



Enhancing Critical Thinking and Literacy through Deep Learning in Indonesian Language Learning: A Systematic Review

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Abstract: This systematic literature review examines the implementation of the deep learning approach in Indonesian language learning at the elementary school level. Following the PRISMA 2020 framework, empirical studies published between 2020 and 2026 were identified through Google Scholar, Scopus, Semantic Scholar, and the Sinta journal portal. From 287 records identified, 40 studies met the inclusion criteria and were synthesized thematically. The findings indicate that deep learning is associated with positive outcomes in Indonesian language education, particularly in achievement, motivation, literacy, and critical thinking. The three principles of mindful, meaningful, and joyful learning were consistently identified as core components. The review also identified supporting factors, including teacher readiness, institutional support, contextual materials, effective media, and professional development, alongside barriers such as limited teacher understanding, inadequate media, classroom management challenges, and curriculum misalignment. Overall, the evidence highlights the potential of deep learning for student-centered Indonesian language learning and the need for stronger experimental and longitudinal research.

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Abstrak: Tinjauan pustaka sistematis ini mengkaji penerapan pendekatan deep learning dalam pembelajaran Bahasa Indonesia pada jenjang sekolah dasar. Dengan mengikuti kerangka PRISMA 2020, penelitian empiris yang terbit pada 2020–2026 diidentifikasi melalui Google Scholar, Scopus, Semantic Scholar, dan portal jurnal Sinta. Dari 287 rekaman yang teridentifikasi, 40 studi memenuhi kriteria inklusi dan penilaian mutu untuk disintesis secara tematik. Hasil kajian menunjukkan bahwa deep learning berkaitan dengan hasil positif dalam pendidikan Bahasa Indonesia, terutama pada pencapaian belajar, motivasi, literasi, dan keterampilan berpikir kritis. Tiga prinsip, yaitu mindful, meaningful, dan joyful learning, secara konsisten menjadi komponen penting penerapannya. Kajian juga mengidentifikasi faktor pendukung, meliputi kesiapan guru, dukungan institusional, materi kontekstual, media efektif, dan pengembangan profesional, serta hambatan seperti keterbatasan pemahaman guru, media yang belum memadai, tantangan pengelolaan kelas, dan ketidaksesuaian kurikulum. Secara keseluruhan, bukti menunjukkan potensi deep learning dalam mendukung pembelajaran Bahasa Indonesia yang berpusat pada siswa, tetapi penelitian eksperimental dan longitudinal yang lebih kuat masih diperlukan.

A. Introduction

The dynamics of educational policy in Indonesia continue to evolve in response to changing times and the characteristics of 21st-century learners (Kemendikbudristek, 2022). Within this changing educational landscape, Indonesian language learning at the elementary school level faces an important challenge. Instructional practices remain predominantly oriented toward rote memorization and surface-level comprehension, providing limited opportunities for students to develop critical reasoning, deep literacy, and the ability to apply language concepts in meaningful contexts (Suryani et al., 2023; Maelasari & Lusiana, 2025). This condition is reflected in national literacy data, which indicate that approximately 40% of elementary students remain at the basic literacy level, while only 20% reach the advanced level (Pusmendik, 2023; Nirmala et al., 2025). At the same time, teachers continue to experience difficulties in implementing innovative pedagogical approaches because of limited conceptual understanding, inadequate professional development, and insufficient institutional support (Fitriani & Santiani, 2025; Nurhasanah & Pujiati, 2025). These conditions highlight the need for instructional approaches that can shift Indonesian language learning from passive reception toward active meaning-making and the development of higher-order thinking skills required in the 21st century (Widharyanto, 2025; Hatima, 2025; Nasution et al., 2025).

One approach that has recently received considerable attention in Indonesian education is deep learning. The Ministry of Primary and Secondary Education has promoted deep learning as part of the transformation of learning practices, including Indonesian language education (Kemendikdasmen, 2025; Feri et al., 2025). In this context, deep learning extends beyond the acquisition of reading and writing skills by emphasizing layered understanding, critical reasoning, and the meaningful application of language in communication (Maelasari & Lusiana, 2025; Hatima, 2025). Conceptually, deep learning is rooted in the framework developed by Fullan et al (2017), which emphasizes student-centered learning and the development of six global competencies: character, citizenship, collaboration, communication, creativity, and critical thinking (Fullan et al., 2017; Rahiem, 2025). In the Indonesian educational context, this framework is reflected through three interconnected principles: mindful, meaningful, and joyful learning. These principles are intended to support students' intellectual, ethical, aesthetic, and kinesthetic development through a holistic and integrated learning experience (Rahiem, 2025; Feri et al., 2025; Ilmaknun & Niswar, 2025; Feriyanto & Anjariyah, 2024).

The relevance of deep learning is particularly important in Indonesian language education because language learning serves as a fundamental foundation for literacy development at the elementary school level (Gunartha et al., 2024; Hatima, 2025). Recent studies suggest that the three principles of deep learning can address several limitations of conventional instructional practices. Mindful learning emphasizes students' mental and emotional readiness, awareness, and concentration during learning activities (Rahiem, 2025; Kusmawati et al., 2025). Meaningful learning connects instructional content with students' existing knowledge, daily experiences, and real-life contexts, thereby making learning more

relevant (Hatima, 2025; Ilmaknun & Niswar, 2025). Meanwhile, joyful learning emphasizes a positive, motivating, and engaging learning environment through interactive activities, games, and contextual exploration (Kusmawati et al., 2025; Anggrayni et al., 2025; Cahyanto, 2025). When integrated, these principles have the potential to move learning beyond memorization toward deeper conceptual engagement and critical reflection (Nurlailah & Julkifli, 2025; Utama et al., 2025; Dewindri et al., 2025).

Empirical studies have increasingly examined the implementation and outcomes of deep learning in elementary education. Several studies have reported positive findings in Indonesian language learning, including improvements in learning achievement, literacy, motivation, and critical thinking. For example, Khasanah & Majid (2025) reported a moderate N-Gain of 0.55 in descriptive text learning through deep learning-based flipbook media, while other studies have examined game cards, interactive digital media, augmented reality, and Canva-based learning (Lintiasri et al., 2025; Nursahid et al., 2025; Setiyani & Purwati, 2025; Kurmalasari et al., 2025; Asmi & Wijayanto, 2025). Research has also highlighted the relevance of deep learning to the development of critical thinking and higher-order thinking skills in Indonesian language learning (Gunartha et al., 2024; Anggrayni et al., 2025; Nurlailah & Julkifli, 2025; Rochim et al., 2025; Taufik, 2025). Furthermore, studies have explored the implementation of mindful, meaningful, and joyful learning and reported their relevance to student engagement, motivation, and learning quality (Kusmawati et al., 2025; Cahyanto, 2025; Wijaya & Suhardi, 2025). These findings suggest growing empirical interest, but the evidence remains dispersed across different learning contexts, instructional strategies, media, and outcome variables.

Despite this growing body of research, an important gap remains in the literature. Previous systematic literature reviews, including those by Maelasari & Lusiana (2025) and Kurniawan et al (2024), have examined deep learning across broader educational contexts but have not provided a comprehensive synthesis specifically focused on Indonesian language learning at the elementary school level. Similarly, individual studies have addressed specific aspects of implementation, such as instructional module development (Anggrayni et al., 2025), classroom strategies (Noptario et al., 2025), and the integration of mindful, meaningful, and joyful principles (Cahyanto, 2025). However, these studies remain fragmented and context-specific. Consequently, there is still a need for a systematic synthesis that brings together evidence concerning the effectiveness of deep learning, the principles implemented in practice, its relationship with student achievement, motivation and critical thinking, as well as the barriers and supporting factors affecting implementation (Nurhasanah & Pujiati, 2025; Hendrianty et al., 2024). This need is increasingly important in light of the national policy direction toward deep learning in primary education (Kemendikdasmen, 2025; Maarif et al., 2025).

Therefore, this study contributes to the literature in both methodological and substantive dimensions. Methodologically, the study applies a Systematic Literature Review (SLR) using the PRISMA 2020 framework to provide a transparent, structured, and replicable synthesis of empirical evidence (Page et al., 2021). The review also applies explicit

inclusion and exclusion criteria, quality assessment adapted from CASP, and thematic synthesis to systematically examine the selected literature (Petticrew & Roberts, 2006; Kitchenham & Charters, 2007; Triandini et al., 2019). Substantively, the study focuses specifically on deep learning in Indonesian language education at the elementary school level and synthesizes evidence concerning learning outcomes, the mindful, meaningful, and joyful principles, learning media, implementation barriers, and supporting factors (Feri et al., 2025; Maarif et al., 2025). This focus provides a more comprehensive perspective that can contribute to curriculum development, teacher professional development, and policy implementation in primary education (Sudirman & Pandang, 2025; Tatipang et al., 2026).

Based on this research gap and contribution, four research questions guide the review: (1) How effective is the use of the deep learning approach in the Indonesian language learning process at the elementary school level?, (2) What principles of the deep learning approach are implemented in Indonesian language learning activities at the elementary school level?, (3) What is the impact of the deep learning approach on students' learning achievement, motivation, and critical thinking skills?, and (4) What factors serve as obstacles and drivers in implementing the deep learning approach in Indonesian language subjects in elementary schools? Accordingly, this study aims to systematically review and synthesize empirical evidence concerning the effectiveness, principles, outcomes, and implementation conditions of deep learning in Indonesian language learning at the elementary school level (Kitchenham & Charters, 2007; Okoli, 2015). By addressing these questions, the study seeks to strengthen the evidence base for deep learning in Indonesian language education and provide a context-specific synthesis that can inform future research and educational practice (Rahiem, 2025; Fullan et al., 2017).

B. Method

This study employed a Systematic Literature Review (SLR) to identify, evaluate, and synthesize empirical evidence concerning the implementation of the deep learning approach in Indonesian language learning at the elementary school level. The SLR method was selected because it enables researchers to systematically identify, review, evaluate, and interpret relevant studies through transparent and structured procedures (Kitchenham & Charters, 2007; Okoli, 2015). The review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 framework to ensure transparency in the identification, screening, eligibility assessment, and inclusion of studies (Page et al., 2021), building on the original PRISMA statement (Moher et al., 2009; Liberati et al., 2009).

The literature search was conducted from January to March 2026 using four electronic sources: Google Scholar, Scopus, Semantic Scholar, and the Sinta-accredited journal portal. The search strategy used combinations of the keywords "deep learning," "Bahasa Indonesia," and "Sekolah Dasar," together with their English equivalents, "deep learning," "Indonesian language," and "elementary school." The search identified 287 records, comprising 112 records from Google Scholar, 68 from Scopus, 54 from Semantic Scholar, and 53 from the Sinta portal. Studies were eligible for inclusion if they: (1) were

published between 2020 and 2026; (2) were written in Indonesian or English; (3) were available in full-text format; (4) focused on the implementation of deep learning in Indonesian language learning; (5) involved elementary school students in Grades 1–6; (6) reported empirical findings using quantitative, qualitative, or mixed-methods approaches; and (7) were published in peer-reviewed journals or indexed conference proceedings. Studies were excluded if they focused on non-language subjects without relevance to Indonesian language learning, were theoretical or conceptual without empirical evidence, were duplicate publications or reported duplicate data, lacked accessible full text, or focused on educational levels outside elementary school.

The study selection process followed the PRISMA 2020 four-phase procedure of identification, screening, eligibility, and inclusion (Page et al., 2021). After 72 duplicate records were removed, 215 records remained for screening. A total of 135 records were excluded because they were not relevant to deep learning in Indonesian language learning, were conducted outside the elementary school level, or were non-empirical or conceptual studies. The remaining 80 reports were assessed through full-text review. Forty reports were subsequently excluded because of unavailable full text ($n = 15$), low methodological quality ($n = 12$), duplicate data or publication ($n = 8$), or being outside the research scope after full-text assessment ($n = 5$). Thus, 40 studies were included in the final synthesis. The complete identification, screening, eligibility, and inclusion process is presented in Figure 1, which summarizes the flow of records from the initial database search to the final set of studies included in the review. Screening was conducted independently by two reviewers, with disagreements resolved through discussion or consultation with a third reviewer.

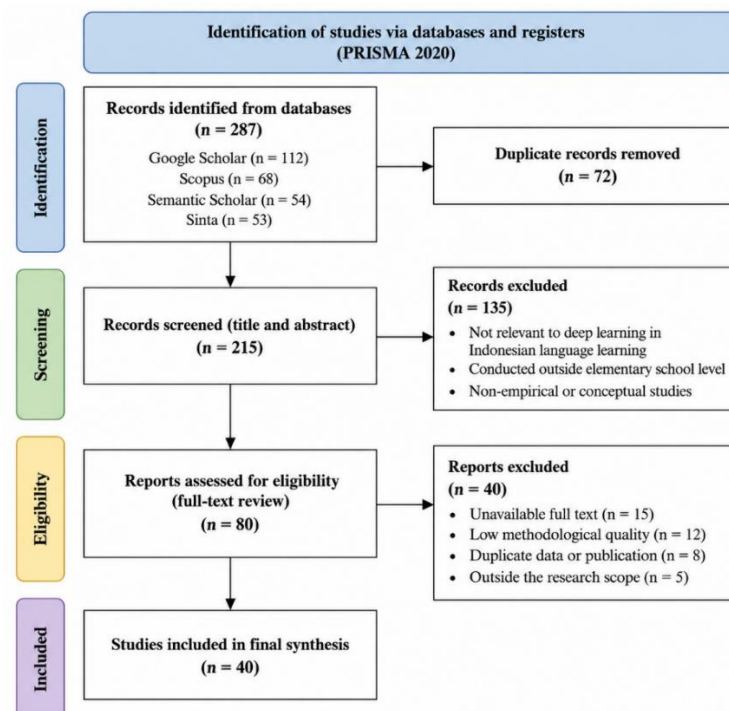


Figure 1. PRISMA 2020 Flow Diagram of the Study Selection Process

The methodological quality of the included studies was assessed using an instrument adapted from the Critical Appraisal Skills Programme (CASP), following Petticrew & Roberts (2006). The eight assessment criteria addressed research objectives, research design, sampling, instrument validity and reliability, data collection, data analysis, clarity of findings, and significance of findings. Each criterion was scored as 1 (met), 0.5 (partially met), or 0 (not met). The quality percentage was calculated by dividing the total score by the maximum possible score and multiplying it by 100. An 80% threshold, equivalent to 6.4 out of 8, was established for inclusion in the final synthesis, consistent with the review's quality assessment procedure (Petticrew & Roberts, 2006). Data were extracted using a standardized form covering authors, publication year, research design, sample characteristics, intervention or implementation details, key findings, and quality scores. The extracted data were synthesized thematically following Braun & Clarke (2006), involving familiarization, initial coding, theme development, theme review, theme definition, and final synthesis. The synthesis was organized according to the four research questions concerning effectiveness, implementation principles, student outcomes, and implementation barriers and drivers. Frequency analysis was also conducted to determine the proportion of studies addressing each research question. Because one study could contribute evidence to more than one research question, the combined frequencies could exceed the total number of included studies.

C. Result

This systematic literature review synthesized findings from 40 studies that met the established inclusion criteria. The results are presented according to the four research questions concerning the effectiveness of deep learning, the principles implemented in Indonesian language learning, reported student outcomes, and the obstacles and drivers affecting implementation. Since individual studies could address more than one research question, the number of studies addressing each question was not mutually exclusive.

Effectiveness of Deep Learning in Indonesian Language Learning

The first research question examined the effectiveness of the deep learning approach in Indonesian language learning at the elementary school level. Of the 40 included studies, 33 studies (82.5%) addressed effectiveness. The quantitative evidence generally reported positive learning outcomes, particularly in studies using experimental or quasi-experimental designs. Several studies also examined deep learning in combination with digital and interactive learning media.

Table 1. Evidence of Deep Learning Effectiveness in Indonesian Language Learning

Study	Research Design	Sample	Deep Learning Implementation	Main Finding
Khasanah & Majid (2025)	One-group pretest-posttest	22	Deep learning with flipbook	N-Gain was 0.55, with a strong positive correlation between pretest and posttest scores ($r = 0.884$, $p < 0.001$)
Lintiasri et al (2025)	Pre-experimental	20	Deep learning with game cards	Mean score increased from 58 to 85
Nursahid et al (2025)	Quasi-experimental	60	AIR model with deep learning	Experimental group increased from 67.45 to 84.12, compared with 66.88 to 75.34 in the control group
Setiyani & Purwati (2025)	Experimental	Fifth grade students	Deep learning with flipbook and TaRL	Significant difference in learning outcomes ($p < 0.005$)
Kurmalasari et al (2025)	Empirical study	Elementary students	Deep learning with augmented reality and Canva AI	Increased student engagement and understanding
Asmi & Wijayanto (2025)	Empirical study	Elementary students	Deep learning with interactive Canva	Positive effect on learning outcomes and conceptual understanding
Pratiwi & Wati (2026)	Empirical study	Elementary students	Deep learning in Indonesian language learning	Supported listening, speaking, reading, viewing, writing, and presenting
Khodijah et al (2026)	Empirical study	Elementary students	Mindful, meaningful, and joyful learning	Supported the development of initial reading skills

The findings indicate that deep learning was associated with positive learning outcomes across different instructional designs and media. [Khasanah & Majid \(2025\)](#) reported a moderate N-Gain of 0.55 and a statistically significant pretest-posttest difference. [Lintiasri et al \(2025\)](#) reported an increase in mean scores from 58 to 85, while [Nursahid et al \(2025\)](#) reported a greater increase in the experimental group than in the control group. Other studies extended these findings to technology-supported learning and the development of multiple Indonesian language skills ([Kurmalasari et al., 2025](#); [Asmi & Wijayanto, 2025](#); [Pratiwi & Wati, 2026](#); [Khodijah et al., 2026](#); [Cahyani et al., 2025](#)).

Principles of Deep Learning Implemented

The second research question examined the principles applied in Indonesian language learning. Twenty-four studies, representing 60% of the included studies, addressed this question. The synthesis identified three recurring principles, namely

mindful, meaningful, and joyful learning. The characteristics and reported applications of these principles are summarized in Table 2.

Table 2. Implementation of Deep Learning Principles

Principle	Main Characteristics	Reported Findings	Key Studies
Mindful learning	Awareness, concentration, mental and emotional readiness	Supported student focus, engagement, and material retention	Rahiem (2025) ; Kusmawati et al (2025) ; Sari & Ahmad (2024)
Meaningful learning	Contextual materials, prior knowledge, daily experiences, and local values	Supported understanding and relevance of Indonesian language materials	Hatima (2025) ; Ilmaknun & Niswar (2025) ; Kusmawati et al (2025) ; Wijaya & Suhardi (2025)
Joyful learning	Pleasant, motivating, and challenging learning environment	Supported motivation and emotional engagement	Rahiem (2025) ; Kusmawati et al (2025) ; Ilmaknun & Niswar (2025)
Integrated principles	Combination of mindful, meaningful, and joyful learning	Supported participatory and holistic learning experiences	Feri et al (2025) ; Wijaya & Suhardi (2025) ; Cahyanto (2025)

Mindful learning was reported to support students' concentration and engagement during learning activities ([Rahiem, 2025](#); [Kusmawati et al., 2025](#)). Meaningful learning emphasized the connection between learning materials and students' experiences, daily activities, and local contexts ([Hatima, 2025](#); [Ilmaknun & Niswar, 2025](#)). Joyful learning emphasized pleasant and motivating classroom environments and was associated with increased motivation and emotional engagement ([Rahiem, 2025](#); [Kusmawati et al., 2025](#)). Several studies reported the integration of all three principles as a comprehensive approach to Indonesian language learning ([Feri et al., 2025](#); [Wijaya & Suhardi, 2025](#); [Cahyanto, 2025](#); [Malik et al., 2025](#)).

Reported Outcomes in Learning Achievement, Motivation, and Critical Thinking

The third research question examined reported outcomes in learning achievement, motivation and engagement, and critical thinking. Thirty studies, or 75% of the included studies, addressed at least one of these outcomes. The main findings are summarized in Table 3.

Table 3. Reported Student Outcomes of Deep Learning

Outcome	Main Findings	Supporting Studies
Learning achievement	Moderate learning gains, significant pretest-posttest differences, and positive relationships with implementation	Khasanah & Majid (2025) ; Utama et al (2025) ; Qohar & Widyaningrum (2025)
Motivation and engagement	Increased enthusiasm, participation, classroom discussion, and emotional engagement	Kusmawati et al (2025) ; Ilmaknun & Niswar (2025) ; Noptario et al (2025)

Outcome	Main Findings	Supporting Studies
Critical thinking	Increased questioning, analysis, evaluation, critical reasoning, and deeper text analysis	Anggrayni et al (2025); Nurlailah & Julkifli (2025); Sagala et al (2025); Rochim et al (2025)

For learning achievement, Khasanah & Majid (2025) reported an N-Gain of 0.55, while Utama et al (2025) reported a positive relationship between the intensity of deep learning implementation and student achievement. Qohar & Widyaningrum (2025) reported relationships among deep learning, learning motivation, emotional intelligence, and academic achievement. Similar positive relationships between deep learning and academic achievement have also been reported outside language subjects, such as mathematics (Barokah & Mahmudah, 2025). For motivation and engagement, studies reported increased enthusiasm, participation, discussion, and emotional engagement (Kusmawati et al., 2025; Ilmaknun & Niswar, 2025). Regarding critical thinking, Anggrayni et al (2025) reported an effectiveness level of 82.2% for a deep learning-based instructional module. Nurlailah & Julkifli (2025), Sagala et al (2025), and Rochim et al (2025) also reported evidence of questioning, analysis, evaluation, and deeper interpretation of learning materials.

Obstacles and Drivers in Implementation

The fourth research question examined factors that influenced the implementation of deep learning in Indonesian language learning. Seventeen studies, representing 42.5% of the included studies, addressed implementation obstacles and supporting factors. The main findings are summarized in Table 4.

Table 4. Obstacles and Drivers of Deep Learning Implementation

Category	Factors Identified	Supporting Studies
Obstacles	Limited teacher understanding of deep learning	Nurhasanah & Pujiati (2025); Arina & Isyanto (2025)
Obstacles	Insufficient professional development	Hendrianty et al (2024)
Obstacles	Limited learning media and classroom management challenges	Kusmawati et al (2025)
Obstacles	Curriculum density and exam-oriented assessment	Maarif et al (2025)
Obstacles	Gap between policy expectations and classroom practice	Noptario et al (2025)
Drivers	Teacher readiness and pedagogical understanding	Arina & Isyanto (2025)
Drivers	Institutional and policy support	Kurniawan et al (2024); Suryadi et al (2025)
Drivers	Contextual materials and local values	Warman et al (2025); Sagala et al (2025)
Drivers	Digital and interactive learning media	Khasanah & Majid (2025); Kurmalasari et al (2025); Asmi & Wijayanto (2025)
Drivers	Teacher training programs	Widharyanto (2025)

The main obstacles identified across the studies were limited teacher understanding, insufficient professional development, limited learning media, classroom management challenges, curriculum density, exam-oriented assessment, and a gap between policy expectations and classroom practice (Nurhasanah & Pujiati, 2025; Hendrianty et al., 2024; Kusmawati et al., 2025; Maarif et al., 2025; Noptario et al., 2025). Conversely, teacher readiness, institutional support, contextual learning materials, appropriate learning media, and teacher training emerged as important supporting factors (Arina & Isyanto, 2025; Kurniawan et al., 2024; Suryadi et al., 2025; Warman et al., 2025; Widharyanto, 2025).

To provide an overall distribution of the evidence base, Table 5 summarizes the number and percentage of included studies addressing each research question. The distribution shows that effectiveness was the most frequently examined aspect, followed by student outcomes, implementation principles, and implementation barriers and drivers.

Table 5. Distribution of Included Studies by Research Question

Research Question	Focus	Frequency (n)	Percentage (%)
RQ1	Effectiveness of deep learning approach	33	82.5
RQ2	Principles of deep learning implemented	24	60.0
RQ3	Learning achievement, motivation, and critical thinking	30	75.0
RQ4	Obstacles and drivers in implementation	17	42.5

Note: The total frequency exceeds 40 because one study could address more than one research question.

D. Discussion

The synthesis of 40 studies indicates that deep learning has considerable potential to support Indonesian language learning at the elementary school level, particularly in learning achievement, student motivation and engagement, critical thinking, and literacy-related learning processes. Of the reviewed studies, 33 addressed the effectiveness of deep learning, 24 examined the implementation of the mindful, meaningful, and joyful principles, 30 reported student-related outcomes, and 17 identified factors influencing implementation. The evidence, however, should be interpreted according to the methodological diversity of the reviewed studies. Experimental studies provide stronger evidence regarding learning outcomes, whereas qualitative studies mainly explain classroom processes and teacher perceptions. Thus, the overall pattern suggests positive reported outcomes rather than a uniform causal effect across all contexts. This finding is consistent with the conceptual position of deep learning as a student-centered approach that emphasizes character, citizenship, collaboration, communication, creativity, and critical thinking (Fullan et al., 2017; Rahiem, 2025).

The positive outcomes reported across the studies may be explained by the way deep learning changes the learning process from information reception toward active meaning-making. In Indonesian language learning, students are not only required to remember linguistic concepts but also to interpret texts, communicate ideas, relate information to

experience, and reflect on meaning. This orientation is consistent with constructivist learning theory, which views learning as an active process in which students construct knowledge through interaction between prior knowledge, new information, and learning experiences. Meaningful learning theory also explains why contextualizing Indonesian language materials may facilitate deeper understanding, because new knowledge becomes more relevant when connected with students' existing cognitive structures and everyday experiences. The reviewed studies support this interpretation, as meaningful learning was associated with contextual materials and activities connected to students' daily lives (Hatima, 2025; Ilmaknun & Niswar, 2025).

The three principles of mindful, meaningful, and joyful learning further explain why deep learning can generate positive learning experiences. Mindful learning encourages students to develop awareness, concentration, and mental and emotional readiness before and during learning activities (Rahiem, 2025; Kusmawati et al., 2025). Meaningful learning connects instructional content with students' experiences and relevant contexts, while joyful learning creates an emotionally supportive environment through interactive, exploratory, and enjoyable activities (Kusmawati et al., 2025; Anggrayni et al., 2025; Cahyanto, 2025). These principles can also be interpreted through self-determination theory, particularly the importance of autonomy, competence, and relatedness in sustaining students' motivation. When students are actively involved, understand the relevance of learning, and experience supportive classroom interactions, they may become more willing to participate and persist in learning activities. This interpretation is supported by Kusmawati et al (2025), who reported greater enthusiasm and active participation, and by Ilmaknun & Niswar (2025), who identified positive patterns in motivation, conceptual understanding, and emotional engagement.

The findings concerning learning achievement provide further support for this interpretation. Khasanah & Majid (2025) reported an N-Gain of 0.55 in the moderate category, while Lintiasri et al (2025) found an increase in mean scores following the implementation of game-based learning within a deep learning orientation. Nursahid et al (2025) also reported higher achievement in the experimental group than in the control group when deep learning was combined with the AIR model. These findings suggest that deep learning can provide conditions that support academic achievement, particularly when students are actively engaged in learning tasks. From the perspective of experiential learning, students may develop stronger understanding when they encounter, process, discuss, and reflect on learning experiences rather than merely receive information. Similar positive patterns were also reported in studies using flipbooks, interactive media, augmented reality, and other technology-supported resources (Kurmalasari et al., 2025; Asmi & Wijayanto, 2025; Pratiwi & Wati, 2026; Khodijah et al., 2026).

The relationship between deep learning and critical thinking is particularly important for Indonesian language education because literacy requires students to move beyond retrieving information toward analyzing, evaluating, interpreting, and reflecting on texts and contexts. Anggrayni et al (2025) reported 82.2% effectiveness in fostering critical

thinking through a deep learning-based module, while Nurlailah & Julkifli (2025) found that the approach encouraged students to question, analyze, and evaluate information. Sagala et al (2025) similarly demonstrated that learning activities involving multicultural values could encourage critical interpretation and reflection. These findings are theoretically compatible with Bloom's revised taxonomy, in which analysis, evaluation, and creation represent higher cognitive processes, and with Fullan et al (2017) framework, which positions critical thinking as one of the central competencies of deep learning. Rochim et al (2025) further reported that students became more active in asking questions, analyzing texts more deeply, and connecting learning materials with everyday experiences.

Nevertheless, the reviewed studies also show that the three principles do not necessarily contribute in exactly the same way across contexts. Kusmawati et al (2025) emphasized the importance of all three principles, whereas Cahyanto (2025) highlighted joyful learning in relation to engagement and Hatima (2025) emphasized meaningful learning as foundational. These differences may reflect variations in student characteristics, instructional contexts, and implementation fidelity rather than contradictions. The synthesis therefore extends previous literature by suggesting that the strength of deep learning may lie less in the isolated application of one principle and more in their integration within coherent learning experiences. This extends previous reviews that examined deep learning in broader educational contexts (Kurniawan et al., 2024; Maelasari & Lusiana, 2025) by providing a specific synthesis for Indonesian language learning at the elementary level and linking pedagogical principles with learning processes, student outcomes, and implementation conditions.

However, implementation remains dependent on teacher readiness and contextual support. Limited teacher understanding, insufficient examples for lesson planning, inadequate learning media, and classroom management difficulties were repeatedly identified as barriers (Nurhasanah & Pujiati, 2025; Kusmawati et al., 2025). Hendrianty et al (2024) emphasized constructive disorientation, critical reflection, and creativity in teacher professional development, while Arina & Isyanto (2025) identified pedagogical understanding as an important condition for implementation. Therefore, in answering the four research questions, the review indicates that deep learning is generally associated with positive learning outcomes, is implemented through mindful, meaningful, and joyful principles, supports achievement, motivation, engagement, and critical thinking, and is shaped by teacher competence, professional development, learning resources, and institutional support. The contribution of this review is consequently not merely to confirm the potential of deep learning, but to show that its educational value in Indonesian language learning depends on the interaction between pedagogical principles, meaningful learning experiences, and the conditions in which teachers implement them.

E. Implication

The findings of this systematic literature review have implications for instructional practice, teacher professional development, curriculum development, and future research

in elementary Indonesian language education. Deep learning should be implemented as an integrated pedagogical orientation that connects mindful, meaningful, and joyful learning with active participation, contextual learning, critical thinking, and literacy development. For teachers, this means designing Indonesian language learning that considers students' mental and emotional readiness, connects learning materials with their daily experiences and sociocultural contexts, and provides enjoyable opportunities for interaction, exploration, questioning, analysis, and reflection. Interactive and technology-supported media may also be incorporated when they are aligned with learning objectives and students' needs. At the institutional level, schools and curriculum developers need to provide practical guidance, appropriate learning resources, and continuous professional development to strengthen teachers' understanding and implementation of deep learning. Assessment practices should also provide greater opportunities for students to demonstrate analysis, evaluation, interpretation, reflection, and other higher-order thinking processes rather than focusing primarily on information recall. For future research, more rigorous experimental and longitudinal studies are needed, particularly at lower elementary levels and across specific Indonesian language competencies, to examine the consistency of reported outcomes across different learning contexts. Overall, the implication of this review is that the successful implementation of deep learning requires alignment among pedagogical principles, teacher competence, contextual learning materials, learning media, assessment practices, and institutional support.

F. Limitation and Suggestion for Further Research

This systematic literature review has several limitations that should be considered when interpreting the findings. First, the review was limited to studies published between 2020 and 2026 and retrieved from Google Scholar, Scopus, Semantic Scholar, and the Sinta journal portal. Consequently, relevant studies indexed in other databases or published outside the specified period may not have been included. Second, the review relied entirely on secondary evidence, meaning that the findings reflect the outcomes and interpretations reported by previous researchers rather than direct observations or measurements conducted by the authors. Third, the reviewed studies employed diverse research designs, participants, learning materials, instructional strategies, and outcome measures, which limits direct comparison across studies. The evidence was also concentrated in the upper elementary grades, particularly Grades 4 to 6, while studies involving Grades 1 to 3 were relatively limited. Therefore, the findings should not be generalized uniformly across all elementary grade levels or Indonesian language learning contexts.

Future research should address these limitations through more rigorous experimental, quasi-experimental, and longitudinal designs that examine the implementation of deep learning across different elementary grade levels and Indonesian language competencies, including reading, writing, listening, and speaking. Researchers should also develop and apply more consistent assessment instruments for measuring critical thinking, literacy, motivation, and deep understanding to enable stronger

comparisons among studies. Further research should investigate how the integration of mindful, meaningful, and joyful principles influences learning processes across different classroom contexts and student characteristics. In addition, comparative studies across schools, regions, and sociocultural settings are needed to examine the adaptability of deep learning and identify contextual factors that support or constrain its implementation. Such research would provide stronger empirical evidence for determining the conditions under which deep learning can be effectively and sustainably implemented in elementary Indonesian language education.

G. Conclusion

This systematic literature review of 40 studies indicates that the deep learning approach has considerable potential to support Indonesian language learning at the elementary school level. The reviewed evidence shows that deep learning is generally associated with positive outcomes in learning achievement, student motivation and engagement, critical thinking, and literacy-related learning processes, particularly when the principles of mindful, meaningful, and joyful learning are integrated into classroom activities. The findings also indicate that its implementation is influenced by teacher readiness, pedagogical understanding, professional development, learning resources, classroom management, and institutional support. Although the overall evidence is promising, differences in research designs, learning contexts, outcome measures, and grade levels require the findings to be interpreted cautiously rather than as uniform causal effects. Therefore, deep learning can be considered a promising pedagogical orientation for strengthening elementary Indonesian language education, while further rigorous and longitudinal research is needed to establish its effectiveness across different grade levels, language competencies, and educational contexts.

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