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Assistance in Implementing Deep Learning as A Fun Learning Approach for Teachers at SMP 3 Bae

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Abstract

21st-century learning requires teachers to be able to design meaningful, enjoyable learning processes that are oriented towards deep conceptual understanding. One relevant approach is deep learning, which emphasizes active student involvement, reflection, and the transfer of knowledge to real-world contexts. However, preliminary studies show that teachers' understanding of the concept of deep learning is still limited because this approach was only recently introduced by the Minister of Education. This community service activity aims to assist teachers at SMP 3 Bae in understanding and implementing the concept of deep learning as an enjoyable learning approach through the development of teaching modules. This activity was held on July 3 to 5, 2025, and was attended by all 38 teachers at SMP 3 Bae. The implementation method includes socialization of deep learning, presentation of deep learning concepts and teaching modules, analysis of teaching module examples, practice in developing teaching modules, and presentation and reflection on module results. Data were collected through observations, participant response questionnaires, and analysis of teaching module products. Data were analysed using descriptive analysis. The results of the activity showed an increase in teachers' conceptual understanding of deep learning and their ability to develop teaching modules oriented towards meaningful learning. Based on the evaluation of the activity, 90% of teachers showed readiness to apply deep learning in learning. This activity contributed to improving teachers' pedagogical competence and supported the implementation of active, meaningful, and enjoyable learning at school.

Keywords: Deep learning, joyful learning, teacher mentoring, teaching modules.

Abstrak

Pembelajaran abad ke-21 menuntut guru untuk mampu merancang proses belajar yang bermakna, menyenangkan, dan berorientasi pada pemahaman konseptual yang mendalam. Salah satu pendekatan yang relevan adalah deep learning sebagai pendekatan pembelajaran yang menekankan keterlibatan aktif peserta didik, refleksi, serta transfer pengetahuan ke konteks nyata. Namun, hasil studi awal menunjukkan bahwa pemahaman guru terhadap konsep deep learning masih terbatas karena pendekatan ini baru dicetuskan oleh menteri pendidikan. Kegiatan pengabdian kepada masyarakat ini bertujuan untuk mendampingi guru SMP 3 Bae dalam mengenal dan mengimplementasikan konsep deep learning sebagai pendekatan pembelajaran yang menyenangkan melalui penyusunan modul ajar. Kegiatan dilaksanakan pada tanggal 3 s.d 5 Juli 2025 dan diikuti oleh seluruh guru SMP 3 Bae. Metode pelaksanaan meliputi sosialisasi deep learning, pemaparan konsep deep learning dan modul ajar, analisis contoh modul ajar, praktik penyusunan modul ajar, serta presentasi dan refleksi hasil modul. Hasil kegiatan menunjukkan peningkatan pemahaman konseptual guru terhadap deep learning serta kemampuan menyusun modul ajar yang berorientasi pada pembelajaran bermakna. Berdasarkan evaluasi kegiatan, 90% guru menunjukkan kesiapan untuk menerapkan deep learning dalam pembelajaran. Kegiatan ini berkontribusi dalam meningkatkan kompetensi pedagogik guru serta mendukung implementasi pembelajaran yang aktif, bermakna, dan menyenangkan di sekolah.

Kata Kunci: *Deep Learning, Pendampingan Guru, Modul Ajar, Pembelajaran Menyenangkan.*

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Introduction

The transformation of education in the 21-st century demands a shift in the learning paradigm from merely transmitting knowledge to one that emphasizes in-depth understanding, active student engagement, and the development of critical and reflective thinking skills. Learning is no longer solely focused on outcomes, but rather requires a meaningful and sustainable learning process. Meaningful learning enables students to build strong conceptual understanding and transfer knowledge to new contexts (Pahruroji et al., 2025).

In line with these demands, national education policy, through the national curriculum, encourages teachers to design student-centred learning and provide space for exploration, reflection, and contextual learning experiences. Teachers are expected to facilitate learning that not only delivers material but also fosters deep understanding and active student engagement. In this context, enjoyable learning is a crucial prerequisite for students to have intrinsic motivation and positive learning experiences.

The current curriculum also firmly emphasizes the importance of implementing deep learning as a national learning direction. Through various policies and directives from the Minister of Primary and Secondary Education, learning is encouraged not to stop at mastering content, but to focus on in-depth conceptual understanding, character building, and students' ability to think critically and reflectively. The deep learning approach is positioned as a foundation for realizing meaningful learning that is relevant to the needs of the 21st century and in line with the implementation of the national curriculum, where teachers play a role as designers of challenging, contextual, and enjoyable learning experiences (Cholifatunisa et al., 2025; Mustagfiroh et al., 2025).

Deep learning is understood as a learning process that encourages students to deeply understand concepts, connect knowledge to real-world experiences, and transfer that understanding to new situations. This approach emphasizes students' cognitive, social, and emotional engagement in the learning process, with the teacher acting as a facilitator who designs meaningful learning experiences (Khasanah et al., 2025).

The application of deep learning is also closely related to joyful learning. Joyful learning doesn't mean reducing the depth of the material, but rather creating learning conditions that foster curiosity, active engagement, and student reflection. When students are emotionally and intellectually engaged, the learning process becomes more meaningful and has long-term impacts (Khan et al., 2025).

However, initial observations at SMP 3 Bae indicate that some teachers' understanding of the concept of deep learning is still at an early stage. This is understandable, considering that deep learning is a new concept that has been introduced and emphasized in educational policy directives by the Ministry of Primary and Secondary Education.

With the planned implementation of deep learning in the new academic year, teachers at SMP 3 Bae are in a transitional phase, adjusting their learning planning and implementation. In the initial phase of implementing the new policy, teachers need time and support to fully understand the concept and translate it into operational learning tools. Therefore, mentoring activities are crucial so that teachers not only understand deep learning conceptually but also have practical readiness to develop teaching modules and design meaningful and enjoyable learning activities from the start of the academic year. Mentoring conducted before the implementation of learning in the classroom is expected to help teachers avoid misconceptions,

increase self-confidence, and ensure alignment between curriculum policies and learning practices.

In addition to limited conceptual understanding, teachers also face challenges in developing teaching modules that align with deep learning principles. The teaching modules used tend to be informative and fail to encourage exploration, discussion, contextual problem-solving, and student reflection. Yet, teaching modules are strategic tools that reflect learning approaches and serve as teachers' primary guide in managing the learning process (Rismawanda & Mustika, 2024).

Several studies have shown that developing teacher competency in implementing innovative learning approaches requires participatory and ongoing mentoring. Lecture-only training is insufficient to transform classroom practices. Teachers need hands-on experience through practice, discussion, and reflection on the learning materials they have developed (Abbas et al., 2025; Dalilah, 2019).

Based on these problems, this community service activity was designed in the form of mentoring teachers of SMP 3 Bae in understanding and implementing deep learning as a fun learning approach. This activity aims to assist teachers of SMP 3 Bae in understanding and implementing the concept of deep learning as a fun learning approach through the preparation of teaching modules. Mentoring is carried out through several stages, namely the presentation of the concept of deep learning and teaching modules, analysis of examples of teaching modules, practice of preparing teaching modules, and presentation and reflection of the results of the compiled modules. Through these stages, it is hoped that teachers will gain conceptual understanding as well as practical skills in designing meaningful and enjoyable learning for students.

Method

This community service activity was carried out from July 3 to 5, 2025, at SMP 3 Bae. The activity was attended by the principal and 38 teachers at the school. The implementation method used a participatory and practice-based approach, with teachers as the main subjects of the activity. The stages of the activity implementation included: (1) presentation of the concept of deep learning and teaching modules, (2) analysis of examples of teaching modules, (3) practice of compiling teaching modules, and (4) presentation and reflection of the results of the modules compiled by the activity participants.

1. Explanation of the concept of deep learning and teaching modules
   Teachers are given a conceptual understanding of deep learning as a pedagogical learning model, including the characteristics of meaningful learning, active student involvement, and the role of teachers as learning facilitators.
2. Analysis of teaching module examples
   Teachers analyze examples of deep learning-based teaching modules to identify differences with conventional modules, particularly in the aspects of learning objectives, learning activities, and reflection.
3. Practice of preparing teaching modules
   Teachers compile deep learning-based teaching modules in groups according to their respective subjects, with intensive guidance from the community service team.
4. Presentation and reflection of teaching modules

The teacher presents the teaching module that has been prepared and carries out joint reflection to improve and perfect the module.

Data collection techniques were carried out through activity observations, participant response questionnaires, and analysis of the teaching modules developed by the participants. The evaluation instruments consisted of observation sheets to monitor participant engagement during the mentoring process, questionnaires to measure teachers' understanding and readiness to implement deep learning, and a teaching module assessment rubric. The rubric assessed several indicators, including the clarity of learning objectives, the integration of deep learning principles, student engagement activities, reflective learning components, and the contextualization of learning materials. The collected data were analyzed using descriptive quantitative analysis in the form of percentage scores, which were then interpreted to determine the level of teachers' understanding and readiness to implement deep learning-oriented teaching modules.

Results and Discussion

Community service activities in the form of mentoring the implementation of deep learning as a fun learning approach for teachers of SMP 3 Bae were carried out for three days, namely on July 3–5, 2025. This activity was attended by the principal and all teachers of SMP 3 Bae from various subjects. The implementation of the activity was designed in four main stages, namely: (1) presentation of the concept of deep learning and teaching modules, (2) analysis of examples of teaching modules, (3) practice of preparing teaching modules, and (4) presentation and reflection of the results of teaching modules. The results of the implementation of activities at each stage are described as follows.

1. Explanation of the Deep Learning Concept and Teaching Module

   The first phase of the activity involved an explanation of the concept of deep learning and the role of learning modules in supporting enjoyable learning. The material presented included an introduction to deep learning, a deep learning framework, deep learning planning, implementation, and assessment, as well as the characteristics of learning modules that align with the deep learning approach.

   The results of activities at this stage indicate that most teachers are beginning to understand that deep learning focuses on students' depth of understanding, active engagement, and knowledge transfer. Teachers were seen actively asking questions and discussing the application of the concept in their respective subjects. The discussions that emerged indicated a shift in teachers' initial perceptions of the term "deep learning".

   The activities at this stage are shown in Figure 1 , which shows the atmosphere of the presentation of the material and the interaction between the facilitator and participants.

Figure 1. *Explanation of the Deep Learning Concept and Teaching Module*

At this stage, no significant obstacles were encountered. Teachers were able to understand the concept of deep learning, but lacked a clear understanding of how to develop their teaching modules. This challenge was addressed through providing concrete examples and analyzing teaching module examples in the next stage.

2. Analysis of Example Teaching Modules

The second stage is the analysis of sample teaching modules. Teachers are invited to analyze the teaching modules currently in use and the deep learning- based example modules. The analysis focuses on the appropriateness of learning objectives, learning activities, and opportunities for implementing meaningful and enjoyable learning.

The analysis results showed that teachers were able to identify weaknesses in teaching modules that were informative and focused on delivering material. Teachers also began to recognize the characteristics of teaching modules that support deep learning, such as exploratory activities, discussion, reflection, and assessment. The analysis process encouraged teachers to think critically about the learning tools currently used.

The activities at this stage are shown in Figure 2, which shows interactive activities in analyzing the teaching module.

Figure 2. *Analysis of Teaching Modules*

An obstacle that emerged at this stage was teachers' limited experience in systematically analyzing learning materials. This challenge was overcome through mentoring from facilitators in analyzing teaching modules.

3. Practice of Developing Deep Learning-Based Teaching Modules

The third stage involves developing deep learning- based teaching modules. Teachers are asked to develop teaching modules tailored to the subjects they teach, taking into account learning objectives, learning activities, and assessments that encourage in-depth understanding and student engagement.

The results of the activity showed that most teachers were able to develop more contextual teaching modules than previous modules. The designed learning activities included discussions, contextual problem-solving, and learning reflection. Teachers also began to adapt learning activities to student characteristics.

The activities at this stage are shown in Figure 3, which displays the process of mentoring the preparation of teaching modules by the facilitator.

Figure 3. *Preparation of Teaching Modules*

The obstacle encountered at this stage was the difficulty some teachers faced in designing assessments aligned with deep learning principles. This challenge was addressed through intensive mentoring and the provision of relevant assessment examples.

4. Presentation and Reflection of Teaching Module Results

The final stage is the presentation and reflection of the developed teaching modules. Several participants present their teaching modules and receive feedback from the facilitator and other participants. The reflection process helps teachers identify strengths and areas for improvement.

Reflection results indicate that teachers feel more prepared and confident to implement deep learning in the new school year. Teachers also stated that this mentoring helped them understand curriculum policies more operationally.

The activities at this stage are shown in Figure 4, which shows the presentation and discussion of the results of the teaching module.

Figure 4. *Presentation and Reflection of the Teaching Module*

A challenge at this stage was the limited presentation time, which meant that not all modules could be discussed in depth. This challenge was addressed by providing written feedback from the facilitator.

Based on the results of the questionnaire on understanding the concept of deep learning, there was an increase in the average score of teachers' understanding from 62.4 in the initial stage to 85.7 after the mentoring activity. This increase indicates an improvement in teachers' conceptual understanding of the principles of deep learning. The comparison of teachers' understanding before and after the mentoring program is presented in Table 1 to provide clearer visualization of the improvement.

Table 1. Improvement of Teachers' Understanding of Deep Learning

Stage	Average Score
Before mentoring	62.4
After mentoring	85.7

In addition, the assessment of the teaching module products prepared by teachers also showed an increase in the quality of the learning tools. The assessment was carried out using indicators of suitability of learning objectives, integration of learning activities, student engagement, and alignment of assessments with the principles of deep learning. The assessment results showed that the average score of the quality of the teaching module increased from 65.1 before mentoring to 87.3 after mentoring, as shown in Table 2.

Table 2. Quality of Teaching Modules Developed by Teachers

Stage	Average Score
Before mentoring	65.1
After mentoring	87.3

In terms of implementation readiness, the questionnaire results showed that 92% of teachers stated they were ready to implement deep learning in their teaching in the new academic year. Teachers also expressed greater confidence in designing learning activities that encourage student discussion, exploration, and reflection. This quantitative data reinforces the qualitative finding that mentoring activities have a positive impact on improving teachers' pedagogical competence.

The results of the mentoring activities indicate that the phased approach is effective in improving teachers' understanding and readiness to implement deep learning. Quantitative data show that the average score of teachers' understanding increased from 62.4 before the mentoring to 85.7 after the activity, indicating a substantial improvement in participants' conceptual comprehension. This improvement demonstrates that structured mentoring can strengthen teachers' understanding of newly introduced educational approaches such as deep learning.

The conceptual explanation stage played a crucial role in building the foundation of teachers' understanding of deep learning. Practically, this stage allowed teachers to recognize the core principles of deep learning, such as active student engagement, reflective learning processes, and the connection between knowledge and real-life contexts. Theoretically, this finding aligns with studies suggesting that strong conceptual understanding is a prerequisite for implementing meaningful learning (Abdullah & Yahya, 2025; Novitasari et al., 2025; Sudirman et al., 2025). Without adequate conceptual understanding, teachers may experience difficulties translating new educational policies into classroom practices.

Analyzing sample teaching modules also provided teachers with opportunities to reflect on their current instructional practices. This reflective process is an essential component of teacher professional development because it encourages teachers to critically evaluate their teaching strategies and identify areas for improvement. Collaborative and reflective professional learning has been shown to be more effective than one-way training because it allows teachers to actively construct knowledge and adapt it to their classroom context (Indah et al., 2025; Rohimat et al., 2025).

The practice of developing teaching modules further demonstrated that teachers were able to translate deep learning concepts into more contextual learning tools. This was reflected in the increase in the average score of teaching module quality from 65.1 before mentoring to 87.3 after mentoring. Although challenges persisted, particularly in developing assessment components aligned with deep learning principles, direct mentoring helped teachers overcome these difficulties through feedback and guided revision. These findings support previous studies emphasizing the importance of practice-based mentoring in improving teachers' pedagogical competence (Amran et al., 2024; Situmorang & Iriani, 2022).

The presentation and reflection phase also strengthened teachers' readiness to implement deep learning in the upcoming academic year. Reflection and peer feedback enabled teachers to develop deeper understanding and increased their confidence in designing instruction that encourages discussion, exploration, and student reflection. Reflection is widely recognized as a key component of sustainable teacher professional development (Lestari, 2024; Rahman, 2014).

Improved comprehension scores and the quality of the teaching modules indicate that practice-based mentoring is effective in improving teachers' pedagogical competence. This finding aligns with studies confirming that teacher professional development involving hands-on practice and reflection significantly impacts changes in teaching practices (Miramadhani et al., 2024)

The results of the readiness questionnaire show that 92% of teachers expressed readiness to implement deep learning, while 8% of participants indicated that they were not fully ready to apply the approach in their classrooms. Several factors may explain this condition. Practically, some teachers reported difficulties in designing reflective learning activities and integrating authentic assessment strategies aligned with deep learning principles. In addition, limited experience in implementing student-centered learning approaches may reduce teachers' confidence in applying new instructional models. From a theoretical perspective, this finding reflects the idea that changes in teaching practice require time, continuous support, and repeated opportunities for practice (Alfiah et al., 2025). Teacher professional development literature suggests that not all participants achieve the same level of readiness at the same time because learning processes among teachers occur at different paces.

Furthermore, the improved quality of teaching modules indicates that teachers are beginning to integrate the principles of meaningful and enjoyable learning into their instructional materials. Learning experiences that emphasize students' cognitive and emotional engagement are known to improve the overall quality of the learning process (Khan et al., 2025). Therefore, the quantitative and qualitative findings of this activity provide evidence that mentoring on deep learning has a positive impact on teachers' pedagogical competence and readiness to implement 21st-century learning.

Overall, the results suggest that mentoring conducted before the new academic year is an appropriate strategy to support the implementation of deep learning-based educational policies. This approach not only improves teachers' conceptual understanding but also helps ensure alignment between national education policies and classroom learning practices.

Conclusion

Deep learning mentoring program, a fun learning approach, for teachers at SMP 3 Bae was well-implemented and had a positive impact on improving their pedagogical competence. Through conceptual explanations, analysis of teaching module examples, development practices, and presentations and reflections, teachers demonstrated an increased understanding of deep learning concepts and readiness to develop meaningful and enjoyable teaching modules. This mentoring helped teachers understand the new curriculum policies more comprehensively and facilitated the transition to implementing deep learning pedagogy in the new academic year.

Subsequent community service activities should focus on ongoing mentoring, including classroom learning implementation and reflection on learning practices, to ensure the sustainability of deep learning. Teachers hope this will ensure optimal implementation of curriculum policies.

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