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Optimizing the Implementation of Deep Learning in Elementary School Learning at SDN Pampang, Makassar City

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ABSTRACT

Pendekatan deep learning dalam pendidikan menekankan pemahaman konsep secara komprehensif melalui keterlibatan aktif peserta didik. Pendekatan ini tidak hanya berfokus pada penguasaan materi, tetapi juga pengembangan berpikir kritis, reflektif, dan kemampuan mengaitkan pengetahuan dengan pengalaman nyata. Namun, penerapannya masih menghadapi kendala seperti dominannya pembelajaran berpusat pada guru dan terbatasnya strategi yang mendorong partisipasi aktif siswa. Penelitian ini bertujuan menganalisis optimalisasi implementasi pembelajaran mendalam di SDN Pampang Kota Makassar dengan pendekatan kualitatif metode studi kasus. Informan meliputi kepala sekolah, enam guru, dan delapan belas siswa kelas IV–VI. Data dikumpulkan melalui observasi, wawancara, dan dokumentasi, lalu dianalisis dengan model interaktif serta divalidasi melalui triangulasi. Hasil menunjukkan pembelajaran mendalam diterapkan melalui integrasi meaningful learning, mindful learning, dan joyful learning. Guru mengaitkan materi dengan pengalaman nyata, mendorong refleksi, serta menciptakan suasana belajar aktif dan menyenangkan. Implementasi ini meningkatkan keterlibatan siswa dan pemahaman konsep secara lebih mendalam, sehingga menjadi strategi efektif untuk meningkatkan kualitas pembelajaran di sekolah dasar.

The deep learning approach in education emphasizes comprehensive conceptual understanding through active student involvement. This approach focuses not only on mastery of material but also on developing critical and reflective thinking, and the ability to relate knowledge to real-life experiences. However, its implementation still faces obstacles such as the dominance of teacher-centered learning and limited strategies that encourage active student participation. This study aims to analyze the optimization of deep learning implementation at Pampang Elementary School, Makassar City, using a qualitative case study approach. Informants included the principal, six teachers, and eighteen fourth-sixth-grade students. Data were collected through observation, interviews, and documentation, then analyzed using an interactive model and validated through triangulation. The results show that deep learning is implemented through the integration of meaningful learning, mindful learning, and joyful learning. Teachers link material to real-life experiences, encourage reflection, and create an active and enjoyable learning atmosphere. This implementation increases student engagement and deeper conceptual understanding, making it an effective strategy for improving the quality of learning in elementary schools.

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INTRODUCTION

Elementary education plays a crucial role in establishing the foundation of students' academic abilities as well as character development. At this level, learning is not merely a process of delivering

knowledge, but also a means of developing essential twenty-first century competencies such as critical thinking, creativity, collaboration, and communication (Rosnaeni, 2021). Therefore, learning activities in elementary schools need to be systematically designed in order to provide meaningful learning experiences and encourage students to actively participate in the process of knowledge construction. However, learning practices in many elementary schools still tend to be oriented toward one-way knowledge transmission (Jafar et al., 2025). Teachers often become the central figures in the learning process, while students act primarily as passive recipients of information. Such conditions cause the learning process to emphasize surface-level mastery of content rather than deep conceptual understanding. As a result, the knowledge acquired by students tends to be short-term and less applicable to real-life situations.

In line with the development of modern educational paradigms, learning in elementary schools is increasingly expected to facilitate students in developing deeper conceptual understanding (Dalia et al., 2025). One approach that has emerged to address this need is the deep learning approach. Deep learning is considered important in the context of rapid global changes and the need to prepare future generations who are capable of thinking critically, adapting to change, and reflecting on complex problems (Muvid, 2024). The deep learning approach emphasizes students' active engagement in understanding concepts comprehensively through processes of exploration, reflection, and connecting learning materials with their real-life experiences. In this approach, students are not only encouraged to memorize information but are also guided to build stronger conceptual understanding so that the knowledge they acquire can be applied in various contexts of life (Sabil & Pujiastuti, 2023). Therefore, deep learning does not merely focus on learning outcomes but also emphasizes learning processes that enable students to construct knowledge meaningfully.

In practice, the concept of deep learning is commonly integrated with three complementary learning dimensions, namely meaningful learning, mindful learning, and joyful learning. Meaningful learning emphasizes the connection between learning materials and students' real-life experiences so that learning becomes more relevant and contextual. Meanwhile, mindful learning encourages students to become aware of their own learning processes through reflection and deeper understanding. Joyful learning, on the other hand, focuses on creating a pleasant learning environment so that students feel comfortable and motivated during the learning process (Fullan et al., 2017; Wibowo et al., 2025). The integration of these three dimensions has the potential to create more meaningful learning experiences and increase students' engagement in classroom activities.

Several studies have demonstrated that the implementation of deep learning can positively influence the quality of students' learning processes. Rahayu et al. (2025), through a literature review, found that the Indonesian Realistic Mathematics Education approach can serve as an alternative strategy to support the implementation of deep learning in mathematics instruction. Their findings indicate that learning strategies based on real-life contexts can help students develop a more meaningful understanding of concepts. Furthermore, other studies have shown that deep learning enables students to connect the knowledge gained in school with everyday life situations, making learning more relevant and applicable (Mujtahid et al., 2025).

Although many studies have examined the benefits of deep learning in educational contexts, most of these studies still focus primarily on the effects of learning models or instructional approaches on students' learning outcomes or specific cognitive abilities. These studies commonly employ experimental or quasi-experimental designs to measure the effectiveness of instructional models in improving students' academic achievement. However, studies that specifically explore the implementation process and optimization of deep learning practices in elementary classrooms remain relatively limited. Understanding how teachers integrate deep learning principles into daily teaching practices is essential for developing more effective, relevant, and contextual learning practices.

Moreover, studies examining the implementation of deep learning within the local context of elementary education, particularly in eastern regions of Indonesia, are still relatively scarce. Each educational context has unique characteristics in terms of learning environments, school culture, and pedagogical practices implemented by teachers. Therefore, studies that explore deep learning practices contextually in elementary schools are important to provide empirical insights into how this approach is implemented in real classroom situations.

Based on the review of previous studies, a research gap can be identified, namely the limited number of studies that comprehensively analyze the process of optimizing the implementation of deep

learning in elementary classroom practices. Most existing research tends to focus on the effects of instructional models on students' learning outcomes, while the strategies used by teachers to integrate deep learning principles into everyday classroom activities have not been widely examined. Addressing this research gap requires studies that provide a more comprehensive understanding of how deep learning is implemented and optimized in classroom practices. Such studies are expected to contribute to identifying effective instructional strategies that can create more meaningful learning experiences for elementary school students.

This research was conducted at SDN Pampang, Makassar City, focusing on analyzing teaching practices implemented by teachers in integrating deep learning principles into the learning process. The selection of this research site was based on the consideration that the school has begun to implement various instructional strategies that encourage students' active engagement in learning activities. Thus, the novelty of this study lies in its effort to empirically explore the process of optimizing deep learning implementation in elementary classroom practices through the integration of meaningful learning, mindful learning, and joyful learning dimensions. Unlike previous studies that mainly emphasize the effects of instructional models on learning outcomes, this study focuses on analyzing pedagogical processes and instructional strategies used by teachers in implementing deep learning within the context of elementary education. Therefore, this study aims to analyze the optimization of deep learning implementation in the learning process at SDN Pampang, Makassar City.

METHOD

Research Design

This study employed a qualitative approach with a case study design to examine in depth the process of optimizing the implementation of deep learning in elementary school learning activities. A qualitative approach was chosen because this study seeks to understand learning phenomena contextually through the experiences and practices carried out by teachers in real classroom situations. By using this approach, the researcher was able to obtain a more comprehensive understanding of the processes and dynamics of classroom learning (Creswell & Creswell, 2021).

Research Site and Participants

This research was conducted at SDN Pampang, Makassar City. The research participants consisted of teachers and students who were directly involved in the learning process. Informants were selected using purposive sampling, a method of participant selection based on specific criteria relevant to the research objectives, allowing the data obtained to be more in-depth and aligned with the research focus (Campbell et al., 2020).

The main informants in this study were three classroom teachers, namely teachers from grades IV, V, and VI who actively conducted teaching and learning activities in their respective classrooms. In addition, the study also involved nine students from grades IV, V, and VI. The selection of students was based on their level of participation in the learning process as well as their ability to provide information regarding their learning experiences. In total, the study involved 12 participants, consisting of three teachers and nine students.

Table 1. Overview of research informants

No	Informant	Class	Total
1	Class teacher	IV	1
2	Class teacher	V	1
3	Class teacher	VI	1
4	Students	IV	3
5	Students	V	3
6	Students	VI	3
Total			**12 orang**

Data Collection Techniques

Data in this study were collected using several techniques, namely observation, interviews, and documentation, in order to obtain comprehensive research data. The explanations of these techniques are presented as follows.

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Observation

Observation was conducted directly during classroom learning activities to identify how teachers implemented the principles of deep learning in the teaching and learning process. Through observation, the researcher was able to gather data regarding teachers' activities, students' engagement, and the instructional strategies used to create meaningful learning experiences (Merriam & Tisdell, 2021).

Interviews

Interviews were conducted through in-depth interviews with teachers as the primary informants to obtain information regarding the learning strategies employed, lesson planning, and teachers' experiences in implementing the deep learning approach. In-depth interviews enabled the researcher to explore more detailed information related to the perspectives and experiences of the informants (Braun & Clarke, 2021).

Documentation

Documentation was used to complement the research data by collecting various documents related to the learning process, such as lesson plans, teaching modules, learning media, and students' work.

Research Instruments

In qualitative research, the researcher acts as the primary instrument (human instrument) who is directly responsible for collecting and analyzing data in the field. To support a more systematic data collection process, the researcher also employed several supporting instruments, including observation sheets, interview guidelines, and documentation formats (Merriam & Tisdell, 2021).

Data Analysis

The data analysis process in this study employed an interactive analysis model consisting of three main stages: data reduction, data display, and conclusion drawing. The analysis was conducted continuously from the data collection stage to the interpretation stage, allowing the researcher to obtain a comprehensive understanding of the phenomenon under investigation (Miles, Huberman, & Saldaña, 2020).

Data Validity

The validity of the data in this study was ensured through the application of source triangulation and technique triangulation. Triangulation was carried out by comparing information obtained from various sources and by using multiple data collection techniques, thereby enhancing the credibility of the research findings (Nowell et al., 2021).

RESULTS AND DISCUSSION

Results

Based on observations, interviews, and documentation conducted at SDN Pampang, Makassar City, it was found that the optimization of deep learning implementation in the learning process was carried out through the integration of three main dimensions, namely meaningful learning, mindful learning, and joyful learning. These three dimensions were reflected in various learning activities implemented by teachers in the class IV, V, and VI.

Table 2. Findings on the Implementation of Deep Learning at Pampang Elementary School

Aspects of Deep Learning	Forms of Implementation	Impact on Students
Meaningful Learning	Relating material to students' daily experiences	Students understand concepts more easily.
Mindful Learning	Reflection and discussion activities after learning	Students are more aware of the learning process.
Joyful Learning	Interactive learning and use of learning media	Students are more active and motivated

Based on the observation results, teachers attempted to connect learning materials with students' real-life experiences in their daily lives. This strategy was implemented by providing examples that were closely related to students' surrounding environment, making the learning process more contextual and easier to understand. For instance, during a lesson in grade V, the teacher linked the subject matter to

environmental conditions around the school. Students were then asked to identify various phenomena they encountered in their daily lives and relate them to the concepts being studied in the classroom. The interview results with teachers also indicated that this approach aimed to help students develop a deeper understanding of the learning materials.

One teacher stated:

> *"Kami mencoba mengaitkan materi dengan kehidupan sehari-hari siswa supaya mereka lebih mudah memahami pelajaran. Ketika mereka melihat contoh yang dekat dengan kehidupan mereka, biasanya mereka lebih cepat menangkap konsepnya."(Guru kelas V)*

Meanwhile, some students also said that they found it easier to understand the material when the lessons were related to their own experiences.

> *"Kalau guru menjelaskan pakai contoh yang ada di sekitar kita, biasanya saya lebih cepat mengerti." (Siswa kelas V)*

These findings indicate that the application of meaningful learning can help students build a more contextual understanding of concepts.

Implementation of Mindful Learning through Reflective Learning Activities

The research findings also indicate that teachers provide opportunities for students to reflect on the learning process that has taken place. These reflective activities are conducted through class discussions, question-and-answer sessions, and prompting questions that encourage students to restate and explain the material that has been learned. Through these reflection activities, students are encouraged to revisit the concepts they have studied and become more aware of their own learning processes.

One of the teachers stated that reflective activities are important for identifying students' level of understanding of the learning materials.

> *"Biasanya di akhir pelajaran saya meminta siswa menjelaskan kembali apa yang mereka pahami dari materi yang dipelajari hari ini." (Guru kelas IV)*

Students also said that these activities helped them remember the learning material.

> *"Kalau guru tanya kembali di akhir pelajaran, kita jadi ingat lagi apa yang sudah dipelajari." (Siswa kelas IV)*

These findings indicate that the application of mindful learning can help students become more aware of their learning process.

Implementation of Joyful Learning in Creating an Active Learning Environment

The observation results indicate that teachers attempt to create an enjoyable learning atmosphere through the use of various interactive teaching methods, such as group discussions, educational games, and the use of instructional media. This approach makes the classroom environment more dynamic and encourages students to actively participate in learning activities.

One of the teachers explained that a pleasant learning atmosphere can enhance students' learning motivation.

> *"Kalau pembelajaran dibuat lebih menarik dan tidak monoton, siswa biasanya lebih semangat mengikuti pelajaran."(Guru kelas VI)*

The same thing was also expressed by students who felt happier participating in learning activities that involved group activities.

> *"Kalau belajar sambil diskusi atau bermain biasanya lebih seru, jadi tidak cepat bosan." (Siswa kelas VI)*

These findings indicate that the application of joyful learning can increase student engagement in the learning process.

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Impact of Deep Learning Implementation on the Learning Process

Based on the overall research findings, the implementation of deep learning at SDN Pampang has produced several positive impacts on the learning process, including:

1. increasing students' active engagement in learning activities;
2. enhancing students' conceptual understanding;
3. improving students' learning motivation; and
4. creating a more interactive learning environment.

These findings indicate that optimizing the implementation of deep learning can contribute positively to improving the quality of the learning process in elementary schools.

Discussion

The findings of this study indicate that teachers at SDN Pampang attempt to connect learning materials with students' daily experiences, making the learning process more contextual. This strategy enables students to understand concepts more deeply because the learning materials are directly related to real-life situations they encounter. This approach is reflected in teachers' efforts to provide examples that are relevant to students' surrounding environment and to encourage students to identify phenomena they experience in their everyday lives.

These findings suggest that the learning process is not merely focused on the delivery of information but also on helping students develop conceptual understanding through meaningful learning experiences. In the context of deep learning, the connection between new knowledge and students' prior experiences is a crucial aspect of building stronger conceptual understanding. This finding is consistent with the view of Irma and Dety (2025), who state that learning activities that relate instructional materials to real-life contexts can help students develop a more comprehensive understanding of concepts.

The results of this study are also supported by previous research indicating that contextual learning approaches can improve the quality of students' understanding. In such approaches, students are not passive recipients of information but actively construct knowledge through learning experiences that are relevant to their daily lives. Within the framework of deep learning, this process enables the development of more meaningful understanding and helps students apply knowledge in various situations.

Furthermore, learning that emphasizes meaningful learning also plays a significant role in increasing students' engagement in the learning process. When learning materials are connected to experiences that are familiar to students, they tend to be more interested in participating in learning activities and more active in classroom discussions. Therefore, the implementation of meaningful learning in elementary education can serve as an effective strategy for creating more relevant, contextual, and meaningful learning experiences for students.

The findings of this study also reveal that teachers provide opportunities for students to reflect on the learning process that has taken place. Reflective activities are conducted through class discussions, question-and-answer sessions, and prompting questions that encourage students to restate and explain the material they have learned. Through these activities, students are encouraged not only to recall the material but also to understand the learning process they experience.

From the perspective of deep learning, reflection is an essential component of mindful learning, which emphasizes students' awareness of their own learning processes. Through reflection, students are able to evaluate their understanding of the learning materials, identify difficulties they encounter, and improve the learning strategies they use. This process supports the development of metacognitive awareness, which plays a vital role in meaningful learning.

These findings are consistent with the study conducted by Hidayat and Nurhayati (2021), which shows that reflective activities in learning can help students develop metacognitive skills and enhance conceptual understanding. Through reflection, students not only process the information they receive but also evaluate how they understand that information.

In addition, previous studies have shown that the implementation of deep learning encourages students to become more active in monitoring their own learning processes. When students are given opportunities to reflect on their learning experiences, they become more aware of their thinking processes and are better able to identify the most effective learning strategies for themselves.

Therefore, the implementation of mindful learning through reflective learning activities can serve as an important strategy in optimizing deep learning practices in elementary schools. Reflective activities

not only strengthen students' conceptual understanding but also foster greater learning awareness, enabling students to manage their learning processes more independently.

The findings also indicate that teachers attempt to create an enjoyable learning environment through the use of various interactive teaching methods, such as group discussions, educational games, and engaging instructional media. These strategies make classroom activities more dynamic and provide opportunities for students to participate actively in learning.

This approach is consistent with the concept of joyful learning, which emphasizes the importance of creating a positive and enjoyable learning atmosphere in order to increase students' motivation to participate in learning activities. A pleasant learning environment can enhance students' interest in learning and help them understand learning materials more effectively. These findings are in line with the study by Ulfa et al. (2025), which shows that the implementation of deep learning in elementary schools can increase student engagement because students are given opportunities to actively participate in various learning activities. Active student engagement is an important indicator of successful deep learning implementation.

Furthermore, Lintang et al. (2025) found that interactive learning strategies can increase students' learning motivation because students feel more comfortable and interested in participating in classroom activities. When the learning environment is enjoyable, students tend to be more willing to participate in discussions, ask questions, and express their opinions. Therefore, the implementation of joyful learning can play a significant role in creating a conducive learning environment and improving the quality of the learning process in elementary schools. An enjoyable learning atmosphere not only increases students' motivation but also encourages greater active participation in learning activities.

Overall, the findings indicate that the implementation of deep learning at SDN Pampang has a positive impact on classroom learning processes. The integration of three main dimensions meaningful learning, mindful learning, and joyful learning creates more meaningful learning experiences and increases students' active participation in learning activities. This integration not only helps students develop deeper conceptual understanding but also encourages them to actively engage in learning through discussions, reflections, and interactions with their learning environment. These findings demonstrate that deep learning does not merely emphasize learning outcomes but also highlights the importance of the learning process in enabling students to construct comprehensive understanding.

The findings of this study reinforce the view that optimizing the implementation of deep learning can be an effective strategy for improving the quality of learning in elementary schools. Through this approach, learning processes can be designed to be more contextual, reflective, and participatory, thereby providing more meaningful learning experiences for students.

CONCLUSION

This study aimed to analyze the optimization of deep learning implementation at SDN Pampang, Makassar City. The findings indicate that deep learning has been implemented through the integration of three main dimensions: meaningful learning, mindful learning, and joyful learning. Meaningful learning is carried out by connecting learning materials with students' real-life experiences, enabling them to understand concepts in a contextual manner. Mindful learning is implemented through reflection and discussion activities that encourage students to become aware of and evaluate their own learning processes. Meanwhile, joyful learning is realized through the use of interactive teaching methods, group discussions, and engaging learning media that create an enjoyable classroom atmosphere. The implementation of deep learning has been shown to increase students' engagement in the learning process, help them relate concepts to everyday life, and improve their understanding of the learning materials. Therefore, deep learning can serve as an effective strategy for improving the quality of learning in elementary schools and should continue to be developed through innovative instructional planning and the support of a conducive learning environment.

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