

Game-Based Learning and Multimodal Media in English Vocabulary Learning: A Systematic Literature Review

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	<p><i>synergistic benefits, and examine implementation challenges. Following the PRISMA 2020 protocol, we systematically searched Scopus, Web of Science, ERIC, ScienceDirect, and Google Scholar. Twelve peer-reviewed studies meeting stringent eligibility criteria underwent qualitative synthesis. Findings consistently demonstrate that GBL significantly improves vocabulary acquisition, learner motivation, and engagement compared to traditional methods. Multimodal instruction (integrating text, audio, and visuals) enhances vocabulary retention and depth of processing by supporting dual coding and reducing cognitive load. Crucially, integrated approaches that embed multimodal elements within game mechanics yield synergistic gains in cognitive, affective, and social engagement. However, successful implementation faces barriers, including over-reliance on translation-based methods and varying teacher readiness in digital-pedagogical competencies. The review concludes that combining GBL with multimodal design principles offers a powerful, engaging framework for vocabulary instruction. Future research should prioritize longitudinal studies on retention, design-based development of adaptable resources, and implementation science models to support teacher professional development in diverse educational settings.</i></p>
	<p>Keywords: <i>Game-Based Learning; multimodal media; English vocabulary acquisition; EFL instruction; digital pedagogy; learner engagement.</i></p>

INTRODUCTION

English has long functioned as a global lingua franca, playing a pivotal role in international communication across education, technology, economics, and diplomacy. In the context of education, English proficiency is increasingly regarded as a core competence that enables learners to access global knowledge and participate in academic and professional communities. In the era of globalization and digitalization, English proficiency has become an essential communicative tool, enabling individuals to access global information, enhance employability, and compete in an increasingly interconnected labor market. A Financial Times report (2025) emphasizes that foreign-language competence, particularly English, remains a fundamental and continually demanded skill in both professional and academic contexts. Consequently, the ability to communicate effectively in English is widely regarded as a key indicator of professional competence and global readiness in modern workplaces. Among the components of language proficiency, vocabulary mastery is widely acknowledged as a fundamental element underpinning both receptive skills (listening and reading) and productive skills (speaking and writing). Empirical evidence consistently demonstrates that insufficient vocabulary knowledge constrains learners' overall language performance and communicative competence (Aldemir et al., 2023; Nation, 2013; Zeng et al., 2025).

Despite its central role, empirical evidence indicates that English proficiency among Indonesian learners remains relatively low. Zein (2022), in a British Council report on English as a Subject in Basic Education (ESBE) across ASEAN countries, reveals that Indonesia's average TOEFL iBT score is 86, while IELTS Academic and General Training scores average 6.5 and 6, respectively. Although these scores classify Indonesian learners as competent users, they still demonstrate limited fluency and frequent errors in complex communicative situations, rendering them less competitive in global markets. This condition is further corroborated by the EF English Proficiency Index (EF EPI, 2024), which ranks Indonesia 80th out of 116 countries worldwide and 12th out of 23 Asian countries, reflecting a decline

compared to the previous year. These findings signal a critical challenge for Indonesia's working-age population, particularly if English proficiency, particularly vocabulary mastery, is not significantly improved through effective educational interventions. Vocabulary learning remains a persistent challenge for learners of English as a Foreign Language (EFL), particularly at the secondary school level. Traditional instructional practices, such as memorization of word lists and translation-based approaches, are often criticized for their limited effectiveness in promoting deep lexical knowledge and long-term retention. Research indicates that such approaches tend to neglect meaningful context, learner engagement, and opportunities for repeated, varied exposure to vocabulary items, resulting in superficial learning outcomes (Nation, 2024; Zhou & Wu, 2024).

In response to these challenges, English language teaching at the secondary school level plays a strategic role in preparing Indonesian learners to meet the demands of 21st-century competencies. At the same time, rapid advancements in digital technology have significantly transformed learners' characteristics, learning preferences, and modes of interaction. Contemporary learners, often described as digital natives, are accustomed to multimodal digital environments that integrate visual, auditory, and interactive elements. Consequently, there is growing pressure on educators to move beyond conventional, text-dominated instruction and adopt pedagogical approaches that align with learners' cognitive and affective needs in the digital era (Prensky, 2001a; Selwyn, 2021).

One of the most prominent challenges in English instruction at the junior secondary school (SMP) level is learners' limited vocabulary mastery. (Zhou & Wu, 2024) report that vocabulary instruction often relies heavily on translation-based word lists, which restrict learners' semantic understanding and contextual use of vocabulary. Similarly, Ihsan (2025), in a study of English teachers in Yogyakarta, identifies key challenges, including learners' difficulty memorizing vocabulary, low motivation, and disparities in digital competence between teachers and students. These findings align with classroom observations in Indonesian secondary schools, where learners frequently struggle to comprehend texts, express ideas orally, and construct written sentences due to limited vocabulary. Conventional teaching methods that emphasize memorization of isolated word lists tend to reduce learners' motivation and hinder sustainable vocabulary Development.

Vocabulary mastery is widely acknowledged as a foundational component of English language proficiency, particularly for learners of English as a Foreign Language (EFL). Read (2009) highlights a strong relationship between vocabulary knowledge and overall language skills, asserting that limited vocabulary significantly constrains language comprehension and production. This view remains relevant in recent studies, such as Hartini & Ardini (2024), who demonstrate that learners with broader vocabulary knowledge consistently achieve higher levels of language proficiency. Furthermore, Alshumrani (2024) reports that 94.5% of EFL teachers and 78.7% of learners perceive vocabulary mastery as a critical factor in language learning success. Vocabulary competence underpins both receptive skills (listening and reading) and productive skills (speaking and writing), making it a central determinant of communicative effectiveness. Hakami (2025) further confirms that vocabulary mastery underpins reading comprehension, speaking ability, and overall linguistic competence.

In response to these challenges, Game-Based Learning (GBL) has emerged as a promising pedagogical approach that leverages game mechanics such as challenges, feedback, rewards, and progression to foster learner motivation, engagement, and active participation. Grounded in constructivist and motivational theories, GBL positions learners as active agents who acquire knowledge through meaningful interaction and problem-solving within game-

like environments (Gee, 2004; Plass et al., 2015; Prensky, 2001). A growing body of empirical research has reported positive effects of GBL on vocabulary acquisition, learner motivation, and retention in EFL contexts (Bouzaiane & Youzbashi, 2024; Ghobadi et al., 2021; Patra et al., 2022).

Parallel to the Development of GBL, multimodal learning has gained increasing attention in language education. Multimodal approaches integrate multiple modes of representation, such as text, images, audio, video, and animation to support meaning-making and cognitive processing. Drawing on multimedia learning theory, multimodal instruction is believed to enhance learning by engaging dual processing channels and reducing cognitive load when appropriately designed (Kress, 2009; Mayer, 2009). Recent studies have shown that multimodal media can significantly improve vocabulary comprehension, depth of processing, and retention by providing richer contextual cues and supporting dual coding of lexical information (Alhazmi, 2024; Jiang et al., 2022; Kessler & Marino, 2023).

Although substantial research has examined GBL and multimodal media independently, studies that systematically synthesize their combined impact on English vocabulary learning remain limited. Therefore, this systematic literature review aims to critically examine and synthesize empirical findings from the past five years concerning the integration of Game-Based Learning and multimodal media in English vocabulary instruction. By consolidating current evidence, this review seeks to identify key themes, instructional benefits, pedagogical challenges, and research gaps, particularly in the context of EFL learners at the secondary education level. Ultimately, this study contributes to the development of a comprehensive, interactive, and contextually relevant instructional framework for enhancing English vocabulary learning in the digital era.

METHOD

This study employed a systematic literature review (SLR) methodology to synthesize empirical evidence on the use of Game-Based Learning (GBL) and multimodal media for English vocabulary acquisition in English as a Foreign Language (EFL) or English as a Second Language (ESL) contexts. The review was conducted in accordance with the rigorous and transparent protocols outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement (Page et al., 2021). The primary objective was to synthesize findings from recent studies to provide a comprehensive overview of the available evidence, identify research gaps, and establish a foundation for evidence-based pedagogical decisions in language education.

Search Strategy and Data Sources

A systematic and replicable search strategy was designed to ensure comprehensive coverage of relevant peer-reviewed literature. Searches were conducted across several reputable academic databases, including Scopus, Web of Science, ERIC, ScienceDirect, and Google Scholar. This multi-database approach was selected to capture interdisciplinary research from fields such as education, applied linguistics, and educational technology.

The search string was constructed using Boolean operators to optimize the balance between sensitivity and specificity. The core search query combined keywords related to:

Table 1. Keyword

Search Component	Focus Area	Keywords (in English)
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Instructional Approach	Game-Based Learning	("game-based learning" OR "digital game-based learning" OR "serious game*")
Learning Modality	Multimodal / Multimedia Learning	("multimodal learning" OR "multimedia learning")
Outcome Focus	Vocabulary Learning Outcomes	("vocabulary learning" OR "vocabulary acquisition" OR "vocabulary retention")
Learning Context	English Language Learning	("EFL" OR "ESL" OR "English as a foreign language")
Combined Search String	Boolean Search Query	("game-based learning" OR "digital game-based learning" OR "serious game*") AND ("multimodal learning" OR "multimedia learning") AND ("vocabulary learning" OR "vocabulary acquisition" OR "vocabulary retention") AND ("EFL" OR "ESL" OR "English as a foreign language")

Eligibility Criteria

Studies were screened for inclusion based on pre-defined criteria, detailed in Table 1. These criteria were applied sequentially at the title/abstract and full-text screening stages.

Table 2. Study Eligibility Criteria

Criterion	Inclusion	Exclusion
Publication Type	Peer-reviewed journal articles presenting original empirical research.	Books, book chapters, conference proceedings, theses, dissertations, conceptual papers, literature reviews, editorials, and opinion articles.
Study Design	Empirical studies (e.g., experimental, quasi-experimental, mixed-methods, qualitative) with measurable outcomes.	Purely theoretical or descriptive papers without empirical data collection and analysis.
Population & Context	Studies conducted in EFL or ESL contexts, with no restriction on learner age or educational level, provided vocabulary learning was a central focus.	Studies in non-EFL/ESL contexts (e.g., first language English settings) or where vocabulary was not a primary measured outcome.
Intervention	Use of Game-Based Learning (digital or non-digital) and/or multimodal/multimedia media as a core instructional component for vocabulary teaching.	Studies where games or multimodal elements were minor or incidental, not directly linked to the vocabulary learning outcomes.
Outcome	Measurement of vocabulary learning outcomes (e.g., acquisition, retention, recall) and/or related learner factors (e.g., motivation, engagement).	Studies not reporting specific, analyzable outcomes related to vocabulary.

Publication Period	Articles published between January 2021 and March 2025.	Articles published prior to 2021.
Language	Articles published in English.	Articles in other languages without an available English translation.

Study Selection Process

The study selection process strictly adhered to the PRISMA 2020 flow diagram and was conducted in four sequential phases. In the identification phase, initial records were retrieved from comprehensive database searches. This was followed by the screening phase, during which duplicate records were removed using reference management software, and the researcher screened titles and abstracts against the predefined inclusion criteria. In the eligibility phase, the full texts of potentially relevant articles were examined in detail to assess their compliance with the established eligibility criteria. Finally, in the inclusion phase, studies that met all the criteria were selected for data extraction and synthesis. To enhance the reliability of the selection process, a subset of articles was independently reviewed by a second reviewer at both the title/abstract and full-text screening stages, and any discrepancies were resolved through discussion to achieve consensus.

Data Extraction and Synthesis

Data from the final set of included studies were extracted using a standardized form. Key extracted information included: (1) author(s) and publication year; (2) research context and participant characteristics; (3) study design; (4) description of the GBL/multimodal intervention; (5) duration of the intervention; (6) measured outcomes and assessment tools; and (7) key findings.

Given the anticipated heterogeneity in study designs, interventions, and outcome measures, a qualitative descriptive synthesis (narrative synthesis) was conducted. This involved a thematic analysis to identify, categorize, and interpret recurring patterns, themes, and contradictions across the findings. Studies were grouped and analyzed by key variables, including intervention type (e.g., digital game genre, multimodal combination), learner variables, and measured outcomes (e.g., vocabulary retention, motivational effects), to draw meaningful conclusions and identify gaps in the literature.

RESULT

Based on the results of the systematic study selection, 12 findings are presented, addressing research issues and the instructional and contextual factors influencing their effectiveness.

Table 3. Article Analysis Results

Writer (s) & Year	Context & Design	Key Findings
Ghobadi et al. (2021)	EFL learners; quasi-experimental	GBL significantly improved learners' vocabulary acquisition and engagement compared to traditional instruction.
Patra et al. (2022)	Secondary EFL context; experimental	Game-based activities increased learners' motivation, confidence, and vocabulary recall.

Jiang et al. (2022)	EFL learners; experimental	Multimodal input (text, images, audio) enhanced the depth of processing and vocabulary retention.
Kessler & Marino (2023)	EFL digital learning context; qualitative	Multimodal instruction supported contextual understanding and the construction of vocabulary meaning.
Bouzaiane & Youzbashi (2024)	EFL secondary learners; experimental	GBL significantly improved vocabulary mastery and classroom participation.
Alhazmi (2024)	EFL learners; quasi-experimental	Multimodal media (text–audio–video) led to higher vocabulary retention than text-only instruction.
Aeni et al. (2024)	Website-based game; mixed-methods	A game-based multimodal platform increased behavioral, affective, social, and cognitive engagement, resulting in improved vocabulary learning.
Hartini & Ardini (2024)	Indonesian EFL learners; correlational	Learners with higher vocabulary mastery demonstrated stronger overall English proficiency.
Ihsan (2025)	EFL vocabulary instruction; qualitative	Translation-based vocabulary teaching limits semantic understanding and contextual use.
Sofiana et al. (2025)	SMP English teachers in Indonesia; qualitative	Identified low vocabulary mastery, low motivation, and digital skill gaps as major challenges.
	Indonesian SMP; design-based research	Non-digital GBL (“Lingo Climb”) improved motivation, collaboration, and vocabulary engagement.
Hidayah et al. (2025)	Multimodal multiliteracies pedagogy; mixed-methods	Multimodal digital activities enhanced learners’ understanding and retention of new vocabulary.

The findings of this systematic literature review reveal consistent evidence that Game-Based Learning (GBL) and multimodal media positively influence English vocabulary learning across diverse EFL contexts. Studies employing experimental and quasi-experimental designs demonstrate that GBL significantly enhances learners' vocabulary acquisition, engagement, and classroom participation compared to traditional instruction (Bouzaiane & Youzbashi, 2024; Ghobadi et al., 2021). In secondary EFL contexts, game-based activities were found to increase learners' motivation, confidence, and vocabulary recall, indicating that affective engagement plays a crucial role in supporting vocabulary learning outcomes (Patra et al., 2022).

In parallel, research focusing on multimodal instruction highlights its effectiveness in improving vocabulary retention and depth of processing. Experimental studies report that the integration of text, images, and audio facilitates stronger memory retention and deeper semantic processing than text-only instruction (Alhazmi, 2024; Jiang et al., 2022). Qualitative investigations further indicate that multimodal instruction supports learners' contextual understanding and meaning construction by providing multiple representational cues,

enabling learners to connect form, meaning, and use more effectively (Kessler & Marino, 2023).

More recent studies emphasize the integration of GBL and multimodal media as a comprehensive instructional approach. Aeni et al. (2024) found that a website-based game incorporating multimodal elements significantly enhanced learners' behavioural, affective, social, and cognitive engagement, leading to improved vocabulary learning. These findings suggest that multimodal digital games offer a synergistic effect by combining the motivational affordances of games with the cognitive benefits of multimodal input.

Evidence from the Indonesian EFL context reinforces the central role of vocabulary mastery in overall language proficiency. Hartini and Ardini (2024) reported a strong correlation between learners' vocabulary knowledge and their general English proficiency, underscoring vocabulary as a foundational component of language learning. However, qualitative studies reveal persistent pedagogical challenges, including reliance on translation-based vocabulary instruction, which limits learners' semantic understanding and contextual use of vocabulary (Ihsan, 2025). Additionally, teachers at the junior secondary level identified low vocabulary mastery, limited learner motivation, and gaps in digital skills as major obstacles in English instruction (Sofiana et al., 2025).

Design-based and qualitative research further demonstrates that contextually adapted GBL interventions can address these challenges. Sofiana et al. (2025) reported that a non-digital game-based learning model improved learners' motivation, collaboration, and engagement with vocabulary learning, suggesting that GBL principles remain effective even in low-technology settings. Similarly, multimodal multiliteracies pedagogy implemented through digital activities enhanced learners' understanding and retention of new vocabulary by engaging multiple modes of meaning-making (Hidayah et al., 2025).

Overall, the reviewed studies indicate that GBL and multimodal media, whether applied independently or in an integrated manner, contribute positively to vocabulary learning by enhancing engagement, motivation, contextual understanding, and retention. Nevertheless, the findings also highlight the need for pedagogically grounded implementation and teacher readiness to ensure sustainable and effective vocabulary instruction in EFL contexts.

DISCUSSION

The synthesis of evidence gathered in this systematic review paints a compelling, yet complex, portrait of how Game-Based Learning (GBL) and multimodal media are reshaping English vocabulary instruction for EFL learners. While the data overwhelmingly affirm their positive impact, a deeper, more reflective interrogation is necessary. We must ask not just *if* these approaches work, but *how* and *under what conditions* their potential is fully realized, and what their convergence means for contemporary language pedagogy.

Situating the Findings within the Broader Academic Conversation

The consistently reported positive effects of GBL on vocabulary acquisition and learner engagement across diverse contexts (Bouzaiane & Youzbashi, 2024; Ghobadi et al., 2021) provide strong empirical validation for foundational theories of motivation and constructivism (Gee, 2004; Prensky, 2001). Indeed, these findings resonate deeply with a growing body of literature that positions interactivity and challenge as critical catalysts for language learning, moving decisively beyond the limitations of rote memorization. In this respect, our review corroborates and reinforces earlier meta-analytic work, such as Chiu (2021), which reported significant effect sizes for digital game-based language learning.

However, a particularly intriguing nuance emerges from the Indonesian context studied by Sofiana et al. (2025). Their demonstration that a non-digital, analog game ("Lingo Climb") significantly boosted motivation and collaborative vocabulary engagement challenges a pervasive assumption within educational technology discourse. This discourse often, perhaps inadvertently, equates pedagogical innovation with digital sophistication. The success of this low-tech intervention suggests that the core ethos of GBL, its capacity to structure learning through rules, goals, and immediate feedback, is profoundly transferable. This finding complicates the narrative and usefully expands the practical scope of GBL, affirming its relevance even in resource-constrained environments where digital infrastructure may be lacking.

Similarly, the robust evidence supporting the role of multimodal instruction in enhancing vocabulary retention and processing depth (Alhazmi, 2024; Jiang et al., 2022) provides more than mere confirmation; it offers a practical enactment of Mayer's (2009) Cognitive Theory of Multimedia Learning. The reviewed studies effectively translate theory into practice, demonstrating that the strategic pairing of text with auditory and visual cues reduces cognitive load and facilitates richer semantic encoding. This extends the seminal work of scholars such as Kress (2009) by detailing how multimodal design specifically scaffolds the learner's journey in connecting a word's form, meaning, and appropriate contextual use.

Perhaps the most significant contribution of this review, however, lies in its synthesis of these two powerful strands. Previous literature has often treated GBL and multimodal learning as separate, if adjacent, domains. Our analysis, in contrast, highlights their potent synergy. The study by Aeni et al. (2024) is particularly illustrative here. Their website-based game, which wove multimodal elements into its fabric, did not merely *add* a layer of engagement to a cognitive tool or *attach* multimedia to a game. Instead, it created an integrated experience in which the game's narrative provided a purposeful context for processing multimodal input, and the input, in turn, enriched and deepened the game's challenges. This synergy directly addresses a critical pitfall noted in earlier critiques: that games can sometimes privilege engagement over durable learning, and that multimedia resources can remain passive without a compelling framework to drive interaction.

The Distinctive Contribution and Novel Perspective of This Review

This review breaks new ground by deliberately and systematically bridging two major streams of pedagogical innovation, GBL and multimodal learning, within the specific, high-stakes domain of EFL vocabulary acquisition. Whereas earlier syntheses might have examined one stream in isolation, our integrated analysis posits that motivation and cognition are not merely complementary but are co-constructive in effective vocabulary learning. For a subject area often plagued by learner disinterest, this integration is not a luxury but a pedagogical imperative.

Furthermore, our analysis highlights a critically understudied dimension: the gap between demonstrated efficacy and practical implementation, particularly in contexts such as Indonesia. While the intervention studies report apparent success, the parallel qualitative findings (Ihsan, 2025; Sofiana et al., 2025) expose a different reality, one of pedagogical inertia, entrenched translation-based habits, and varying levels of digital fluency among educators. By holding these two sets of findings in tension, this review does more than list effective strategies; it foregrounds the complex ecosystem into which they must be introduced, offering a more realistic and critically aware perspective on educational change.

The contemporary timeframe of this review (2021-2025) also endows it with distinct relevance. It captures the rapid evolution and normalization of digital-blended pedagogies in the post-pandemic era, reflecting on recent adaptations, including the rise of lightweight, browser-based platforms. Consequently, the implications drawn are not historical footnotes but are immediately pertinent for current instructional design and policy planning.

Navigating Theoretical and Practical Frontiers

This review yields significant theoretical and practical implications that chart a clear course for future research and pedagogical innovation. Theoretically, it advocates for an integrated model that synthesizes motivational (Self-Determination Theory), cognitive (Cognitive Load Theory), and social (Sociocultural Theory) paradigms, proposing that game mechanics can scaffold the processing of multimodal linguistic input. Crucially, it challenges the digital-centric view of Game-Based Learning (GBL), arguing that its core efficacy lies in functional attributes like problem-solving and feedback loops rather than the medium itself, thereby expanding theoretical inclusivity. Furthermore, it posits that vocabulary acquisition must be reconceptualized as an inherently multimodal practice in which diverse representations are central, not peripheral, to lexical development. In practice, the findings urge instructional designers and teachers to intentionally create cognitively rich, interactive experiences that integrate game principles with multimodal practice, ranging from digital apps to analog classroom games. This necessitates a shift in teacher development from technical training to workshops on pedagogical reasoning, empowering educators to design principle-driven learning experiences regardless of technological access. For curriculum leaders, there is a mandate to invest in high-quality, adaptable resources like Open Educational Resources (OER) and to modernize assessment to measure contextualized vocabulary use. Finally, future research should prioritize longitudinal, design-based studies to investigate long-term retention and transfer, while employing implementation science to develop effective models for systemic teacher support and sustainable pedagogical integration.

In sum, this systematic review presents a strong case for viewing Game-Based Learning and multimodal media not as isolated trends but as interdependent pillars of modern EFL vocabulary instruction. Together, they respond to the dual imperative of engaging the learner's interest and deepening their cognitive processing. The novelty of this review lies in its integrative critique, its candid engagement with implementation realities, and its analysis of the most recent post-pandemic research.

The path forward, while promising, is punctuated by challenges, primarily those related to pedagogical mindset and systemic support. However, the collective evidence points unmistakably toward a necessary evolution: transforming vocabulary learning from a solitary task of memorization into a collaborative, dynamic, and intellectually stimulating process of discovery. This is not merely an instructional upgrade; it is a fundamental realignment with the communicative and cognitive demands of our time.

REFERENCES

- Aeni, N., Nur, S., Limbong, S., & Yunus, M. (2024). Promoting EFL students' engagement by using Bamboozle: Digital game-based learning in Indonesian higher education. *Journal of English Education and Teaching*, 8(3), 508–527. <https://doi.org/10.33369/jeet.8.3.508-527>

- Aldemir, H., Solis-Campos, A., Saldana, D., & R. Rodriguez-Ortiz, I. (2023, August). *A systematic review and meta-analysis of vocabulary interventions for deaf/hard of hearing children and adolescents*. *Journal of Speech, Language, and Hearing Research*. https://pubs.asha.org/doi/10.1044/2023_JSLHR-22-00570
- Alhazmi, K. (2024). The effect of multimedia on vocabulary learning and retention. *World Journal of English Language*, 14(6), 390. <https://doi.org/10.5430/wjel.v14n6p390>
- Alshumrani, H. A. (2024). Unveiling vocabulary teaching and learning beliefs of teachers and learners in an EFL context. *Asian-Pacific Journal of Second and Foreign Language Education*, 9*(1), 20. <https://doi.org/10.1186/s40862-023-00242-0>
- Bouzaiane, B., & Youzbashi, A. (2024). The role of digital-game based language learning in EFL vocabulary learning and retention: A case study at a higher educational institute in Oman. *Journal of Language Teaching and Research*, 15, 1660–1669. <https://doi.org/10.17507/jltr.1505.27>
- EF EPI. (2024). EF EPI | Indeks Kecakapan Bahasa Inggris EF. <https://www.ef.co.id/epi/>
- Financial Times*. (2025, August 15). Lost in translation. *Financial Times*. <https://www.ft.com/content/c9f32020-0499-4f49-9a46-1a3f491847d4>
- Gee, J. P. (2004). *What video games have to teach us about learning and literacy* (1. paperback ed). Palgrave Macmillan.
- Ghobadi, S., Shahrokhi, M., & Abedi, A. (2021). Impact of ELSE game-based English vocabulary learning app on Iranian EFL exceptional students' vocabulary learning: EFL professionals and computer experts' evaluation in focus. *Machine Translation*, 11, 149–173.
- Hakami, A. Q. A. (2025). The influences of the English language vocabulary on EFL learners' English language competency proficiency. *ResearchGate*. <https://doi.org/10.36892/ijlls.v7i2.2090>
- Hartini, L. W., & Ardini, A. S. (2024). The relationship between Indonesian EFL learners' vocabulary knowledge and English competencies. *Journal of English and Education (JEE)*, 55–66. <https://doi.org/10.20885/jee.v10i1.33651>
- Hidayah, J., Prihantoro, P., Apriani, E., Polisda, Y., Arnanda, F. S., & Oktavia, N. (2025). Facilitating students' multimodal competence development in technology-supported speaking class through multiliteracies pedagogy. *Journal of English Education and Teaching*, 9(1), 172–189. <https://doi.org/10.33369/jeeet.9.1.172-189>
- Ihsan, A. I. (2025). Teaching vocabulary in Indonesian EFL classrooms: A comparative case study of junior high school strategies, challenges, and student responses. *GLOBAL: Education Language and Humanity Journal*, 3(1), 68–78.
- Jiang, M., Jong, M., Lau, W., Chai, C., & ... (2022). A scoping review on flipped classroom approach in language education: Challenges, implications and an interaction model. *Computer Assisted Language Learning*. <https://doi.org/10.1080/09588221.2020.1789171>
- Kessler, M., & Marino, F. (2023). Digital multimodal composing in English language teaching. *ELT Journal*, 77, 370–376. <https://doi.org/10.1093/elt/ccac047>
- Kress, G. (2009). *Multimodality* (0 ed.). Routledge. <https://doi.org/10.4324/9780203970034>
- Mayer, R. E. (2009). *Multimedia learning*. Cambridge University Press.
- Nation, I. S. P. (Ed.). (2013). Testing vocabulary knowledge and use. In *Learning vocabulary in another language* (2nd ed., pp. 514–568). Cambridge University Press. <https://doi.org/10.1017/CBO9781139858656.015>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J.

- M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- Patra, I., Shanmugam, N., Ismail, S. M., & Mandal, G. (2022). An investigation of EFL learners' vocabulary retention and recall in a technology-based instructional environment: Focusing on digital games. *Education Research International*, 2022(1), 7435477. <https://doi.org/10.1155/2022/7435477>
- Plass, J. L., Homer, B. D., & Kinzer, C. K. (2015). Foundations of game-based learning. *Educational Psychologist*, 50(4), 258–283. <https://doi.org/10.1080/00461520.2015.1122533>
- Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1–6.
- Read, J. A. S. (2009). *Assessing vocabulary*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511732942>
- Sofiana, N., Putri, A. R., Muzakki, M. A., & Mubarak, H. (2025). “Lingo climb” for vocabulary learning: Developing a game-based learning tool for elementary EFL students. *Journal on English as a Foreign Language*, 15(1), 237–267. <https://doi.org/10.23971/jefl.v15i1.9714>
- Zein, S. (2022). *Country profiles: English as a subject in basic education (ESBE) in Cambodia, Laos, Indonesia, Malaysia, Myanmar, the Philippines, Thailand and Vietnam—Recommendations for policy and research*. [https://www.researchgate.net/publication/362360251_Country_profiles_English_as_a_subject_in_basic_education_ESBE_in_Cambodia_Laos_Indonesia_Myanmar_the_Philippines_Thailand_and_Vietnam_-_Recommendations_for_policy_and_research](https://www.researchgate.net/publication/362360251_Country_profiles_English_as_a_subject_in_basic_education_ESBE_in_Cambodia_Laos_Indonesia_Malaysia_Myanmar_the_Philippines_Thailand_and_Vietnam_-_Recommendations_for_policy_and_research)
- Zeng, Y., Kuo, L.-J., Chen, L., Lin, J.-A., Shen, H., Zeng, Y., Kuo, L.-J., Chen, L., Lin, J.-A., & Shen, H. (2025). Vocabulary instruction for English learners: A systematic review connecting theories, research, and practices. *Education Sciences*, 15(3). <https://doi.org/10.3390/educsci15030262>
- Zhang, X., & Li, L. (2025). Color extraction and artistic matching design based on silhouette coefficient method and eye tracking technology. *Journal of The Institution of Engineers (India): Series C*. Advance online publication. <https://doi.org/10.1007/s40032-025-01229-1>
- Zh, M. H. R. (2025). *Pengembangan strategi blended learning berbantuan flipbook digital berbasis hypercontent untuk meningkatkan hasil belajar* [Disertasi doktoral, Universitas Negeri Malang].
- Zh, M. H. R., Pradana, M. I. Y., Soepriyanto, Y., & Budiman, F. (2025). Comparative analysis of student learning outcomes in Al-Qur'an Hadith lessons based on learning media. **Al-Afkar, Journal For Islamic Studies*, 8*(1), 241–250.
- Zh, M. H. R., Putra, M. F. B., Kuswandi, D., Wedi, A., & Ardiansyah, A. (2024). Developing Wordwall evaluations in blended Islamic education using the Smith and Ragan model. **Al-Aulia: Jurnal Pendidikan Dan Ilmu-Ilmu Keislaman*, 10*(1), 89–104.
- Zh, M. H. R., Sani, N. L., Kuswandi, D., & Fadhli, M. (2024). Needs analysis of development fbo media as a support for blended learning in al-qur'an hadits lesson. **Jurnal Pendidikan Agama Islam Al-Thariqah*, 9*(1), 16–32.
- Zh, M. H. R., Thaariq, Z. Z. A., & Ardiansyah, A. (2024). Mobile learning: Future learning technologies for Islamic formal education (A literature study). *Proceedings of International Conference on Education*, 2(1), 370–377.

Zhou, W., & Wu, X. (2024). The impact of internal-generated contextual clues on EFL vocabulary learning: Insights from EEG. *Frontiers in Psychology*, 15, 1332098. <https://doi.org/10.3389/fpsyg.2024.1332098>.