Methodological quality was appraised using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses, selected because the majority of included reviews were descriptive-thematic rather than intervention-effectiveness reviews, making AMSTAR 2, which is designed for healthcare intervention reviews, less appropriate. Quality appraisal in this draft was completed only partially; eleven of the eleven JBI items require information from the full-text methods section that has not yet been verified for most included reviews, and unverifiable items are marked "cannot be determined" rather than assumed to pass or fail.

A narrative thematic synthesis was used to group the findings of the sixteen included reviews into thematic clusters and to compare recurring patterns and methodological gaps across clusters.

النتائج والمناقشة

Characteristics of the Included Corpus

Table 1 summarizes the sixteen systematic reviews included in this umbrella review. Twelve of the sixteen explicitly reported PRISMA compliance in their abstracts. The number of primary studies synthesized by each included review ranged from 10 to 86, drawn predominantly from Google Scholar, Scopus, and Indonesian national indexing databases (Sinta, Garuda).

#	Study	Journal	Focus	Verification status
1	Basid & Firmansyah (2025)	Edu Research, 6(3), 143-156	Trends/innovation, higher education	Metadata verified
2	Amalia & Marzuki (2025)	Pendas, 10(3), 771-782	Interactive apps, secondary level	Metadata verified
3	Ainun Nufus & Azis (2025)	An Nazhair, 2(1), 1-12	Teaching strategy & technology integration	Metadata verified
4	Supriyanoor et al. (2025)	Ukazh: Journal of Arabic Studies	Innovative methods, Indonesia	Abstract-level, vol/pages pending
5	Hady et al. (2026)	Online Learning In Educational Research (OLER)	AI, pedagogical challenges	Abstract-level, vol/pages pending
6	Asy'ari et al. (2025)	Alsinatuna	Computer-assisted learning, TPACK	Abstract-level, vol/pages pending
7	Zainuddin et al. (2026)	Ijaz Arabi Journal of Arabic Learning	AI, university research trend	Abstract-level, vol/pages pending
8	Mahmudah (2025)	Edukasia	Songs and movement, early learners	Abstract-level, vol/pages pending
9	Almelhes (2024)	Frontiers in Education, 9, 1371955	Gamification, non-native speakers	Full text partially verified
10	Abidah et al. (2026)	Arabiyatuna	Digital media, maharah kalam	Abstract-level, vol/pages pending

#	Study	Journal	Focus	Verification status
11	Widad Ma et al. (2025)	Semarak International Journal	Innovative strategy, STEM context	Abstract-level, vol/pages pending
12	Abdul Haris et al. (2024)	IJLLT	Publication trend, Sinta journals 2019-2023	Abstract-level, vol/pages pending
13	Zikriah & Mauludiyah (2024)	Research and Development in Education (RaDEn)	Global trend, Scopus bibliometrics	Abstract-level, vol/pages pending
14	Nurpadilah et al. (2026)	Alibbaa'	CLT, speaking skill at MI/MTs/MA	Abstract-level, vol/pages pending
15	Saad et al. (2025)	Educational Process International Journal	Digital tools, speaking skill, secondary	Abstract-level, vol/pages pending
16	Nurazizah et al. (2026)	Journal of Language and Literature Studies	Mobile assisted language learning	Abstract-level, vol/pages pending

Table 1. Characteristics of the sixteen included systematic reviews

Methodological Quality

Only one included review, Almelhes (2024), has so far been partially verified against its full text. This verification confirmed that the search and screening process was conducted by a single author without a second reviewer, a concrete methodological limitation relevant to JBI item 6 (independent critical appraisal by two or more reviewers). For the remaining fifteen reviews, JBI items concerning reviewer independence, error minimization in data extraction, and publication bias assessment could not be determined from abstract-level data alone and are marked accordingly pending full-text verification.

Thematic Synthesis

Digital technology and e-learning cluster. Several reviews mapped the broad integration of digital technology into Arabic language learning, including e-learning platforms and mobile applications (Ainun Nufus & Azis, 2025). These reviews consistently reported that technology integration increased learner motivation and personalization, while facing recurring challenges related to infrastructure gaps and instructor digital readiness.

Artificial intelligence cluster. At least three separate reviews examined artificial intelligence in Arabic language learning from different angles: pedagogical development challenges (Hady et al., 2026), computer-assisted learning framed through TPACK (Asy'ari et al., 2025), and university-level AI research trends (Zainuddin et al., 2026). All three reported benefits for adaptive feedback and personalization, alongside recurring challenges concerning limited Arabic-language training resources for AI models and inaccuracy in generated text output.

Gamification and interactive application cluster. Almelhes (2024) reviewed gamification broadly for non-native speakers, while Amalia and Marzuki (2025) mapped six specific interactive applications (Kahoot, WordWall, Canva, PowerPoint, Baamboozle, Quizalize) predominantly used at the Indonesian secondary level. A consistent pattern emerged across both reviews: gamification increased motivation and engagement, with the degree of success shaped by instructor attitude and technical readiness.

Mobile learning cluster. Nurazizah et al. (2026) reviewed mobile-assisted language learning specifically, using a PICOS protocol and the MMAT quality appraisal tool, one of the few included reviews that explicitly reported a primary-study quality appraisal instrument in its abstract. Their findings highlighted a persistent gap in empirical validation of which applications are genuinely effective and how they integrate with the Indonesian curriculum.

Level- and context-specific cluster. A number of reviews focused narrowly on a single educational level or context: songs and movement for early-grade learners (Mahmudah, 2025), communicative approaches for speaking skills at the madrasah level (Nurpadilah et al., 2026), and teaching strategies within STEM education contexts (Widad Ma et al., 2025). Across the corpus, the concentration of reviews on higher education and secondary levels was substantially higher than on primary education, a consistent pattern worth noting as a research gap.

Cross-Cutting Discussion

The synthesis across sixteen reviews reveals three recurring, methodologically meaningful patterns rather than a simple list of thematic findings. First, nearly every included review reported benefits of technology (AI, gamification, mobile, digital media) for motivation and engagement, yet almost none linked these findings to long-term learning outcome measures; most evidence originated from short-duration primary studies. Second, reporting of methodological quality appraisal for primary studies was nearly absent at the abstract level across all sixteen reviews, itself a significant methodological finding of this umbrella review: the field appears to have adopted PRISMA for reporting the selection process, but has not yet consistently adopted primary-study quality appraisal as a standard component of systematic reviews. Third, the distribution of educational levels reviewed was uneven, concentrated in higher education and secondary schooling, while primary

education and non-formal education (courses, pesantren) were comparatively rarely the focus of a dedicated systematic review.

These patterns imply that future systematic reviews of Arabic language learning should explicitly report the quality appraisal tool used for primary studies, not merely the PRISMA selection flow, and should consider primary education as an underexplored area warranting dedicated attention.

Limitations

1. The population of sixteen included reviews may not represent the full census of systematic reviews on Arabic language learning. The search has not yet systematically covered Garuda, Moraref, and Neliti with a standardized search string; full saturation cannot yet be claimed.
2. Most data extraction and JBI appraisal in this draft are based on abstracts rather than full text. Only one of sixteen included reviews (Almelhes, 2024) has been partially verified against full text. JBI items requiring full-text methodological detail are marked "cannot be determined" rather than assumed.
3. Full bibliographic details (volume, issue, page numbers, DOI) for several included reviews (see Table 1 and References) remain unverified against the publisher's official page and are marked accordingly.
4. This manuscript has not yet undergone a language-editing pass or a plagiarism/similarity check, both of which are required before submission.

الاستنتاج والخلاصة

This umbrella review shows that the field of twenty-first century Arabic language learning already possesses a dense, though thematically fragmented, base of systematic reviews, with a recurring methodological gap in the reporting of primary-study quality appraisal and an uneven concentration on higher education relative to primary education. These findings are preliminary and will be strengthened once full-text verification of the included corpus is completed.

Further research should prioritize three directions. First, completing full-text verification of the fifteen reviews not yet confirmed, to finalize the JBI appraisal

presented in this draft. Second, extending the search to Garuda, Moraref, and Neliti until saturation is reached, documented through a PRISMA flow diagram specific to this umbrella review. Third, registering the review protocol with OSF Registries prior to the next revision, to strengthen methodological credibility for the intended target journal.

كلمة الشكر والتقدير

قم بجمع الإقرارات في قسم منفصل في نهاية المقالة قبل المراجع. ضع هنا قائمة بالأفراد الذين قدموا المساعدة أثناء البحث (على سبيل المثال ، تقديم المساعدة اللغوية أو المساعدة في الكتابة أو إثبات قراءة المقالة ، وما إلى ذلك).

Collate acknowledgements in a separate section at the end of the article before the references. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

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