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The Pedagogical Relevance of the Deep Learning Approach to the Formation of the Eight Dimensions of Graduate Profiles in Elementary School Learning

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Abstract

This research is prompted by the low literacy, numeracy, and science skills of Indonesian students, as indicated by 2022 PISA scores, which suggest a dominance of Lower Order Thinking Skills (LOTS). As a strategic solution, the Ministry of Elementary and Secondary Education (Kemendikdasmen) introduced the Deep Learning approach in 2025 as a new paradigm to enhance educational quality. This study aims to explore the fundamental concepts of Deep Learning in elementary education and analyze its pedagogical relevance to the eight dimensions of the graduate profile. Using a library research method, analyzing 27 recent literature sources, the findings show that Deep Learning, anchored on the pillars of Mindful, Meaningful, and Joyful, is highly relevant in holistically integrating cognitive, affective, and spiritual domains. This approach successfully shifts learning orientation from mere content completion to the development of profound learning experiences. The study confirms that Deep Learning serves as a strategic operational mechanism for producing intelligent, character-driven graduates. The study recommends that educators reorient their roles as learning experience designers and calls for technical policy support to facilitate reflective classroom practices, bridging the gap between conceptual understanding and actual implementation in elementary schools.

Keywords: deep learning, graduate profile dimensions, elementary school learning

Relevansi Pedagogis Pendekatan *Deep Learning* terhadap Pembentukan Delapan Dimensi Profil Lulusan pada Pembelajaran Sekolah Dasar

Abstrak

Penelitian ini dilatarbelakangi oleh rendahnya kemampuan literasi, numerasi, dan sains siswa Indonesia berdasarkan skor PISA 2022 yang menunjukkan dominasi tingkat berpikir rendah (Lower Order Thinking Skills). Sebagai solusi strategis, pendekatan Deep Learning (Pembelajaran Mendalam) diperkenalkan oleh Kemendikdasmen pada tahun 2025 sebagai paradigma baru untuk meningkatkan mutu pembelajaran. Penelitian ini bertujuan untuk mengeksplorasi konsep dasar Deep Learning dalam konteks pendidikan dasar serta menganalisis relevansi pedagogisnya terhadap pembentukan delapan dimensi profil lulusan. Melalui metode penelitian kepustakaan (library research) terhadap 27 sumber literatur terkini, hasil kajian menunjukkan bahwa Deep Learning yang bertumpu pada pilar Mindful, Meaningful, dan Joyful memiliki relevansi yang sangat kuat dalam mengintegrasikan ranah kognitif, afektif, dan spiritual secara holistik. Pendekatan ini berhasil menggeser orientasi pembelajaran dari sekadar penuntasan konten menjadi pengembangan pengalaman belajar yang mendalam. Temuan ini menegaskan bahwa Deep Learning merupakan mekanisme operasional strategis untuk mewujudkan profil lulusan yang cerdas dan berkarakter. Berdasarkan temuan tersebut, penelitian ini merekomendasikan agar pendidik melakukan reorientasi peran menjadi desainer pengalaman belajar dan perlunya dukungan kebijakan teknis yang memfasilitasi praktik reflektif di kelas guna menjembatani kesenjangan antara pemahaman konseptual dan implementasi aktual di sekolah dasar.

Kata kunci: *deep learning*, dimensi profil lulusan, pembelajaran sekolah dasar

INTRODUCTION

Improving the quality of learning is one of the main focuses of Indonesian education in the era of curriculum transformation. The results of the 2022 Programme for International Student Assessment (PISA) show that Indonesian students' literacy, numeracy, and science skills are still below the OECD average, with scores of 371 in reading, 379 in mathematics, and 398 in science (OECD, 2023). More than 99% of students are still at the lower-order thinking skills (LOTS) level, while fewer than 1% can complete questions at the higher-order thinking skills (HOTS) level. This fact confirms that the learning process in elementary schools has not fully developed the critical, creative, and reflective thinking skills that characterize 21st-century learning. In response to this problem, Kemendikdasmen (2025) introduced the Deep Learning approach as a new paradigm in educational practice. This approach is not a new curriculum, but rather a pedagogical framework that focuses on mindful, meaningful, and joyful learning experiences. Through this principle, learning is directed not only to build knowledge but also to foster moral, spiritual, and holistic well-being in students.

Theoretically, the concept of Deep Learning was introduced by Marton & Säljö (1976), who distinguished between surface learning and deep learning. Deep learning emphasizes understanding meaning, the interrelationship between concepts, and application in real contexts. The 3P model (Presage–Process–Product) emphasizes that meaningful learning outcomes are influenced by personal factors, the learning process, and the learning environment (Biggs & Moore, 1993). Meanwhile, Fullan et al. (2018) assert that Deep Learning is a process that encourages students to "engage the world and change the world," while Hattie & Donoghue (2016) view deep learning as the ability to integrate conceptual and procedural knowledge to be applied reflectively in new situations.

In the context of national education, the Academic Paper on Deep Learning Kemendikdasmen (2025) states that Deep Learning functions as an operational mechanism to realize the eight dimensions of graduate profiles, namely: (1) faith and devotion to God Almighty, (2) citizenship, (3) critical reasoning, (4) creativity, (5) collaboration, (6) independence, (7) health, and (8) communication. These eight dimensions represent the qualities of Indonesian students who are faithful, have good character, and are adaptive to changes of the times. Research Sari et al. (2025) shows that the Deep Learning approach has begun to be implemented in elementary schools through learning plans that integrate graduate profile dimensions, pedagogical practices, learning partners, and learning environments. Learning is designed so that students learn consciously, meaningfully, and enjoyably. However, its implementation is still normative and follows ministry guidelines, not yet developing into innovative practices that foster student creativity and reflection. These results indicate that Deep Learning is only in the early stages of implementation in elementary schools.

Similar findings are reinforced by Kasi et al. (2025) through research in Nagekeo Regency, East Nusa Tenggara. They found that most teachers understood 21st-century skills and the basic concepts of deep learning, but their classroom application did not fully reflect learning practices that foster critical, creative, and collaborative thinking. In other words, teachers' understanding of Deep Learning was relatively good, but its implementation was still limited to the planning stage and was not followed by profound changes in teaching practices. This condition illustrates the gap between conceptual understanding and actual application in elementary schools.

Thus, Deep Learning aims not only to improve academic learning outcomes but also to foster spiritual, social, and emotional values that underpin graduate profiles. In elementary schools, this approach is the foundation for developing the eight dimensions of graduate profiles in a balanced manner. However, to date, studies examining the relationship between the Deep Learning approach and the formation of the eight dimensions of the graduate profile as a whole are still limited. Therefore, this study focuses on examining how the concepts and principles of Deep Learning are applied in primary education and the extent to which this approach is relevant to the formation of the eight dimensions of the graduate profile. Based on the background and literature review above, the research question is: How relevant is the Deep Learning approach to the formation of the eight dimensions of graduate profiles in elementary school learning? Therefore, the purpose of this study is to explain the basic concepts and principles of Deep Learning application in the context of elementary education.

METHODS

The method used in this study was Library Research, a qualitative research approach that involves searching for, selecting, and critically analyzing relevant literature sources, such as scientific journals, books, and research reports (Branch, 2009). The purpose of this study is to understand and examine the

relevance of the Deep Learning approach to the formation of the eight dimensions of graduate profiles in elementary school learning. The literature research was conducted by examining theories, concepts, and previous research results related to the application of Deep Learning in basic education and the strengthening of graduate profiles in accordance with 21st-century competency requirements. In formulating the appropriate approach to the research problem, the researcher used the literature study method (Fatmawati, 2025).

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The research location in this study was non-physical (digital), namely an online academic space where scientific literature can be widely accessed. The researchers used various digital databases, including Google Scholar, Taylor & Francis Online, ScienceDirect, ResearchGate, and relevant national education journals. The selection of this digital location enabled researchers to access up-to-date, credible sources of information without time or geographic limitations, thereby supporting the depth and breadth of the study on the relationship between Deep Learning and the formation of the eight dimensions of graduate profiles. The data collection techniques in this study comprised two main stages: a literature review and content analysis. The literature study was conducted by compiling various sources discussing the application of Deep Learning, 21st-century learning strategies, and the characteristics of elementary school graduate profiles. Content analysis was used to examine and identify the main themes in the literature related to the formation of the eight dimensions of graduate profiles.

Data analysis was carried out in three systematic stages: categorization, synthesis, and interpretation. Categorization involved grouping data based on themes such as Deep Learning principles, deep learning strategies, and graduate profile dimensions. Synthesis was the stage of combining various findings from different sources to obtain a comprehensive understanding of the relationship between Deep Learning and the formation of student character. Interpretation involves analyzing the synthesis results to determine the extent to which the Deep Learning approach is relevant and contributes to developing the eight dimensions of graduate profiles in elementary schools. This three-stage procedure is adapted from the concept of qualitative data analysis (Creswell, 2018; Miles et al., 2014; Moleong, 2019), which explain that data analysis involves the process of organizing, grouping, presenting, and interpreting data to obtain deep meaning. This approach produces a comprehensive and integrative conceptual framework that can explain how the application of Deep Learning can support the development of students who are intelligent, have strong character, and possess life skills that are in line with the demands of the 21st century.

RESULTS AND DISCUSSION

The Concept of Deep Learning in Primary Education

The deep learning approach emphasizes meaningful, reflective, and contextual learning processes, so that students not only memorize information but also understand, connect, and apply knowledge in real life. Unlike surface learning, which is oriented towards memorization, deep learning encourages active engagement and critical thinking. In the context of the Merdeka Curriculum, this concept aligns with the principles of joyful, meaningful, and mindful learning, which position students as the subjects of learning. The application of deep learning in elementary schools helps develop higher-order thinking skills, self-reflection, and a deeper conceptual understanding (Kemendikdasmen, 2025). To strengthen understanding of the concept and its application, here are some relevant literature review results:

Table 1. Literature Study: The Concept of Deep Learning in Primary Education

No	Source	Focus of Findings	Importan Information
1	(Nurul et al., 2025)	Integration of meaningful, mindful, joyful learning in elementary schools	Shows a positive impact on students' emotional engagement and conceptual understanding.
2	(Nafi'ah & Faruq, 2025)	Theoretical conceptualization of the deep learning approach	Develops a theoretical framework based on Marton & Säljö and Fullan's 6C theories for the elementary school context.
3	(Feri et al., 2025)	Repositioning the meaning of deep learning from a technological context to pedagogy	Explaining deep learning as an approach that integrates joyful, meaningful, and mindful learning in elementary school education; highlighting implementation challenges and national policy (Permendikdasmen No. 13/2025).

Based on the literature review table 1 above, the concept of deep learning in elementary education emphasizes meaningful, mindful, and joyful learning processes. The integration of meaningful, mindful, and joyful learning has been proven to increase students' emotional engagement and conceptual understanding (Nurul et al., 2025). Theoretically, this approach is based on Marton & Säljö's theory and Fullan's 6C framework, which emphasizes the development of character and 21st-century competencies (Nafi'ah & Faruq, 2025). Furthermore, the meaning of deep learning has been repositioned from a technological context to a humanistic and dignified pedagogical approach through the Permendikdasmen No. 13 of 2025 policy (Feri et al., 2025). Thus, deep learning in elementary schools has become a comprehensive learning strategy that fosters the intellectual, emotional, social, and spiritual intelligence of students. With this foundation, the deep learning approach in basic education can be viewed as a learning paradigm oriented towards the formation of reflective, critical, and characterful learners. Through the integration of mindful, meaningful, and joyful learning aspects, the learning process is expected to not only produce conceptual knowledge but also build awareness, empathy, and a spirit of lifelong learning. This approach is in line with the spirit of the Merdeka Curriculum and the ideal of forming graduates who are intellectually intelligent, morally strong, and happy in learning.

The Relationship Between the Deep Learning Approach and the Eight Dimensions of Graduate Profile

The deep learning approach aligns with the objectives of the Merdeka Curriculum, which emphasizes the development of the eight dimensions of the graduate profile. Through meaningful, reflective learning, deep learning not only hones higher-order thinking skills but also fosters students' spiritual, social, and emotional values. Thus, this approach plays an important role in shaping students who are faithful, critical, creative, independent, and able to collaborate and communicate effectively.

Dimension of Faith and Piety towards God Almighty

The following is a table of studies that examine Deep Learning in the dimension of Faith and Piety towards God Almighty:

Table 2. Literature Study: Relevance of Deep Learning to the Dimension of Faith and Piety

No	Source	Focus of Findings	Importan Information
1	(A'yunin et al., 2024)	Shows the relationship between the Merdeka Curriculum and the formation of students' Islamic character.	The values of faith, piety, and noble character can be realized through a balanced learning process between morals and knowledge.
2	(Nurmila et al., 2024)	Describes the success of PKM activities in improving teachers' understanding of the P5 project.	Discussions and hands-on practice help teachers improve their ability to design character- and spirituality-based learning.
3	(Widodo et al., 2025)	Describing the application of faith and piety values in the digital era through community collaboration.	Technology-based activities and social partnerships enhance students' religious habits and foster synergy between schools, families, and the community in character education.

Based on the three research results and the Academic Paper (Kemendikdasmen, 2025), there is a close relationship between the Deep Learning approach and the dimensions of Faith and Devotion to God Almighty. The three studies emphasize the urgency of character education based on the values of faith and piety, while the Academic Paper emphasizes the concept of holistic learning that grows from self-awareness and deep spiritual reflectThe three studies emphasize the urgency of character education grounded in faith and piety, while the Academic Paper emphasizes holistic learning that arises from self-awareness and deep spiritual reflection. In terms of the role of educators, the research describes teachers as moral figures and facilitators of P5 implementation, while the Academic Paper expands on this meaning by positioning teachers as the main designers of deep learning who are able to bridge educational policy and practice. From a technological perspective, the research highlights the use of media to support religious activities. At the same time, the Academic Paper focuses on the development of a reflective and collaborative digital ecosystem, thereby combining the two in a harmonization of spiritual values and technological innovation. Therefore, Deep Learning serves as a strategic link that combines spiritual values with the development of 21st-century competencies through a reflective, contextual, and highly conscious learning process.

Thus, learning is understood as a process of self-transformation for students that takes place consciously, meaningfully, and enjoyably, where spirituality serves as the core driving force that leads to the realization of the Graduate Profile Dimensions in their entirety. Comparatively, it can be concluded that Deep Learning (Kemendikdasmen, 2025) is the national operationalization of the concept of deep learning in the context of Indonesian education. The three journals are empirical reflections of the implementation of these values in the field, particularly in shaping the dimensions of faith and piety towards God Almighty.

Dimensions of Citizenship Graduate Profile

The following table shows studies that examine Deep Learning in the realm of citizenship dimensions:

Table 3. Literature Study: Relevance of Deep Learning to Citizenship Dimensions

No	Source	Focus of Findings	Importan Information
1	(Kusniawati & Asari, 2024)	Global diversity values play an important role in shaping students' character and tolerance.	The implementation of P5 fosters mutual respect and strengthens relationships between students from different backgrounds.
2	(Desiyani et al., 2024)	Assessment instruments for global diversity and mutual cooperation among elementary school students are valid and reliable.	Evaluation of tolerant and collaborative character is necessary to strengthen students' nationalistic attitudes.
3	(Senjaya, 2022)	The Augmented Reality-based Arfedo media effectively improves the global diversity character of elementary school students.	AR technology fosters tolerance and empathy in students interactively, in line with the principles of deep learning that strengthen citizenship character.

Research by Kusniawati & Asari (2024) shows that internalizing the value of diversity through the Pancasila Student Profile Strengthening Project (P5) is effective in fostering mutual respect and creating an inclusive learning environment. Research by Desiyani et al. (2024) reinforces the urgency of assessing diversity as part of the formation of social empathy and collaboration, in line with the PM orientation that fosters reflective awareness of diversity. Meanwhile, research by Rizkyani & Wulandari (2022) shows that the use of Augmented Reality-based Arfedo media supports interactive learning that fosters empathy and social awareness, in line with the PM approach that emphasizes active, contextual, and reflective engagement. Thus, the integration between the research results and the principles of Deep Learning from the Ministry of Education and Culture shows that Deep Learning not only shapes cognitive abilities but also instills ethical awareness and social responsibility, which are the foundations of the Citizenship dimension in the Graduate Profile.

Critical Reasoning Dimension

The following table shows studies that examine Deep Learning in the realm of critical reasoning:

Table 4. Literature Study: The Relevance of Deep Learning to the Critical Reasoning Profile

No	Source	Focus of Findings	Importan Information
1	(Annam et al., 2024)	The Merdeka Curriculum encourages critical thinking and problem-solving skills in elementary school students.	Project-based and reflective learning can improve students' analytical and decision-making skills.
2	(Juraidah & Hartoyo, 2022)	Teachers play an important role in fostering independent learning and critical thinking through P5.	Teachers act as planners, facilitators, mentors, and moderators in developing students' critical thinking skills.
3	(Prayitno et al., 2016)	Elementary school students' critical thinking skills can be developed through observation, discussion, and questioning.	Critical thinking aspects include observing, comparing, questioning, analyzing stories, and collaborating.

The implementation of the Merdeka Curriculum has contributed significantly to improving critical thinking and problem-solving skills in elementary school students through project-based learning

activities and self-reflection processes (Annam et al., 2024). Active student participation in the analysis process has been proven to strengthen reasoning skills while fostering the ability to make logical and responsible decisions. This condition is in line with the principles of Deep Learning as outlined in the Academic Paper on Deep Learning (Kemendikdasmen, 2025), in which learning focuses on conceptual understanding, deep self-reflection, and the application of cognitive values in real-life contexts. Meanwhile, research by Juraidah & Hartoyo (2022) confirms that teachers have a strategic role as reflective facilitators in fostering student learning independence and metacognitive awareness through reflection, discussion, and contextual learning experiences. These findings indicate that the development of critical reasoning will be optimal if it is carried out in a student-centered learning environment with the support of teachers who are able to act reflectively and transformatively. In line with this view, the results of research by Prayitno et al. (2016) indicate that observation, discussion, and questioning activities can strengthen students' analytical and collaborative abilities. Through authentic learning experiences as described in the Academic Paper (Kemendikdasmen, 2025), the Deep Learning approach encourages students not only to understand knowledge conceptually but also to internalize reflective thinking patterns, which are the main essence of the graduate profile dimension in critical reasoning.

Creativity Dimension

The following are some previous studies that examine Deep Learning in the realm of creativity or creative thinking in elementary school students:

Table 5. Literature Study: The Relevance of Deep Learning to the Creativity Profile

No	Source	Focus of Findings	Importan Information
1	(Dwiprabowo, 2021)	The creative thinking profile of elementary school students in solving mathematical problems.	Students are quite fluent and flexible in their thinking, but weak in finding new ideas.
2	(Wahyuni et al., 2022)	Profile of students' creative thinking through a culture-based problem posing approach.	Creativity does not depend on academic ability, but on a meaningful learning context.
3	(Widiastuti et al., 2021)	Profile of students' creative thinking skills in science learning.	Students are classified as creative with a dominance of fluency in thinking, but originality still needs to be improved.

The Academic Paper on Deep Learning (Kemendikdasmen, 2025) explains that the dimension of creativity in the Graduate Profile reflects the ability to generate original, flexible, and valuable ideas through conscious, meaningful, and enjoyable learning experiences. These principles intersect with the findings of the three previous studies, which similarly emphasize that creativity flourishes when students are given the opportunity to think reflectively, explore new ideas, and relate knowledge to real-life contexts. The reflection- and inquiry-based deep learning approach encourages students to develop higher-order thinking skills, connect cross-disciplinary concepts, and create contextual and innovative solutions. Therefore, the application of deep learning can be considered a conceptual and practical strategy in strengthening the creativity dimension of the Indonesian Graduate Profile, in line with the national education vision that is oriented towards shaping an adaptive, innovative, and characterful generation.

Collaboration Dimension

The following are some previous studies that examine Deep Learning in the realm of elementary school student collaboration profiles:

Table 6. Literature Study: The Relevance of Deep Learning to Collaboration Profiles

No	Source	Focus of Findings	Importan Information
1	(Apriliyana, 2025)	Integration of student collaboration as an important element in deep learning design.	Collaboration encourages meaningful, reflective, and social-emotional learning. Students are trained to interact, empathize, and work together as part of the deep learning process.

No	Source	Focus of Findings	Importan Information
2	(Luthfiansyah & Astuti, 2025)	The application of cooperative learning to develop deep learning in the classroom.	Collaboration in cooperative learning fosters communication, shared responsibility, and reflection among students. This pattern reinforces meaningful, conscious, and enjoyable learning.
3	(Sun et al., 2022)	Analysis of student engagement in collaborative learning compared to direct instruction.	Peer interaction increases student participation and emotional engagement. Collaborative learning creates a social atmosphere that supports the formation of deep learning.

Based on the results of the study in Table 6 above, collaboration plays a central role in the application of deep learning in elementary schools. All three studies show that the collaborative process can foster shared responsibility, effective communication, empathy, and reflection among students (Apriliyana, 2025; Luthfiansyah & Astuti, 2025; Sun et al., 2022). Collaboration not only enhances conceptual understanding but also enriches students' social-emotional experiences, which are integral to meaningful learning.

These findings are in line with the collaborative graduate profile dimension in the Ministry of Education and Culture's Deep Learning Framework, which describes individuals who are able to work together effectively and cooperatively to achieve common goals through the division of roles and responsibilities. In the context of deep learning, collaboration is not just group work, but a social process that fosters communication, empathy, and mutual respect amid differences. Thus, the application of the collaborative dimension in deep learning is key to shaping graduates who are not only intellectually intelligent but also socially and emotionally mature. Through reflective and meaningful cooperation, students learn to appreciate the roles of others and actively contribute to achieving common goals in line with the spirit of cooperation, as a key characteristic of the Indonesian people.

Independence Dimension

The following are some previous studies that examine Deep Learning in the context of the independence profile of elementary school students:

Table 7. Literature Study: The Relevance of Deep Learning to the Independence Profile

No	Source	Focus of Findings	Importan Information
1	(Widayanti & Agustika, 2023)	The influence of learning independence and responsibility on elementary school students' mathematical knowledge competence.	Shows that students who have learning independence and responsibility tend to have better academic competence relevant to the dimensions of an independent graduate profile.
2	(de Ruig et al., 2023)	Quality teacher-student interactions in fostering self-regulated learning in elementary schools.	Shows that self-regulation trains students to set goals, monitor, and evaluate their own learning in line with the characteristics of independent learners in deep learning.
3	(Meilany et al., 2025)	A narrative review of how teacher-student interactions and classroom relationships support SRL in elementary school children (metacognition, behavior regulation, motivation).	Shows that students who are able to learn independently have better abilities in decision-making, overcoming obstacles, and adapting to change, which are key characteristics of lifelong learners.

Based on the results of the literature review, the dimension of independence in deep learning emphasizes the ability of students to manage their learning process and outcomes responsibly. This is in line with the statement in the Academic Paper on Deep Learning (Kemendikdasmen, 2025).

> "The dimension of independence describes learners who are able to take responsibility for their own learning processes and outcomes by demonstrating the ability to take initiative, overcome obstacles, and complete tasks appropriately without relying on others. They have the freedom to make choices, control themselves, and persevere in their efforts to achieve their goals."

Findings Widayanti & Agustika (2023) show that independence and responsibility in learning have a positive effect on students' knowledge abilities, while research on Stimulating Elementary School Students'

Self-Regulated Learning by de Ruig et al. (2023) emphasizes the importance of self-regulation as the basis for becoming learners who are able to plan, monitor, and evaluate their learning process. Meilany et al. (2025) add that students with independent learning abilities have better academic achievements because they are able to overcome obstacles and adapt to changes. Thus, the application of deep learning plays an important role in fostering the independence of students as mandated (Kemendikdasmen, 2025). Through the process of reflection, responsibility, and self-awareness, students learn to become independent, persistent, and oriented towards lifelong learning as a tangible manifestation of adaptive and competitive 21st-century learners.

Health Dimension

The following are some previous studies that examine Deep Learning in the context of the health profile of elementary school students:

Table 8. Literature Study: The Relevance of Deep Learning to Health Profiles

No	Source	Focus of Findings	Importan Information
1	(Diana et al., 2020)	The effect of physical activity on the mental health balance of elementary school students.	Physical activity has been shown to reduce anxiety levels and improve emotional stability in students, strengthening the relationship between physical and mental health as part of well-being.
2	(Frazier & Fosco, 2023)	Conceptual framework for mental health and well-being development in schools.	Explains six key components (PRICES: Purpose, Relationships, Inclusivity, Competence, Engagement, and Safety) that strengthen students' psychological well-being through social relationships, a sense of security, and meaning in life.
3	(Putri et al., 2025)	Regular physical activity in shaping the emotional well-being of elementary school students.	Regular sports activities improve fitness, positive mood, and student confidence, supporting the formation of physically and mentally healthy students.

The health profile dimension in deep learning emphasizes not only physical fitness, but also a balance between the physical, mental, and emotional health of students. This is in line with the statement in the Academic Paper on Deep Learning (Kemendikdasmen, 2025) that

> "the health profile dimension describes students who are physically healthy, practice healthy lifestyles, are physically fit and healthy, and are able to maintain a balance between mental and physical health to achieve physical and mental well-being."

Research by Diana et al. (2020) shows that physical activity plays an important role in reducing anxiety among elementary school students, which means that practicing active movement habits at school has a direct impact on children's emotional and mental stability. Furthermore, Frazier & Fosco (2023), through the PRICES model, emphasize that student well-being is not only influenced by physical aspects, but also by healthy social relationships, a sense of security in the learning environment, and meaningful learning experiences in line with the deep learning approach that combines cognitive, social, and emotional dimensions. Meanwhile, research by Putri et al. (2025) reinforces the importance of physical activity routines in elementary schools to build self-confidence, enthusiasm, and fitness that support learning productivity.

Conceptually, the findings of these three studies show that learning that fosters body awareness, emotional balance, and healthy social relationships can be an effective means of shaping students with holistic well-being. In the context of deep learning, health is understood not merely as a result but as a continuous process to achieve harmony between the body, mind, and environment. Therefore, the application of deep learning that pays attention to the dimension of health will produce graduates who are productive, resilient, and empowered in maintaining physical and mental well-being in real life.

Communication Dimension

The following are several previous studies that examine Deep Learning in the realm of elementary school students' communication profiles:

Table 9. Literature Study: The Relevance of Deep Learning to Communication Profiles

No	Source	Focus of Findings	Importan Information
1	(Permana et al., 2024)	Elementary school students' oral/written communication skills	Activities such as presentations and group discussions improve the ability to convey ideas in accordance with the dimensions of deep learning communication.
2	(Safitri et al., 2022)	Indonesian language task strategies for speaking, listening, and presenting	Storytelling, role-play, and active presentation methods build confidence and two-way interaction skills related to students' communication profiles.
3	(Ariawan, 2025)	Deep learning-based English learning design for elementary school that supports active communication	Task-based, collaborative, and presentation designs facilitate students in expressing ideas, interacting, and sharing perspectives in line with the communication dimension.

Based on the results of the study in Table 9 above, communication plays an important role in the application of deep learning in elementary schools. The three studies show that activities such as discussions, presentations, and storytelling can improve the clarity of idea delivery, courage to speak, and active listening skills (Ariawan, 2025; Permana et al., 2024; Safitri et al., 2022). These findings are in line with the Academic Paper on Deep Learning (Kemendikdasmen, 2025), which emphasizes that students need to have good communication skills to convey ideas clearly, interact in a two-way manner, and build mutual understanding. Thus, the application of the communication dimension in deep learning helps shape learners who are skilled at interacting, able to appreciate differences, and ready to contribute positively in the learning environment and daily life.

Synthesis of Pedagogical Relevance: Integration of Deep Learning in the Formation of a Holistic Graduate Profile

Based on an analysis of the eight dimensions of the graduate profile above, it was found that the Deep Learning approach does not work partially or in isolation, but instead operates as an integrative pedagogical system. The deep learning approach has the unique capacity to unite the cognitive, affective, and psychomotor domains into a single process, thereby preventing the fragmentation of the curriculum that is often an obstacle in character education. Research evidence strongly supports this approach. Widyastuti et al. (2025) demonstrated that meaningful learning occurs when teachers connect subject matter to everyday life and noble values, while Isnayanti et al. (2025) showed that deep learning can strengthen students' conceptual understanding and critical thinking skills.

This pedagogical relevance is formed through the harmonization of the three main pillars of Deep Learning, namely Mindful, Meaningful, and Joyful, which simultaneously target the intersections between the dimensions of the graduate profile. As explained in the Academic Paper Kemendikdasmen (2025), these three pillars serve as anchors that ensure academic competence and character values grow in tandem. The synthesis of these interrelationships can be mapped as follows:

Table 10. Synthesis Matrix of the Integration of Deep Learning Principles and Graduate Profile Dimensions

Deep Learning Principles	Pedagogical Focus	Dimensions of Graduate Profile
Mindful	Mindful Building self-awareness, spiritual reflection, and self-control	1. Faith & Piety to God Almighty 2. Independence 3. Health (Mental/Emotional)
Meaningful	Connecting knowledge to real-world contexts and problem-solving.	1. Critical Thinking 2. Citizenship 3. creativity

Deep Learning Principles	Pedagogical Focus	Dimensions of Graduate Profile
Joyful	Joyful Creating an interactive, expressive, and enthusiastic learning environment.	1. Collaboration 2. Communication 3. Heatlh (Physical/Social)

Source: Researcher Analysis (2025)

Table 10 shows the paradigm shift from content-based learning to experience-based learning. According to Rosardi & Widiastuti (2025), the Deep Learning approach allows students to develop conceptual understanding, critical thinking skills, and communication skills simultaneously. For example, when students carry out social projects (Civic dimension), they are required to think meaningfully in finding solutions (Critical Thinking & Creativity dimension) and work together joyfully (Collaboration & Communication dimension). This is supported by the findings of Sufiani & Marzuki (2021), who concluded that enjoyable learning strategies are crucial to overcoming traditional and monotonous teaching methods that can reduce student motivation.

Furthermore, Hidayat & Lyesmaya (2024) emphasize that deep learning is described as a pedagogical approach that emphasizes conceptual understanding, critical thinking, and reflective skills to deal with the complexities of the real world. Students cannot achieve deep understanding without self-regulation (Mindfulness) and critical thinking skills. These findings are reinforced by research conducted by (Aldi & Khairanis, 2025) in elementary schools in Indonesia, which found that the holistic integration of Islamic educational principles with modern psychological approaches creates a strong foundation for character development. Pedagogically, the implications of these findings demand a reorientation of the role of teachers. Teachers are no longer merely conveyors of material, but designers of learning experiences. Ismanto et al. (2024) suggest that teachers adopt dialogic communication in order to create a conducive learning environment. Thus, the Deep Learning approach has proven to have high pedagogical relevance and strategic value in orchestrating the eight dimensions of graduate profiles to grow in a balanced manner, producing students who are intellectually intelligent, morally resilient, and happy in their learning process.

CONCLUSION

Based on the results of the analysis and discussion, it can be concluded that the Deep Learning approach has very significant pedagogical relevance as an operational mechanism in realizing the eight dimensions of graduate profiles in elementary schools. This approach offers a framework that is able to unite various dimensions of competence that were previously often fragmented, such as the separation between academic aspects and character building. Through the principles of mindful, meaningful, and joyful learning, Deep Learning has succeeded in creating a learning ecosystem that not only pursues cognitive mastery but also fosters self-awareness, spiritual values, and the emotional well-being of students. However, the main challenge found is the gap between teachers' conceptual understanding, which has begun to take shape, and innovative practices in the classroom, which are still normative in nature. This shows that the pedagogical relevance of Deep Learning will achieve maximum effectiveness if it is supported by a total change in the role of teachers to become reflective and contextual learning experience designers.

In light of these research findings, it is recommended that educators in elementary schools immediately reorient their roles from mere conveyors of material to learning experience designers who are more sensitive to students' needs for reflection and real-world context. Schools and policymakers need to provide concrete support through the provision of a flexible learning environment and continuous training that focuses on clinical practice in the classroom, not just administrative understanding. This is important to bridge the gap between government policy and actual implementation in the field. Finally, for future researchers, it is recommended to deepen this study through field research or real experiments to see the direct impact of Deep Learning on improving literacy and numeracy scores, as well as empirical student character development in various regions of Indonesia.

REFERENCES

Aldi, M., & Khairanis, R. (2025). Integrasi Ilmu Pendidikan Islam dan Psikologi Pendidikan dalam Membentuk Karakter dan Kecerdasan Spritual Siswa. *Akhlak: Journal of Education Behavior and Religious Ethics*, *1*(1). https://doi.org/10.30998/jebg.v1i1.3723

Annam, F. K., Lestari, M. I., Okvisari, R., Hasanah, T. L., & Handayani, V. (2024). Pengembangan Keterampilan Berpikir Kritis dalam Penerapan Kurikulum Merdeka di Sekolah Dasar. *Jurnal Pendidikan Guru Sekolah Dasar*, *1*(2), 1–11. https://doi.org/10.47134/pgsd.v1i2.204

Apriliyana, N. P. (2025). Transforming Education Through Deep Learning Design: Integrating Four Key Elements in School Practice. *Molang: Journal Islamic Education*, *3*(1), 19–27. https://doi.org/10.32806/jm.v3i1.843

Ariawan, S. (2025). *Deep Learning Based English Classroom Design in Primary School: A Proposed Concept*. 245–253.

A'yunin, M., Khotimah, K., & Putra, A. (2024). Development of MEHARUN Game Media" Looking for Treasure" Flora and Fauna Distribution Material for Elementary School Students. *Proceedings Series of …*, *Query date: 2025-12-11 12:42:36*. http://conference.um.ac.id/index.php/pses/article/view/9672

Biggs, J., & Moore, P. (1993). *The Process of Learning*. Prentice Hall.

Branch, R. M. (2009). *Instructional Design: The ADDIE Approach* (1st ed.). Springer New York. https://doi.org/10.1007/978-0-387-09506-6

Creswell, J. W. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage Publications.

de Ruig, N. J., de Jong, P. F., & Zee, M. (2023). Stimulating Elementary School Students' Self-Regulated Learning Through High-Quality Interactions and Relationships: A Narrative Review. *Educational Psychology Review*, *35*(3). https://doi.org/10.1007/s10648-023-09795-5

Desiyani, N. G. K. R., Astawan, I. G., & Trisna, G. A. U. S. (2024). Pengembangan Instrumen Evaluasi Profil Siswa Pancasila Asek Kebhinekaan Global dan Gotong Royong pada Siswa Sekolah Dasar. *Journal of Innovation Research and Knowledge*, *4*(2), 1007–1020.

Diana, E. Y., Hartini, S., & Rustiyaningsih, A. (2020). Aktivitas Fisik dan Dampaknya pada Kecemasan Anak Usia Sekolah di SDN Sinduadi Timur Sleman Yogyakarta. *Jurnal Keperawatan Klinis Dan Komunitas*, *4*(2), 97–103. https://doi.org/10.22146/jkkk.89035

Dwiprabowo, R. (2021). Profil Berpikir Kreatif Siswa Sekolah Dasar Dalam Menyelesaikan Masalah Kelipatan Dan Faktor Bilangan. *Prima Magistra: Jurnal Ilmiah Kependidikan*, *2*(1), 102–115. https://doi.org/10.37478/jpm.v2i1.877

Fatmawati, I. (2025). Transformasi Pembelajaran Sejarah dengan Deep Learning Berbasis Digital untuk Gen Z. *Revorma: Jurnal Pendidikan Dan Pemikiran*, *5*(1), 25–39. https://doi.org/10.62825/revorma.v5i1.140

Feri, M., Ismiati, N., Al-Nur, W. R., & Akbar, F. N. (2025). Implementing Deep Learning Approaches in Primary Education: A Literature Review. *Jurnal VARIDIKA*, *37*(1), 178–194. https://doi.org/10.23917/varidika.v37i2.12151

Frazier, T., & Fosco, S. L. D. (2023). Nurturing positive mental health and wellbeing in educational settings—The PRICES model. *Frontiers in Public Health*, *11*, 1287532. https://doi.org/10.3389/fpubh.2023.1287532

Fullan, M., Quinn, J., & McEachen, J. (2018). *Deep Learning: Engage the World, Change the World*. Corwin Press.

Hattie, J. A. C., & Donoghue, G. M. (2016). Learning strategies: A synthesis and conceptual model. *Npj Science of Learning*, *1*(1), 16013. https://doi.org/10.1038/npjscilearn.2016.13

Hidayat, U. S., & Lyesmaya, D. (2024). Optimasi Peran Kepala Sekolah Mengelola Pendekatan Deep Learning sebagai Upaya Membentuk Karakter Generasi Alpha :Tantangan dan Peluang. *Jurnal BELAINDIKA (Pembelajaran Dan Inovasi Pendidikan)*, *6*(3), 399–403. https://doi.org/10.52005/belaindika.v6i3.361

Ismanto, H., Antony, R., & Mulyatno, C. B. (2024). Pengalaman Komunikasi Dialogis Para Guru dalam Meningkatkan Kualitas Layanan Pendidikan. *Wacana : Jurnal Bahasa, Seni, Dan Pengajaran*, *8*(1), 18–26. https://doi.org/10.29407/jbsp.v8i1.22323

Isnayanti, A. N., Putriwanti, P., Kasmawati, K., & Rahmita, R. (2025). Integrasi Pembelajaran Mendalam (Deep Learning) dalam Kurikulum Sekolah Dasar: Tantangan dan Peluang. *Cokroaminoto Journal of Primary Education*, *8*(2), 911–920. https://doi.org/10.30605/cjpe.8.2.2025.6027

Juraidah, J., & Hartoyo, A. (2022). Peran Guru Dalam Menumbuhkembangkan Kemandirnan Belajar Dan Kemampuan Berpikir Kritis Siswa Sekolah Dasar Melalui Proyek Penguatan Profil Pelajar Pancasila. *JURNAL PENDIDIKAN DASAR PERKHASA: Jurnal Penelitian Pendidikan Dasar*, *8*(2), 105–118. https://doi.org/10.31932/jpdp.v8i2.1719

Kasi, Y. F., Bai, D. V., Novia, N., Deporos, S. R., & Mababaya, A. D. (2025). Implementation of Deep Learning in School Curriculum: Perspectives of Teachers in Nagekeo Regency. *Paedagogia: Jurnal Penelitian Pendidikan*, *28*(2), 320–328. https://doi.org/10.20961/Paedagogia.v28i2.103377

Kemendikdasmen. (2025). *NASKAH AKADEMIK PEMBELAJARAN MENDALAM Menuju Pendidikan Bermutu Untuk Semua*. Pusat Kurikulum dan Pembelajaran Badan Standar, Kurikukulum, dan Asesmen Pendidikan Kementerian Pendidikan Dasar dan Menengah Republik Indonesia.

Kusniawati, S., & Asari, S. (2024). Analisis Nilai Kebhinekaan Global Profil Pelajar Pancasila terhadap Pembentukan Karakter Siswa Sekolah Dasar. *JIIP Jurnal Ilmu Pendidikan*, *7*(5), 5013–5019.

Luthfiansyah, A. P., & Astuti, P. (2025). Cooperative learning for the implementation of deep learning to enhance students ' reading skills. *Journal of English Language Teaching*, *6*(1), 227–238.

Marton, F., & Säljö, R. (1976). On Qualitative Differences in Learning: Outcome and Process. *British Journal of Educational Psychology*, *46*(1), 4–11. https://doi.org/10.1111/j.2044-8279.1976.tb02980.x

Meilany, N. I., Kawuryan, S. P., & Adi, B. S. (2025). The Impact of Independent Learning on Academic Achievement in Social and Science Education Among Sixth Grade Elementary Students. *Mimbar Sekolah Dasar*, *12*(1), 37–48. https://doi.org/10.53400/mimbar-sd.v12i1.81858

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative Data Analysis A Methods Sourcebook* (3rd ed.). Sage Publication Inc.

Moleong, L. J. (2019). *Metodologi Penelitian Kualitatif*. Remaja Rosdakarya.

Nafi'ah, J., & Faruq, D. J. (2025). Conceptualizing Deep Learning Approach in Primary Education: Integrating Mindful, Meaningful, and Joyful. *Journal of Educational Research and Practice*, *3*(2), 225–237. https://doi.org/10.70376/jerp.v3i2.384

Nurmila, N., Alamsyah, A., Febiayanti, R., Sukainah, A., & Ramli, H. (2024). PKM Sosialisasi Perancangan Projek Penguatan Profil Pelajar Pancasila (P5) Dimensi Beriman dan Bertakwa dan Berakhlak Mulia Di SD dan SMP Kemala Bhayangkari Makassar. *Vokatek : Jurnal Pengabdian Masyarakat*, *02*(4), 213–222. https://doi.org/10.61255/vokatekjpm.v2i3.532

Nurul, A., Iskandar, S., Amalia, M., & Naziha, P. F. (2025). KONSEP DAN IMPLEMENTASI PENDEKATAN DEEP LEARNING DI SEKOLAH DASAR Aulia. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *10*(02), 1661–1672. https://doi.org/10.23969/jp.v10i2.25562

OECD. (2023). *PISA 2022 Results (Volume I & II): Country Notes – Indonesia*. OECD Publishing.

Permana, W. B., Wachid, A., & Suharto, B. (2024). Melatih Keterampilan Komunikasi Siswa dalam Pembelajaran Bahasa Indonesia Materi Wawancara Kelas 3 MIN 1 Banyumas. *Edukatif: Jurnal Ilmu Pendidikan*, *6*(4), 4402–4411.

Prayitno, L. L., Sulistyawati, I., & Wardani, I. S. (2016). Profil Kemampuan Berpikir Kritis Siswa Sd Di Kecamatan Bulak. *Jurnal Pendidikan Dasar Nusantara*, *1*(2), 67–74.

Putri, C. A., Alifatuzzahra, N., Lutfiyadi, A., Sukmawati, A. A., Fitriani, K., Aprila, D. N., Anissa, S., & Mulyana, A. (2025). Pentingnya Aktivitas Fisik yang Teratur untuk Kesejahteraan Emosional Siswa di Sekolah Dasar. *Jurnal Pendidikan Tambusai*, *9*(2), 12722–12728. https://doi.org/10.31004/jptam.v9i2.26826

Rizkyani, M., & Wulandari, I. (2022). Arfedo Berbasis Augmented Reality untuk Meningkatkan Karakter Kebhinekaan Global dalam Mensukseskan Profil Pelajar Pancasila Jenjang SD. *Snip 2021*, *5*, 146–155.

Rosardi, R. G., & Widiastuti, A. (2025). Asesmen Pembelajaran IPS dalam Pendekatan Deep Learning: Tinjauan Konsep dan Implementatif. *Prosiding Seminar Nasional Fakultas Ilmu Tarbiyah Dan Keguruan UIN Syarif Hidayatullah Jakarta*, *2*(1), 67–73. https://doi.org/10.64277/fc1z2n84

Safitri, E. M., Maulidina, I. F., Zuniari, N. I., Amaliyah, T., Wildan, S., & Supeno, S. (2022). Keterampilan Komunikasi Siswa Sekolah Dasar dalam Pembelajaran IPA Berbasis Laboratorium Alam tentang Biopori. *Jurnal Basicedu*, *6*(2), 2654–2663. https://doi.org/10.31004/basicedu.v6i2.2472

Sari, F. A., Hasanah, E., & Hidayati, D. (2025). Implementation of the Deep Learning Approach in Elementary Schools. *Global Education Journal*, *3*(3), 25–36. https://doi.org/10.59525/gej.v3i3.1017

Sari, M. & Asmendri. (2020). Penelitian Kepustakaan dalam Penelitian Pendidikan IPA. *Natural Science*, *6*(1), 41–53.

Senjaya, R. P. (2022). Pengembangan Media Komik Digital (MEKODIG) dalam Upaya Meningkatkan Minat Belajar Siswa Sekolah Dasar. *JUDIKDAS: Jurnal Ilmu Pendidikan Dasar Indonesia*, *1*(2), 99–106. https://doi.org/10.51574/judikdas.v1i2.248

Sufiani, S., & Marzuki, M. (2021). JOYFUL LEARNING: STRATEGI ALTERNATIF MENUJU PEMBELAJARAN MENYENANGKAN. *Zawiyah: Jurnal Pemikiran Islam*, *7*(1), 121. https://doi.org/10.31332/zjpi.v7i1.2892

Sun, J., Anderson, R. C., Lin, T.-J., Morris, J. A., Miller, B. W., Ma, S., Nguyen-Jahiel, K. T., & Scott, T. (2022). Children's engagement during collaborative learning and direct instruction through the lens of participant structure. *Contemporary Educational Psychology*, *69*, 102061. https://doi.org/10.1016/j.cedpsych.2022.102061

Wahyuni, A. S., Siswono, T. Y. E., & Mariana, N. (2022). Profil Berpikir Kreatif Siswa Sekolah Dasar dalam Mengajukan Masalah Matematika Konteks Museum Gubug Wayang. *Jurnal Basicedu*, *6*(1), 759–766.

Widayanti, I. G. A. P. P., & Agustika, G. N. S. (2023). Independent Learning and Student Learning Responsibilities Characteristics of Mathematics Knowledge Competence in Fifth-Grade Elementary School. *Jurnal Ilmiah Sekolah Dasar*, *7*(3), 508–515. https://doi.org/10.23887/jisd.v7i3.58746

Widiastuti, T. A., Atmojo, I. R. W., & Saputri, D. Y. (2021). Profil Keterampilan Berpikir Kreatif Peserta Didik dalam Pembelajaran IPA Kelas V di Sekolah Dasar. *Didaktika Dwija Indria*, *9*(3), 4–9.

Widodo, T., Haerudin, M., Nurfadhillah, A., Agim, F., Hamid, F. A. H. A., Cahyani, M., Anggraeni, N. T., Rosmawati, N., & Sulastri, S. (2025). Optimalisasi Pembentukan Profil Pelajar Pancasila Dalam Penguatan Nilai Keimanan Dan Ketakwaan Peserta Didik Era 5.0 Di Kampung Temanggungan Desa Tamansari Kecamatan Rumpin Kabupaten Bogor. *Bakti Mulya: Jurnal Pengabdian Dan Pendampingan Masyarakat*, *3*(1), 9–19. https://doi.org/10.59166/baktimulya.v3i1.251

Widyastuti, W., Widyasari, C., Rahmawati, F. P., & Minsih, M. (2025). Implementasi Prinsip Pengelolaan Meaningful, Mindful, dan Joyful Learning dalam Proses Pembelajaran Mendalam: Studi Kasus di Sekolah Dasar Islam Terpadu. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *9*(5), 2172–2181. https://doi.org/10.31004/obsesi.v9i5.7339