IDEAS

Journal on Language Teaching and Learning, Linguistics and Literature

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Volume 14, Number 1, June 2026
pp. 5410 - 5419

Issued by English study program of UIN Palopo

A Literature-Derived Pedagogical Framework for Augmented Reality-Supported Deeper English Learning in Junior High Schools: An Integrative Review

Suardi[1], Sahrir[2], Alviani[3], Intan Ramadhani[4], Riska[5]

[1,3,4,5]Politeknik Dewantara, Palopo, Indonesia
[2]Universitas Muhammadiyah Palopo, Indonesia

Article Info

Received: 2026-06-10
Revised: 2026-06-24
Accepted: 2026-06-30

Keywords:
augmented reality;
deeper learning;
English language learning;
implementation framework;
junior high school

Corresponding Author:
Suardi
suardisalbon01@gmail.com
Politeknik Dewantara, Palopo
Indonesia

Abstract

Augmented reality (AR) can support engagement, visualization, multimodal literacy, vocabulary learning, and academic achievement, but its value depends on pedagogical design, teacher readiness, usability, and assessment. This integrative review synthesized 20 peer-reviewed journal articles published between 2019 and 2025 to formulate a pedagogical framework for AR-supported deeper English learning in junior high schools. A structured extraction matrix and thematic synthesis were used to examine AR affordances, instructional design, language outcomes, teacher competence, user experience, and school context. Five themes emerged: AR as cognitive and multimodal scaffolding; pedagogical sequencing as a condition for effectiveness; operationalization of deeper learning; teacher readiness and TPACK; and classroom feasibility. The proposed framework integrates AR across understanding, applying, and reflecting. Within understanding, AR supports essential understanding, applied understanding, and values-and-character understanding by connecting language with visual, spatial, cultural, and contextual representations. Applying requires contextual language use and authentic products, while reflecting requires evaluation of strategies, performance, meaning, and values. The framework also specifies teacher, learner, and media roles, assessment evidence, implementation fidelity, and user acceptance. AR should therefore be treated as an integrated cognitive-pedagogical tool rather than an isolated digital medium.

1. Introduction

Digital technologies have expanded the representational resources available for English language teaching. Among them, augmented reality (AR) is distinctive because it overlays digital information onto physical environments and allows learners to interact with words, images, objects, locations, and tasks in a shared spatial context. In language classrooms, this combination can make abstract vocabulary, textual meaning, and communicative situations more visible and experiential. Reviews of AR-enhanced language

learning report benefits related to multimodality, contextualization, participation, and learner engagement (Huang et al., 2021; Parmaxi & Demetriou, 2020). More focused studies also indicate that AR can support vocabulary learning, multimodal literacy, and visuospatial memory by linking linguistic forms with visual and contextual cues (Larchen Costuchen, 2021; Tsai, 2020; Yeh & Tseng, 2020).

The positive potential of AR, however, should not be interpreted as an automatic technological effect. Meta-analytic evidence shows that learning gains vary according to treatment duration, content area, learner characteristics, and the quality of instructional design (Chang et al., 2022; Garzón & Acevedo, 2019). Pedagogical approaches significantly moderate the impact of AR, which means that the same technology may produce different outcomes when it is used for passive viewing, guided inquiry, collaborative problem solving, or authentic performance (Garzón et al., 2020). A systematic review of AR applications in school education similarly emphasizes usability, user experience, and age-appropriate interaction as conditions for successful adoption (Law & Heintz, 2021). These findings move the scholarly discussion away from whether AR is attractive and toward how it should be pedagogically organized.

This issue is particularly important in junior high school English classrooms. Learners at this level need support not only to remember vocabulary and recognize grammatical forms but also to interpret meaning, use language in context, communicate ideas, and develop values through texts and interaction. AR can provide concrete situations for these processes, yet classroom implementation is constrained by limited time, unequal device access, teacher confidence, and the need to align activities with curriculum goals. Evidence from junior high school contexts demonstrates that mobile AR can improve learning outcomes when it is embedded in structured learning activities, although such evidence has also emerged from subject areas outside language education, such as physical education (Muktiani et al., 2022). This suggests that the transfer of AR into English teaching requires subject-specific pedagogical design rather than simple media adoption.

The need for design becomes stronger when AR relates to deeper learning. In the Indonesian educational context, Pembelajaran Mendalam is understood as an approach rather than a separate curriculum. It is organized around the principles of mindful, meaningful, and joyful learning and involves three learning experiences: understanding, applying, and reflecting (Rahmawati et al., 2025). The understanding experience includes essential understanding, applied understanding, and values-and-character understanding. These are not three independent dimensions; they are forms of knowledge and meaning that learners construct during the understanding phase. Applying extends that knowledge through contextual action, while reflecting enables learners to evaluate their learning process, performance, meaning, and values. This structure is highly relevant to English learning because language competence develops when learners connect linguistic knowledge with use, context, identity, and reflection.

Current research nevertheless remains fragmented. Many AR studies focus on a particular application, vocabulary set, or learning outcome. Research on deeper learning in foreign language education is expanding, but classroom operationalization remains underdeveloped (Zhao et al., 2025). Studies of teacher self-efficacy and TPACK also show that teachers need clear pedagogical support to implement curricular and technological innovation confidently (Rohmah et al., 2024; Sari et al., 2021). Consequently, a gap exists between evidence that AR can improve learning and practical guidance explaining how AR should be integrated into a complete sequence of deeper English learning.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

This review addresses that gap by synthesizing literature on AR, language learning, deeper learning, teacher readiness, instructional design, usability, and school implementation. It asks three questions: (1) What educational functions and implementation conditions of AR are consistently identified in the literature? (2) How can these findings be aligned with the learning experiences of understanding, applying, and reflecting? and (3) What components should be included in a pedagogical implementation framework for AR-supported deeper English learning in junior high schools? The contribution of the study lies in shifting AR from an isolated digital medium to an integrated framework that specifies learning stages, teacher-learner-media roles, assessment evidence, implementation fidelity, and user acceptance.

2. Method

This study employed an integrative literature review. An integrative review is appropriate when evidence from different research designs and conceptual traditions must be combined to generate a new explanatory or practical framework (Whittemore & Knafl, 2005). The purpose was not to calculate a pooled effect size but to connect findings from meta-analyses, systematic reviews, empirical studies, teacher-readiness research, and instructional-design studies relevant to AR-supported English learning.

The review corpus consisted of 20 peer-reviewed journal articles published from 2019 to 2025. The corpus had been compiled through a preliminary literature-mapping process focused on six areas: AR in education, AR in language learning, deeper learning in foreign-language education, teacher readiness and TPACK, AR in primary and secondary education, and usability or user experience. Articles were included when they met at least one of the following criteria: they examined AR-supported learning outcomes; discussed AR design or pedagogical approaches; investigated AR in language learning or secondary education; analyzed deeper learning in language education; or provided evidence concerning teacher readiness, usability, and implementation. Purely technical AR papers without an educational focus, duplicate publications, and studies with no direct contribution to the proposed framework were excluded.

The corpus represented a recent and multidisciplinary evidence base. Five articles were published in 2020, four in 2021, two each in 2019, 2022, and 2023, one in 2024, and four in 2025. The sources included meta-analyses and systematic reviews as well as empirical and needs-analysis studies. This mixture was retained because the framework required evidence about effectiveness, learning mechanisms, classroom feasibility, teacher competence, and user experience rather than a single outcome variable.

Data were extracted into a matrix containing author and year, journal, educational level, research focus, principal findings, and relevance to the proposed framework. Analysis followed a thematic-synthesis procedure. First, each article was read for statements about the educational role of AR, learning outcomes, pedagogical sequencing, teacher roles, learner activity, assessment, usability, and implementation barriers. Second, recurring ideas were coded and grouped into provisional themes. Third, similarities, differences, and conditions across themes were compared. Finally, the themes were conceptually aligned with the deeper-learning experiences of understanding, applying, and reflecting. The analysis was iterative: emerging framework components were repeatedly checked against the extracted evidence to prevent the framework from being based on a single study.

The credibility of the synthesis was strengthened through source triangulation. Conclusions about AR effectiveness were compared across multiple meta-analyses and systematic reviews; language-specific claims were checked against studies of vocabulary, multimodal literacy, and language-task design; and implementation claims were compared with teacher-readiness and usability studies. The resulting framework should therefore be

viewed as a theoretically grounded formulation requiring empirical validation, not as a tested causal model.

3. Result

3.1 Profile of the Reviewed Literature

The 20 articles formed five interconnected evidence clusters. General AR meta-analyses established the technology's overall learning potential and the moderating role of instructional design. Language-learning reviews and empirical studies explained how AR can contextualize vocabulary, support multimodal literacy, and connect receptive with productive language use. Deeper-learning literature highlighted the need to move beyond memorization toward meaningful construction, application, and reflection. Teacher-readiness studies emphasized TPACK, self-efficacy, and practical guidance. Finally, school-level and usability research showed that implementation depends on age appropriateness, device access, classroom management, and user experience. Table 1 summarizes these clusters.

Evidence cluster	Representative studies	Consistent findings	Implication for the framework
AR effectiveness and design	Chang et al. (2022); Garzón and Acevedo (2019); Garzón et al. (2020); Li et al. (2025)	AR generally supports learning, but effects vary according to duration, content, visualization, and pedagogy.	AR must be linked to explicit learning goals, tasks, guidance, and assessment.
AR in language learning	Christou et al. (2025); Fan et al. (2020); Huang et al. (2021); Parmaxi and Demetriou (2020)	AR enables multimodal, contextual, interactive, and task-based language experiences.	The framework should connect language input, context, interaction, and production.
Language understanding	Larchen Costuchen (2021); Tsai (2020); Yeh and Tseng (2020); Yulianawati et al. (2025)	Visual-spatial and multimodal cues can support vocabulary, meaning construction, and critical reading.	AR should function as cognitive scaffolding for essential and applied understanding.
Teacher capacity	Rohmah et al. (2024); Sari et al. (2021)	Innovation requires teacher confidence, TPACK, reflective practice, and pedagogical clarity.	Teacher roles, preparation, and implementation guides must be explicit.
School context and usability	Law and Heintz (2021); Li et al. (2023); Muktiani et al. (2022)	Age appropriateness, usability, device access, time, and classroom conditions affect feasibility.	Implementation fidelity and user acceptance must be evaluated alongside learning outcomes.

Table 1. Evidence clusters and implications for the proposed framework

3.2 AR as Cognitive and Multimodal Scaffolding

Across the literature, AR was most educationally valuable when it reduced the distance between linguistic symbols and meaningful situations. Text, image, sound, object, location, and interaction can be combined so that learners do not encounter language as decontextualized information. Yeh and Tseng (2020) showed the relevance of AR for multimodal literacy, while Tsai (2020) and Larchen Costuchen (2021) demonstrated how visual and spatial cues can support vocabulary meaning and retention. This pattern

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

supports the interpretation of AR as cognitive scaffolding: the technology can direct attention, externalize relationships, and provide contextual cues for meaning construction.

However, visual richness can also distract learners if irrelevant objects, animations, or navigation demands compete with the target language. Evidence from multimedia research indicates that instructional media should guide cognitive focus rather than merely increase presence or attractiveness (Beege et al., 2023). The design implication is that each AR element must have an identifiable cognitive function. A three-dimensional object may clarify a referent, a location-based prompt may establish communicative context, and an overlay may highlight a linguistic feature. Decorative elements that do not contribute to understanding should be minimized.

3.3 Pedagogical Sequencing as the Condition for AR Effectiveness

Meta-analytic findings consistently challenge technology-centered implementation. Garzón et al. (2020) found that pedagogical approaches influence the impact of AR, and Chang et al. (2022) reported that intervention characteristics help explain variations in outcomes. In practical terms, opening an AR application is not a learning strategy. Students need a sequence that activates prior knowledge, identifies a meaningful problem, guides exploration, requires language use, provides feedback, and consolidates learning.

Language-learning reviews reinforce this position. Fan et al. (2020) argued that application design, instructional strategy, and evaluation should operate as a coherent system. Christou et al. (2025) further emphasized task design in AR language learning. Therefore, the proposed framework does not assign AR to a single phase. Instead, AR may be used before a task to create context, during a task to support inquiry and communication, and after a task to document or revisit evidence. The pedagogical purpose determines the technological feature, not the reverse.

3.4 Operationalizing Deeper Learning in English Classrooms

The synthesis indicates that deeper learning can provide the pedagogical structure missing from many AR interventions. In the understanding experience, learners construct essential understanding, applied understanding, and values-and-character understanding. Essential understanding concerns the core concepts, meanings, language forms, and relationships needed to comprehend a text or communicative event. Applied understanding concerns how that knowledge functions in realistic situations. Values-and-character understanding concerns the attitudes, ethical meanings, cultural awareness, and dispositions embedded in language use and classroom interaction.

AR can support these forms of understanding in complementary ways. It can visualize referents and relationships for essential understanding, simulate communicative contexts for applied understanding, and present dilemmas, cultural settings, or social perspectives for values-and-character understanding. The applying experience then requires learners to use language beyond recognition. Students may solve a contextual problem, follow or give instructions, negotiate meaning, describe an AR object, perform a dialogue, or create a spoken or written product. The reflecting experience requires learners to explain what they understood, evaluate the strategy they used, identify changes in their performance, and connect learning with values or real-life contexts.

This alignment prevents a conceptual error in which essential, applied, and values-and-character understanding are treated as three separate dimensions of deeper learning. They are located within the understanding experience, which is followed and extended by applying and reflecting. The resulting learning sequence is recursive rather than rigidly linear: reflection may reveal a misunderstanding, leading learners back to further exploration and application.

3.5 Teacher Readiness, Usability, and Implementation Feasibility

Teacher readiness emerged as a core component rather than a background variable. Rohmah et al. (2024) found that teachers can value an innovation while remaining uncertain about how to enact it. Sari et al. (2021) showed that EFL teachers' TPACK can be strengthened through reflective and guided practice. Accordingly, the framework assigns the teacher four connected roles: designer of learning goals and tasks, facilitator of inquiry and communication, manager of technological and classroom contingencies, and assessor of evidence across understanding, applying, and reflecting.

Usability is equally important. Law and Heintz (2021) demonstrated that the success of AR in school settings depends on user experience and suitability for learners. A theoretically strong task may fail if scanning is unreliable, instructions are unclear, devices are insufficient, or students spend more time navigating than learning. Therefore, evaluation should include perceived usefulness, ease of use, accessibility, technical stability, time efficiency, and implementation fidelity. These indicators complement rather than replace evidence of language learning.

3.6 Proposed Pedagogical Implementation Framework

Figure 1 presents the proposed framework. Implementation begins with analysis of curriculum goals, English content, learner characteristics, teacher TPACK, device availability, usability, and classroom conditions. These contextual inputs inform pedagogical design principles: AR should function as cognitive and multimodal scaffolding; activities should follow a clear learning sequence; tasks should be contextual and communicative; and assessment should capture authentic evidence. AR is then integrated across understanding, applying, and reflecting rather than added as a separate technological event. Outcomes are evaluated through understanding, language use, engagement, implementation fidelity, and user acceptance. A feedback loop allows evaluation findings to revise context analysis and design.

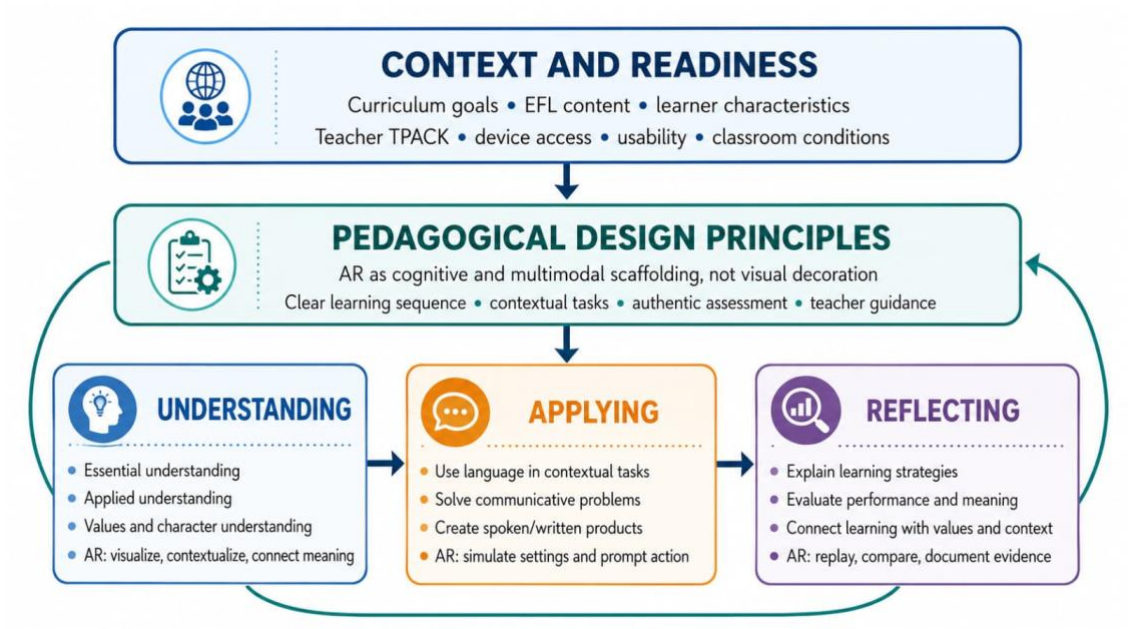

Figure 1. Pedagogical implementation framework for AR-supported deeper English learning

Table 2 translates the framework into operational components. It identifies the cognitive focus, AR function, teacher role, student action, and assessment evidence expected at each learning experience. The table is not a fixed lesson plan; teachers may adapt the activities to language skills, grade levels, texts, and local conditions. Its function is to maintain alignment among purpose, media, pedagogy, and assessment.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Learning experience	Focus	AR function	Teacher role	Learner action	Assessment evidence
Understanding	Essential, applied, and values-and-character understanding	Visualize concepts; connect text, image, space, and context; present cultural or ethical situations	Activate prior knowledge; guide attention and inquiry; clarify misconceptions	Observe, predict, question, identify patterns, interpret meaning, discuss values	Concept map; explanation; annotated text; response to contextual and value-based questions
Applying	Contextual use and extension of knowledge	Simulate situations; trigger location/object-based tasks; provide prompts and feedback	Design authentic communicative problems; scaffold language use; facilitate collaboration	Describe, negotiate, solve, perform, create spoken or written products	Performance task; dialogue; problem solution; written/spoken product; rubric score
Reflecting	Metacognition, evaluation, meaning, and values	Replay or compare evidence; document process and products; support self/peer review	Prompt reflection; organize feedback; connect outcomes with goals and values	Evaluate strategies and products; explain improvement; connect learning to real life	Reflection log; self/peer assessment; revision record; learning narrative

Table 2. Operational alignment of AR with deeper-learning experiences

4. Discussion

The review confirms that the most important transition in educational AR research is a movement from media-centered adoption to pedagogy-centered implementation. Earlier enthusiasm often treated immersion and novelty as sufficient explanations for engagement and achievement. The reviewed meta-analyses offer a more disciplined conclusion: AR can improve learning, but its effect is conditional. Instructional design, pedagogical approach, task duration, learner characteristics, and usability explain why apparently similar applications generate different outcomes (Chang et al., 2022; Garzón & Acevedo, 2019; Garzón et al., 2020). The proposed framework responds by making context analysis and pedagogical sequencing prerequisites for technology use.

This conclusion is consistent with language-learning research. AR offers affordances that are particularly relevant to language because meaning is multimodal and contextual. Vocabulary does not consist only of definitions; it involves referents, associations, collocations, settings, intentions, and cultural meanings. AR can make some of these relationships visible and actionable. Yet language learning also requires interaction, production, feedback, and transfer. For that reason, an AR object becomes educationally meaningful only when students must do something linguistically and cognitively purposeful with it. The framework therefore links representation with inquiry, communication, and assessment.

The integration with deeper learning adds conceptual precision. Understanding is not reduced to remembering vocabulary or identifying information. It includes essential understanding, applied understanding, and values-and-character understanding. This structure is especially useful for English lessons built around narrative, descriptive, procedural, or transactional texts. For example, AR may help students identify the essential

meaning and language features of a narrative, explore how expressions function in a simulated social setting, and examine the values or perspectives represented in characters' actions. Students then apply their understanding through retelling, dialogue, problem solving, or multimodal production and reflect on both language use and the values communicated.

The proposed framework also clarifies the distribution of agency. The teacher does not disappear when technology becomes interactive. On the contrary, AR increases the need for careful goal setting, task design, scaffolding, classroom orchestration, and assessment. Teacher TPACK is therefore operationalized through decisions about which content should be augmented, which representations reduce cognitive difficulty, which tasks require communication, and which evidence demonstrates learning. The learner's role changes from viewer to interpreter, user, creator, collaborator, and reflective evaluator. The media's role is limited but important: it provides representations, contexts, prompts, and records that support these pedagogical actions.

Assessment is another contribution of the framework. Many technology studies measure satisfaction or post-test scores without examining whether implementation occurred as intended. A complete evaluation should include at least four evidence domains. First, learning evidence should show essential, applied, and values-and-character understanding as well as contextual language use. Second, process evidence should capture participation, collaboration, and reflection. Third, implementation evidence should examine whether the planned sequence, roles, and scaffolds were enacted. Fourth, user-experience evidence should examine usefulness, ease of use, accessibility, and technical stability. Together, these domains enable researchers and teachers to distinguish a weak learning design from a technical failure or a mismatch with classroom conditions.

The study offers theoretical, practical, and methodological contributions. Theoretically, it connects AR affordances with deeper-learning experiences in English education. Practically, it provides a structure that teachers can adapt when designing lessons rather than a single application or fixed method. Methodologically, it identifies variables for future validation: expert validity, implementation fidelity, teacher and learner acceptance, learning outcomes, and reflective evidence. These variables can support subsequent research-and-development stages, including needs analysis, prototype design, expert review, limited trials, and effectiveness testing.

Several limitations should be recognized. The corpus was a curated set of 20 articles rather than an exhaustive systematic search with database-specific counts and publication-bias analysis. The articles represented different subjects, educational levels, technologies, and research designs, so the synthesis emphasizes conceptual convergence rather than direct comparability. In addition, the proposed framework has not yet been tested in junior high school English classrooms. Future studies should conduct a documented systematic search, validate framework components with AR, English-teaching, curriculum, and assessment experts, and test the framework across schools with different levels of technological access. Comparative studies could examine whether the framework produces stronger understanding, language performance, and reflection than AR use without an explicit pedagogical sequence.

5. Conclusion

The reviewed literature provides strong support for AR as a resource for visualization, contextualization, multimodal literacy, engagement, and language learning. At the same time, it consistently shows that technology alone does not guarantee meaningful learning. AR becomes educationally effective when it is integrated with clear goals, structured tasks, teacher guidance, authentic language use, assessment, and feasible classroom conditions.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

The framework formulated in this study positions AR across the learning experiences of understanding, applying, and reflecting. Within understanding, it supports essential understanding, applied understanding, and values-and-character understanding; in applying, it supports contextual communication and production; and in reflecting, it supports evaluation of strategies, outcomes, meaning, and values. By specifying context, design principles, roles, assessment evidence, implementation fidelity, and user acceptance, the framework shifts AR from an isolated medium to a pedagogical system. Its next stage should be expert validation and empirical testing in diverse junior high school English classrooms.

6. References

Beege, M., Schroeder, N. L., Heidig, S., Rey, G. D., & Schneider, S. (2023). The instructor presence effect and its moderators in instructional video: A series of meta-analyses. Educational Research Review, 41, 100564. https://doi.org/10.1016/j.edurev.2023.100564

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Chang, H.-Y., Binali, T., Liang, J.-C., Chiou, G.-L., Cheng, K.-H., Lee, S. W.-Y., & Tsai, C.-C. (2022). Ten years of augmented reality in education: A meta-analysis of (quasi-)experimental studies to investigate the impact. Computers & Education, 191, 104641. https://doi.org/10.1016/j.compedu.2022.104641

Christou, E., Vassiliou, P., & Parmaxi, A. (2025). Augmented reality in language learning: A systematic literature review of the state-of-the-art and task design considerations. Innovation in Language Learning and Teaching, 1–28. https://doi.org/10.1080/17501229.2025.2504706

Cui, J., & Yu, S. (2019). Fostering deeper learning in a flipped classroom: Effects of knowledge graphs versus concept maps. British Journal of Educational Technology, 50(5), 2308–2328. https://doi.org/10.1111/bjet.12841

Fan, M., Antle, A. N., & Warren, J. L. (2020). Augmented reality for early language learning: A systematic review of augmented reality application design, instructional strategies, and evaluation outcomes. Journal of Educational Computing Research, 58(6), 1059–1100. https://doi.org/10.1177/0735633120927489

Garzón, J., & Acevedo, J. (2019). Meta-analysis of the impact of augmented reality on students' learning gains. Educational Research Review, 27, 244–260. https://doi.org/10.1016/j.edurev.2019.04.001

Garzón, J., Kinshuk, Baldiris, S., Gutiérrez, J., & Pavón, J. (2020). How do pedagogical approaches affect the impact of augmented reality on education? A meta-analysis and research synthesis. Educational Research Review, 31, 100334. https://doi.org/10.1016/j.edurev.2020.100334

Huang, X., Zou, D., Cheng, G., & Xie, H. (2021). A systematic review of AR and VR enhanced language learning. Sustainability, 13(9), 4639. https://doi.org/10.3390/su13094639

Larchen Costuchen, A. (2021). Augmented reality and visuospatial bootstrapping for second-language vocabulary memorization. Innovation in Language Learning and Teaching. https://doi.org/10.1080/17501229.2020.1806848

Law, E. L.-C., & Heintz, M. (2021). Augmented reality applications for K–12 education: A systematic review from the usability and user experience perspective. International Journal of Child-Computer Interaction, 30, 100321. https://doi.org/10.1016/j.ijcci.2021.100321

Li, F., Wang, X., He, X., Cheng, L., & Wang, Y. (2023). How augmented reality affected academic achievement in K–12 education: A meta-analysis and thematic analysis. Interactive Learning Environments, 31(9), 5582–5600. https://doi.org/10.1080/10494820.2021.2012810

Li, G., Luo, H., Chen, D., Wang, P., Yin, X., & Zhang, J. (2025). Augmented reality in higher education: A systematic review and meta-analysis of the literature from 2000 to 2023. Education Sciences, 15(6), 678. https://doi.org/10.3390/educsci15060678

Muktiani, N. R., Soegiyanto, Siswantoyo, Rahayu, S., & Hermawan, H. A. (2022). Augmented reality mobile app-based multimedia learning of pencak silat to enhance the junior high school students' learning outcomes. Cakrawala Pendidikan, 41(2), 553–568. https://doi.org/10.21831/cp.v41i2.49217

Parmaxi, A., & Demetriou, A. A. (2020). Augmented reality in language learning: A state-of-the-art review of 2014–2019. Journal of Computer Assisted Learning, 36, 861–875. https://doi.org/10.1111/jcal.12486

Rahmawati, Y., et al. (2025). Pembelajaran mendalam: Transformasi pembelajaran menuju pendidikan bermutu. Jurnal Penelitian Kebijakan Pendidikan. https://jpkp.kemendikdasmen.go.id/index.php/litjak/article/view/1281

Rohmah, Z., Hamamah, & Junining, E. (2024). 'I know this is good, but I am confused': English teachers' self-efficacy in implementing the Independent Curriculum. Studies in English Language and Education, 11(2), 820–837. https://doi.org/10.24815/siele.v11i2.34804

Sari, Y. R., Ismiyati, A. W., & Cahyono, A. F. (2021). Enhancing EFL teachers' TPACK through reflective practices. TEFLIN Journal, 32(1), 117–133. https://doi.org/10.15639/teflinjournal.v32i1/117-133

Tsai, C.-C. (2020). The effect of augmented reality to enhance EFL learners' vocabulary learning. International Journal of Instruction, 13(4), 967–982. https://doi.org/10.29333/iji.2020.13460a

Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. Journal of Advanced Nursing, 52(5), 546–553. https://doi.org/10.1111/j.1365-2648.2005.03621.x

Yeh, H.-C., & Tseng, S.-S. (2020). Enhancing multimodal literacy using augmented reality. Language Learning & Technology, 24(1), 27–37. https://doi.org/10.64152/10125/44706

Yulianawati, I., Lestari, Z. W., Syafryadin, & Anggrarini, N. (2025). Needs analysis for developing augmented reality-based critical reading materials for EFL students. Studies in English Language and Education, 12(3), 1346–1361. https://doi.org/10.24815/siele.v12i3.43391

Zhao, W., Tang, Y., & Ma, X. (2025). From learning science to computer science: A scientometric review of deeper learning in foreign languages (1993–2024). SAGE Open, 15(1). https://doi.org/10.1177/21582440251322564