



DEVELOPMENT OF DEEP LEARNING LEARNING APPROACH IN IMPROVING CRITICAL THINKING SKILLS AND MASTERY OF LANGUAGE CONCEPTS IN GRADE IV STUDENTS OF SDN 16 BANGKALA

PENGEMBANGAN PENDEKATAN PEMBELAJARAN DEEP LEARNING DALAM MENINGKATKAN KETERAMPILAN BERPIKIR KRITIS DAN PENGUASAAN KONSEP BAHASA PADA SISWA KELAS IV SDN 16 BANGKALA

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Abstract

This research aims to develop Indonesian learning tools based on the Deep Learning approach to improve critical thinking skills and mastery of language concepts of elementary school students. The research was carried out at SDN 16 Bangkala, Jeneponto Regency, in the odd semester of the 2025/2026 school year with 25 subjects in grade IV. The development model used is the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model. Data collection techniques include observation, interviews, questionnaires, and learning outcome tests. The validation results of three experts showed that the teaching modules developed were classified as very valid with an average feasibility level of 89%. The implementation of learning using Deep Learning syntax (Engage, Explore, Explain, Elaborate, Evaluate) shows an increase in student activity and involvement in the learning process. Based on the results of the data analysis, the average value of critical thinking skills increased from 61.2 to 83.6 with an N-Gain of 0.58 (medium-high category), while the mastery of language concepts increased from 63.4 to 86.8 with an N-Gain of 0.63 (high category). The results of the t-test showed $p < 0.05$ which means that there was a significant increase after the implementation of Deep Learning-based learning. Thus, it can be concluded that the Indonesian teaching module based on the Deep Learning approach is effective in improving students' critical thinking skills and mastery of language concepts. This approach is able to create learning that is aware, meaningful, and fun, and in line with the principles of the Independent Curriculum which emphasizes differentiated and student-centered learning.

Keywords : Deep Learning, critical thinking skills, mastery of language concepts, Indonesian, Independent Curriculum.

Abstrak

Penelitian ini bertujuan untuk mengembangkan perangkat pembelajaran Bahasa Indonesia berbasis pendekatan Deep Learning guna meningkatkan keterampilan berpikir kritis dan penguasaan konsep



bahasa siswa sekolah dasar. Penelitian dilaksanakan di SDN 16 Bangkala, Kabupaten Jeneponto, pada semester ganjil tahun ajaran 2025/2026 dengan subjek sebanyak 25 siswa kelas IV. Model pengembangan yang digunakan adalah model ADDIE (Analysis, Design, Development, Implementation, Evaluation). Teknik pengumpulan data meliputi observasi, wawancara, angket, dan tes hasil belajar. Hasil validasi dari tiga ahli menunjukkan bahwa modul ajar yang dikembangkan tergolong sangat valid dengan rata-rata tingkat kelayakan sebesar 89%. Implementasi pembelajaran menggunakan sintaks Deep Learning (Engage, Explore, Explain, Elaborate, Evaluate) menunjukkan peningkatan aktivitas dan keterlibatan siswa dalam proses pembelajaran. Berdasarkan hasil analisis data, rata-rata nilai keterampilan berpikir kritis meningkat dari 61,2 menjadi 83,6 dengan N-Gain 0,58 (kategori sedang-tinggi), sedangkan penguasaan konsep bahasa meningkat dari 63,4 menjadi 86,8 dengan N-Gain 0,63 (kategori tinggi). Hasil uji t menunjukkan $p < 0,05$ yang berarti terdapat peningkatan signifikan setelah penerapan pembelajaran berbasis Deep Learning. Dengan demikian, dapat disimpulkan bahwa modul ajar Bahasa Indonesia berbasis pendekatan Deep Learning efektif dalam meningkatkan keterampilan berpikir kritis dan penguasaan konsep bahasa siswa. Pendekatan ini mampu menciptakan pembelajaran yang berkesadaran, bermakna, dan menyenangkan, serta sejalan dengan prinsip Kurikulum Merdeka yang menekankan pada pembelajaran berdiferensiasi dan berpusat pada peserta didik.

Kata Kunci : Deep Learning, keterampilan berpikir kritis, penguasaan konsep bahasa, Bahasa Indonesia, Kurikulum Merdeka.

1. INTRODUCTION

21st century education demands a comprehensive transformation in the approach to learning. Students are no longer enough to only master factual knowledge, but are also required to have higher order thinking skills, such as critical, creative, reflective, and collaborative thinking. This paradigm shift is a response to the needs of an increasingly complex and dynamic global society, where problem-solving, decision-making, and adaptability are essential skills.

In this context, deep learning is present as one of the learning approaches that emphasizes the active involvement of students to achieve deep understanding. In contrast to the term deep learning in the field of artificial intelligence, the concept of deep learning in education refers to a pedagogical strategy that helps students understand the intrinsic meaning of learning materials, connect various concepts, and relate knowledge to real experiences in daily life.

The deep learning approach emphasizes conceptual understanding, so that students not only know the "what" of a concept, but also understand the "why" and "how" of the concept and its relationship to other concepts. The main goal of this approach is to cultivate critical thinking skills, which are the ability to analyze information objectively, evaluate arguments, identify biases, and make rational decisions. Thus, deep learning plays an important role in encouraging meaningful and deep learning that can develop students' critical thinking skills.

In line with this spirit, the Indonesian government through the Independent Curriculum emphasizes the importance of competency-based learning centered on students. This curriculum is oriented towards strengthening character and forming Pancasila Student Profiles who have the ability to think critically, creatively, logically reason, and behave reflectively. The implementation of this curriculum requires the role of teachers as facilitators who are able



to create an active, contextual learning environment, and provide space for students to construct knowledge independently.

However, the reality on the ground shows that many elementary schools, including SDN 16 Bangkala, still apply traditional learning methods that are dominated by lectures and memorization. This condition causes students to not have adequate opportunities to explore ideas, build reason, and develop critical thinking skills. As a result, their conceptual understanding tends to be shallow, especially in Indonesian subjects which should be the basis for building the ability to reason and communicate effectively.

Indonesian subjects have a strategic role in developing critical thinking skills, logical reasoning, and conveying ideas in a coherent manner. The low mastery of concepts in this subject has an impact on students' ability to understand, interpret, and articulate their ideas well. This condition shows the need for innovation in the Indonesian learning process to be more oriented towards deep conceptual understanding and critical thinking skills.

Various research results have shown that deep learning approaches are effective in improving the quality of learning processes and outcomes. Herliani (2025) stated that this approach is able to improve students' academic results, character, and reflective abilities. Kintoko et al. (2025) prove that the application of deep learning can significantly improve critical thinking skills and mastery of language concepts. In addition, research conducted by Khotimah and Abdan (2023) shows that this approach also increases students' enthusiasm and active participation in learning.

However, the application of the deep learning approach in elementary schools still faces various obstacles, especially related to the limited understanding of teachers regarding deep understanding-based learning designs and the lack of supportive learning media. Therefore, it is necessary to develop innovative learning tools so that teachers have a clear reference in implementing deep learning approaches in the classroom effectively and contextually.

This research aims to develop Indonesian learning tools based on a deep learning approach to improve critical thinking skills and mastery of concepts for grade IV students of SDN 16 Bangkala. This study uses the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. The results of the research are expected to be innovations in the implementation of the Independent Curriculum, assist teachers in innovating, and produce students who are adaptive, reflective, and critical in accordance with the demands of 21st century education.

2. RESEARCH METHOD

This research is a research and development (Research and Development) that aims to produce Indonesian learning tools based on a deep learning approach to improve critical thinking skills and mastery of concepts for grade IV students of SDN 16 Bangkala. This type of research refers to the Educational Design Research (EDR) approach which emphasizes systematic, iterative, and theory-based processes in developing solutions to learning problems.



The development model used is ADDIE, which consists of five main stages, namely analysis, design, development, implementation, and evaluation.

The analysis stage was carried out to identify learning needs, student characteristics, and gaps between actual and ideal conditions in Indonesian language learning. The results of the analysis are the basis for the design stage, which includes the design of learning tools, such as learning objectives, teaching materials, student activity sheets, and assessment instruments oriented to deep learning principles. The development stage includes the creation of the initial product and validation by material experts, learning experts, and practitioners. Expert feedback is used to revise and refine the product before testing.

The implementation stage was carried out through a limited trial on grade IV students of SDN 16 Bangkala to assess the practicality and applicability of the device in the context of real learning. The implementation process was also used to measure the influence of the application of the deep learning approach on improving students' critical thinking skills and mastery of concepts. Furthermore, the evaluation stage includes two forms of evaluation, namely formative and summative. Formative evaluation is carried out during the development process to improve the learning design, while summative evaluation is carried out after implementation through the analysis of pretest and posttest results to assess the effectiveness of the product.

This research approach combines qualitative and quantitative methods (mixed methods). The qualitative approach is used to analyze needs, conduct expert validation, and interpret the results of observations of the learning process, while the quantitative approach is used to test the effectiveness of the product through statistical analysis of student learning outcomes. Thus, this research not only produces valid, practical, and effective learning products, but also contributes to strengthening the theory of applying deep learning approaches in Indonesian learning in elementary schools.

3. RESULT AND DISCUSSION

This research was carried out at SDN 16 Bangkala, Jeneponto Regency, in the odd semester of the 2025/2026 school year. The subjects of the study were 25 students in grade IV, consisting of 12 male students and 13 female students. This research aims to develop Indonesian learning tools based on a *deep learning* approach to improve critical thinking skills and mastery of language concepts. The development model used is ADDIE (Analysis, Design, Development, Implementation, Evaluation).

At this stage, needs analysis is carried out through classroom observation, interviews with Indonesian teachers, and the distribution of initial questionnaires to students. The results of the analysis show that Indonesian learning at SDN 16 Bangkala is still teacher-centered and memorization-oriented. As many as 76% of students stated that learning was more often done by the lecture method, and only 24% mentioned discussion activities or small projects. The teacher admitted that students still have difficulty in connecting language concepts with real-life contexts, so their understanding of the concept is still superficial. Competency analysis



shows that the material that students find most difficult to understand is composing paragraphs and understanding the structure of the description text. The results of the interviews also indicate the need for learning innovations that can foster the ability to think critically, argue, and understand the meaning of texts in depth.

In the analysis stage, the researcher conducted classroom observations, interviews with Indonesian teachers, and distributed initial questionnaires to students. The results of the analysis show that Indonesian learning at SDN 16 Bangkala is still *teacher-centered* and memorization-oriented. As many as 76% of students stated that teachers used the lecture method more often, while only 24% of students had participated in discussion activities or small projects. The teacher also said that students still have difficulty in relating linguistic concepts to real-life contexts, so their understanding of language concepts tends to be shallow. In addition, the results of the competency analysis show that the most difficult aspect for students to understand is composing paragraphs and understanding the structure of the description text. Based on the results of interviews with teachers, learning innovations are needed that are able to foster the ability to think critically, argue, and understand the meaning of texts in depth.

The design stage is focused on developing *teaching modules* that are in accordance with the principles of *Deep Learning* learning that are oriented towards conscious, meaningful, and fun learning. The designed product includes a *Deep Learning-based Indonesian teaching module* that emphasizes exploration, analysis, reflection, and application of concepts. In addition, a Student Activity Sheet (LAPD) was also developed with an inquiry and collaborative discussion approach, interactive teaching materials in the form of contextual descriptive texts that are close to the student's environment, as well as instruments for assessing critical thinking skills and mastery of language concepts. The learning design follows the *Deep Learning syntax* which consists of five stages, namely *Engage*, *Explore*, *Explain*, *Elaborate*, and *Evaluate*. Each stage is structured to encourage students to think reflectively, understand the meaning of learning, and relate new knowledge to everyday life experiences.

At the implementation stage, the *Deep Learning teaching module* was piloted for three meetings (3×80 minutes) in grade IV of SDN 16 Bangkala. The implementation of learning is carried out in accordance with the *Deep Learning* syntax, namely *Engage*, *Explore*, *Explain*, *Elaborate*, and *Evaluate*. In the *Engage stage*, students are invited to observe pictures of the school environment and compare it with the home environment. The *Explore stage* is carried out with direct observation of objects around the school to collect descriptive data. Next, the *Explain stage* directs students to explain the results of observations and the structure of the descriptive text used. In the *Elaborate stage*, students write descriptive texts by paying attention to the appropriate linguistic characteristics, while the *Evaluate stage* is used for self-reflection activities on the results of writing and providing feedback between friends. During the activity, teachers play the role of facilitators who guide students in the process of thinking and collaborating.



The results of the observation show that student activities in learning are very good. The average overall activity score reached 3.55 on a scale of 4 in the "excellent" category. The aspect of participation in discussions obtained a score of 3.6, the ability to express opinions 3.4, the ability to think critically 3.5, and reflection on learning 3.7. Based on student response questionnaires, as many as 92% of students stated that Deep Learning-based learning felt fun and helped them understand concepts better. In addition, 88% of students found it easier to write descriptive texts after participating in this learning.

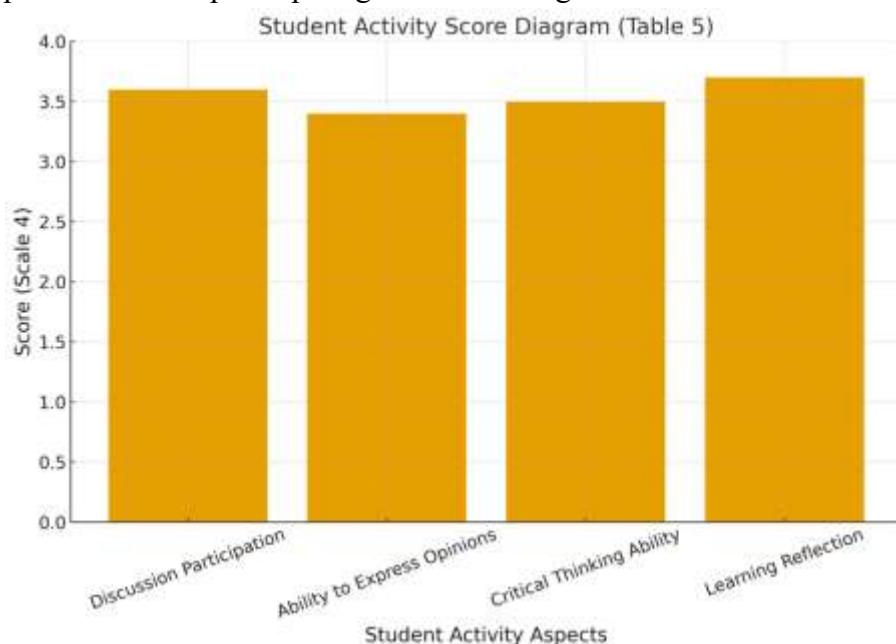


Figure 1. Student Activity Aspects

The last stage, namely evaluation, is carried out in two forms, namely formative and summative. Formative evaluation is carried out during the development and implementation process to improve *the teaching module* based on expert input and the results of teacher observations. Meanwhile, summative evaluation was carried out to assess the effectiveness of learning through the comparison of *pretest* and *posttest* results on two main aspects, namely critical thinking skills and mastery of language concepts. The results of the analysis showed a significant increase. The average value of critical thinking skills increased from 61.2 in *the pretest* to 83.6 in the *posttest*, with an *N-Gain* of 0.58 which was included in the medium-high category. Meanwhile, language concept mastery increased from 63.4 to 86.8 with an *N-Gain* of 0.63 in the high category. The results of *the paired sample t-test* showed a *p* value of < 0.05 which means that there was a significant increase between *the pretest* and *posttest* results. Thus, it can be concluded that *the Deep Learning-based teaching module* is effective in improving critical thinking skills and mastery of language concepts of grade IV students of SDN 16 Bangkala.

Discussion

The results of this study show that the application of *the Deep Learning* approach in the context of Indonesian learning is able to create a learning process that is conscious, meaningful,



and fun. This approach not only emphasizes conceptual mastery of the material, but also directs students to understand the meaning of learning for themselves.

The improvement of critical thinking skills is seen through the reflective and collaborative activities contained in the teaching module, where students are invited to ask in-depth questions, analyze texts, and connect ideas from various contexts. Conscious learning also encourages students to recognize their own thinking process (*metacognition awareness*), which has a positive effect on learning outcomes.

Meanwhile, the increase in mastery of language concepts is due to meaningful approaches that connect learning materials with the context of students' daily lives, such as the use of language in local activities, environmental texts, and oral traditions of the Bangkala people. Thus, learning becomes relevant to the real experience of students.

The results of this study are in line with the view that deep learning not only focuses on knowledge transfer, but also forms higher-level thinking skills and self-study awareness. This is in accordance with the characteristics of the Independent Curriculum which emphasizes differentiated and student-centered learning.

Overall, this study shows that the *Deep Learning Approach* developed can be an effective alternative learning model to improve critical thinking skills and mastery of language concepts in elementary school students, while still paying attention to the values of learning that are conscious, meaningful, and fun.

4. CONCLUSION

Based on the research and discussion, it can be concluded that the development of Indonesian language teaching modules based on the Deep Learning approach is effective in improving critical thinking skills and language concept mastery of fourth-grade students at SDN 16 Bangkala. This approach is capable of shifting the learning pattern from being teacher-centered to student-centered, thus creating a more active, reflective, and meaningful learning process.

The results of expert validation show that the developed product is highly valid, with an average feasibility level of 89%. Implementation in the classroom demonstrated a positive response from students, with 92% stating that Deep Learning-based learning was enjoyable and helped them understand the material better. Quantitative data shows a significant increase in critical thinking skills from an average of 61.2 to 83.6, as well as an improvement in language concept mastery from 63.4 to 86.8. The N-Gain values were 0.58 and 0.63 respectively, which fall into the moderate-high to high category, with t-test results showing a significant difference ($p < 0.05$).

Thus, the Deep Learning approach has proven capable of fostering higher-order thinking skills, metacognition awareness, and contextual mastery of language concepts. This learning model is relevant to the principles of the Merdeka Curriculum, which emphasizes differentiated learning, student-centered learning, and the integration of values for conscious, meaningful, and enjoyable learning.



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