

Perceptions of Teachers Toward Deep Learning as an Outcome of the Meaningful and Joyful Learning Training Program

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Article Info

Article history:

Received: October 23, 2025

Accepted: January 31, 2026

Published: February 28, 2026

Keywords:

Deep learning

Joyful learning

Meaningful learning

Merdeka curriculum

Teacher mentoring

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Pengabdian Masyarakat

Abstract

The implementation of deep learning in Indonesian junior high schools remains challenging due to teachers' limited understanding and practical readiness. This community service program aimed to enhance teachers' knowledge of deep learning principles within the Merdeka Curriculum and to support them in developing deep learning-based teaching materials. The program involved training and mentoring 46 teachers from two public junior high schools in Yogyakarta using workshops, guided practice, and follow-up support. Data were collected through a knowledge quiz, a participant satisfaction questionnaire, and document analysis of the developed learning modules. The results show that teachers achieved a good level of understanding of deep learning concepts (mean score = 8.1), expressed high satisfaction with the program, and successfully produced learning modules that reflected key characteristics of deep learning and were ready for classroom use. These findings indicate that structured professional development can effectively support teachers in implementing deep learning within the Merdeka Curriculum and may serve as a practical model for similar school-based training programs.

To cite this article: Fatah, A., Tafakur, T., Sutiman, S., Sriyanto, J., & Fatin, N. N. (2026). Perceptions of teachers toward deep learning as an outcome of the meaningful and joyful learning training program. *Bubungan Tinggi: Jurnal Pengabdian Masyarakat*, 8(1), 64-73.

INTRODUCTION

The *Merdeka Curriculum* is an educational policy innovation in Indonesia designed to provide students with a more profound (deep learning) and meaningful (meaningful learning) learning experience. This curriculum emphasizes conceptual understanding, the connection of knowledge to real-life contexts, and the development of critical, creative, and reflective thinking skills ([Kemendikbudristek, 2024](#); [Fullan & Langworthy, 2014](#)). Through this approach, students are expected not merely to memorize information but to understand, apply, and relate their knowledge to various life contexts.

Deep learning encourages students to actively engage in the learning process through concept exploration, reflection, and the connection of learning materials with real-world phenomena ([Biggs, 2011](#)). Teachers therefore play a crucial role as facilitators who guide students to construct meaning from learning activities. One key strategy for achieving deep

learning is contextual learning, in which concepts are linked to authentic problems, projects, or experiences relevant to students' lives ([Darling-Hammond et al., 2020](#)).

Meaningful learning further requires instructional approaches such as inquiry-based learning, discussion, experimentation, and case-based activities that support students' analytical and critical thinking ([Prince & Felder, 2006](#)). The use of interactive media and digital technology can also enhance engagement and learning quality ([Toyama et al., 2012](#)). In terms of assessment, deep learning emphasizes students' thinking processes through project-based tasks, reflection, and exploratory assignments rather than solely focusing on final outcomes ([Dávila Rubio, 2017](#)).

However, in practice, according to interview results with some teachers, many schools, including SMP Negeri 12 and SMP Negeri 13 Yogyakarta, still find meaningful and joyful learning relatively new for most teachers. Previous studies report that many teachers experience difficulties in understanding the Merdeka Curriculum and translating its principles into concrete classroom practices ([Labib et al., 2024](#); [Sephawardani & Bektiningsih, 2023](#)). Without adequate professional development, the implementation of the Merdeka Curriculum risks remaining at a conceptual level rather than becoming an instructional reality ([Sundari, 2024](#)). This condition indicates a gap between curriculum intentions and teachers' instructional capacity, particularly in designing learning activities and teaching materials that embody deep learning principles. Teachers often lack practical models, examples, and mentoring support to develop contextually relevant and pedagogically aligned learning modules.

Therefore, this community service program was implemented to address this gap by providing targeted training and professional assistance for teachers in developing deep learning-based teaching modules at SMP Negeri 12 Yogyakarta. The novelty of this program lies in its integration of conceptual training with guided, iterative development of classroom-ready learning materials, supported by sustained mentoring rather than one-off workshops.

This program aims to enhance teachers' understanding and practical skills in implementing meaningful and joyful learning, as well as to produce teaching materials aligned with the Merdeka Curriculum. Its significance lies in offering a replicable model of school-based professional development that supports sustainable pedagogical change and improves the quality of learning by fostering students' critical thinking, collaboration, and real-world application.

METHODS

The implementation of this community service program was focused on addressing the challenges faced by the partner institutions, SMP Negeri 12 and SMP Negeri 13 Yogyakarta, particularly in applying meaningful and joyful learning based on deep learning principles. The problem-solving process was carried out through a practical approach involving direct interventions aligned with the needs identified in the school. The implementation was conducted from July to August 2025, with a total duration of six months. Various evaluation instruments were also utilized to measure the impact of the program on participants' understanding, satisfaction, and product outcomes. Data analysis was performed using descriptive quantitative techniques.

This community service program employed the Participatory Action Research (PAR) approach, which emphasizes collaborative problem identification, joint planning, collective action, and continuous reflection involving both the service team and partner teachers. The selection of PAR was based on the need for active teacher participation in analyzing problems, implementing training, and developing deep learning-based teaching modules. The methods employed in this program included lectures and one-on-one mentoring

sessions. The entire series of activities: covering preparation, implementation, evaluation, and reporting, was conducted over a three-month period. The use of multiple participatory methods was intended to ensure that solutions were jointly designed and directly applicable to the partner's classroom context. The overall workflow of the program is illustrated in the following Figure 1.

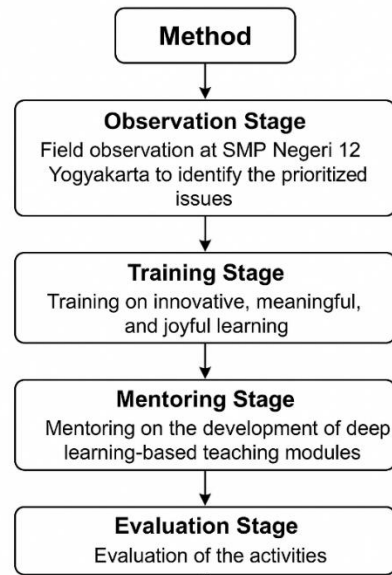


Figure 1 Workflow of the community service program

The participants of this program were 49 teachers from two public junior high schools in Yogyakarta, namely SMP Negeri 12 and SMP Negeri 13 Yogyakarta. The participants represented various subject areas, including mathematics, science, social studies, languages, and vocational-related subjects. Participation was voluntary and supported by the school principals.

The community service program involved 49 teachers from two partner schools and was implemented through four main stages: observation, training, mentoring, and evaluation.

1. Observation Stage

Field observations were conducted by the service team at SMP Negeri 12 Yogyakarta in March 2025 to identify problems faced by teachers in implementing meaningful and joyful learning. Priority issues were then determined through intensive communication with the partner institution, serving as the basis for developing the activity plan.

2. Training Stage

The training sessions focused on innovative, meaningful, and joyful learning, as well as the introduction of the deep learning approach in classroom instruction. Qualified resource persons delivered conceptual and practical materials, including examples of best practices, to equip teachers with both theoretical understanding and applicable skills.

3. Mentoring Stage

Mentoring was conducted online to assist teachers in developing deep learning-based teaching modules. Each participating teacher designed a learning module aligned with their subject area. The final product of this stage was a set of ready-to-use teaching modules for implementation in the following semester.

4. Evaluation Stage

Evaluation was carried out to assess the effectiveness of the activities, identify challenges encountered during implementation, and formulate recommendations for improvement. This stage also aimed to ensure the sustainability of meaningful and joyful learning practices within the school.

The evaluation of the program employed three complementary approaches: learning evaluation, participant reaction evaluation, and product evaluation.

1. Learning Evaluation was conducted using a short quiz to measure teachers' understanding of deep learning concepts and their application in the Merdeka Curriculum after the training. The quiz consisted of 10 multiple-choice and short-answer items covering key indicators, including: (1) understanding of deep learning principles, (2) ability to distinguish deep learning from surface learning, (3) knowledge of contextual and student-centered instructional strategies, and (4) alignment between learning objectives, activities, and assessment. Each item was scored on a scale of 0–1, resulting in a total possible score range of 0–10. Content validity of the quiz was established through expert judgment involving two curriculum and pedagogy experts, while internal consistency reliability was examined using Cronbach's alpha.
2. Participant Reaction Evaluation was carried out using a perceived value and satisfaction questionnaire to capture teachers' perceptions of the training. The questionnaire consisted of 15 Likert-scale items (1 = strongly disagree to 5 = strongly agree) covering four dimensions: (1) relevance of the training content, (2) clarity and quality of delivery, (3) usefulness for classroom practice, and (4) motivation and engagement. The questionnaire items were adapted from established training evaluation instruments and were reviewed by experts for content validity. Reliability was assessed using Cronbach's alpha coefficient.
3. Product Evaluation, focused on assessing the quality of the teaching modules developed by the teachers. A rubric-based assessment was used, consisting of criteria aligned with meaningful and joyful learning principles, including: (1) clarity of learning objectives, (2) integration of real-world or contextual problems, (3) promotion of higher-order thinking and reflection, (4) student engagement and activity design, and (5) alignment between objectives, activities, and assessment. Each criterion was rated on a 4-point scale (1 = not evident to 4 = highly evident). The rubric was validated through expert review and pilot scoring of a sample of modules to refine the descriptors and ensure scoring consistency.

The evaluation data were analysed descriptively using means, standard deviations, and percentage distributions to summarize teachers' learning outcomes, satisfaction levels, and product quality. The results were presented in tables and narrative summaries to highlight overall trends and achievement of program indicators. The indicators of success for this program were: (1) a high level of teacher satisfaction with the training and (2) the production of classroom-ready teaching modules that embodied deep learning and meaningful learning principles.

RESULTS AND DISCUSSION

Teachers' Understanding of Deep Learning

The *Meaningful and Joyful Learning Training Program* at SMP Negeri 12 Yogyakarta was successfully and smoothly implemented. Teachers' understanding of deep learning was assessed using a post-training quiz with a maximum score of 10. The results show that

participants achieved a high level of conceptual understanding, with a mean score of 8.1, indicating that the training effectively improved teachers' knowledge of deep learning principles and their application within the Merdeka Curriculum.

The distribution of scores further suggests that most teachers reached at least a good level of mastery, with only a small proportion requiring additional support in distinguishing deep learning from traditional, content-oriented instructional approaches (Table 1).

Table 1 Summary of evaluation results of the training and mentoring program

Instrument / Aspect	N	Scale	Mean	SD	Min – Max	Category
Learning Evaluation (Quiz)	49	0 - 10	8.10	0.85	6 -10	Good
Participant Satisfaction	49	1 - 4	3.66	0.47	3.0 - 4.0	
– Usefulness	49	1 - 4	3.66	0.41	3.0 - 4.0	Very Satisfied
– Process	49	1 - 4	3.68	0.44	3.0 - 4.0	Very Satisfied
– Comfort/ Motivation	49	1 - 4	3.74	0.38	3.0 - 4.0	Very Satisfied
Product Quality (Rubric)						
– Objectives clarity	49	1 - 4	3.45	0.51	2.0 - 4.0	Good
–Contextuality	49	1 - 4	3.60	0.48	2.0 - 4.0	Very Good
– HOTs & reflection	49	1 - 4	3.38	0.56	2.0 - 4.0	Good
– Assessment alignment	49	1 - 4	3.10	0.62	2.0 - 4.0	Fair
– Coherence	49	1 - 4	3.50	0.49	2.0 - 4.0	Good

Teachers' Perceptions of the Training Program

Participant satisfaction was measured using a perceived value questionnaire covering three dimensions: usefulness, implementation process, and comfort/motivation. The results indicate a very high level of satisfaction across all dimensions, with mean ratings falling within the “Very Satisfied” category (Figure 2). Teachers perceived the program as relevant to their instructional needs, practically useful for classroom implementation, and motivating for professional growth.

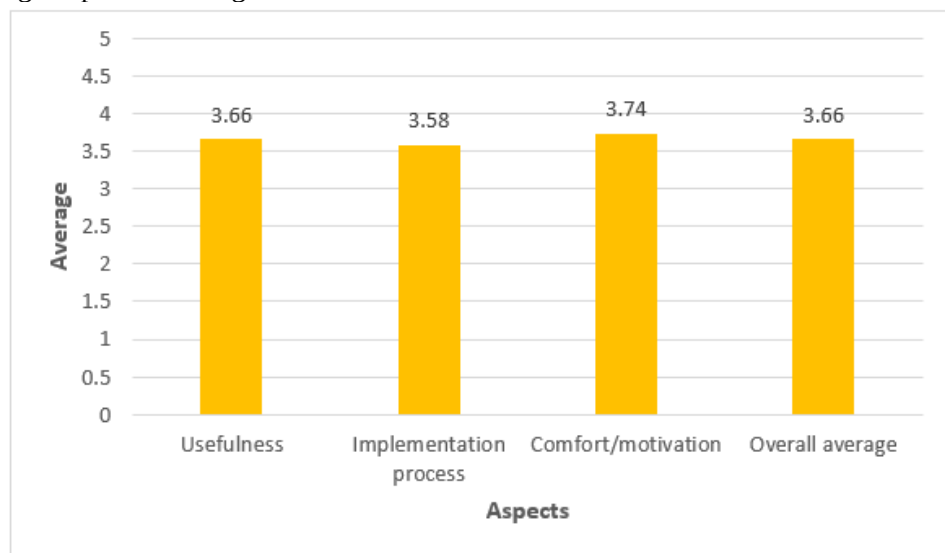


Figure 2 User satisfaction of the community service program

Qualitative feedback from open-ended questionnaire responses further supports these findings. Teachers highlighted the practical nature of the training, the clarity of examples, and the relevance of the materials to their classroom context. Several participants emphasized that the training helped them better understand how to design learning activities that promote student engagement, reflection, and real-world application.

Quality of the Developed Teaching Modules

The quality of the teaching modules developed by the teachers was evaluated using a rubric focusing on learning outcomes clarity, alignment with the Merdeka Curriculum, integration of deep learning principles, meaningfulness of learning activities, clarity of assessment, and coherence of module components.

The results show that most modules met the expected quality criteria and demonstrated strong integration of deep learning strategies, particularly in the use of contextual problems, collaborative activities, and reflective tasks (Table 2). However, some modules showed weaknesses in the specification of assessment criteria and in the detailed articulation of the Learning Objectives Flow (ATP), indicating areas where further support is needed.

Participants' Reflections and Identified Challenges

Despite the overall positive outcomes, participants identified several challenges in implementing deep learning, particularly in designing creative and enjoyable learning activities for students with diverse learning needs, including students with special educational needs. Teachers also expressed the need for continued mentoring and follow-up workshops with a stronger emphasis on hands-on practice and peer feedback. These reflections highlight that while the program was effective in enhancing understanding and initial implementation capacity, sustained professional development remains essential to support deeper pedagogical change.

The findings of this community service program directly address the initial problem identified in this study, namely teachers' difficulties in translating the principles of the Merdeka Curriculum and deep learning into concrete classroom practices. The results show that the in-on-in training and mentoring model was effective in strengthening teachers' pedagogical capacity and understanding of deep learning-based instruction, as reflected in their improved conceptual mastery, positive perceptions, and ability to produce classroom-ready teaching modules. This suggests that structured and sustained professional development can help bridge the gap between curriculum policy and instructional practice. The high level of participant satisfaction indicates that interactive, contextual, and practice-oriented learning approaches meet teachers' professional development needs in implementing the Merdeka Curriculum. This finding aligns with [\(Guskey, 2002\)](#), who emphasized that effective professional development should lead to meaningful changes in teachers' knowledge, attitudes, and classroom practices. Similarly, recent studies in Indonesia have shown that sustained training models contribute significantly to teachers' readiness to implement the Merdeka Curriculum [\(Nurhairunnisah et al., 2025; Zulela, 2025\)](#).

Moreover, the implementation of *deep learning* principles during the training and mentoring process enhanced teachers' capacity to design more meaningful and joyful learning experiences. Deep learning encourages learners to connect knowledge, reflect critically, and apply understanding in authentic contexts [\(Fullan & Langworthy, 2014\)](#). When teachers internalize these principles, classroom learning becomes more reflective, engaging, and purposeful-key characteristics of the *Merdeka Curriculum*. Training that is closely connected to teachers' classroom contexts has been shown to improve instructional relevance and student-centeredness [\(Tang, 2023\)](#).

The combination of conceptual training and structured mentoring also proved crucial in producing tangible instructional products. This supports the argument of Desimone and [\(Desimone & Garet, 2015\)](#) that continuous, practice-based professional learning has a greater impact than isolated workshops. Through the in-on-in model, teachers benefited

from ongoing feedback and peer collaboration, which are essential for sustaining instructional improvement ([Darling-Hammond et al., 2020](#); [Stanulis & Floden, 2009](#)).

The evaluation results further indicate that teachers were able to integrate core elements of deep learning—reflection, collaboration, problem-solving, and interdisciplinary connections—into their teaching plans. This finding aligns with [Fullan & Langworthy \(2014\)](#) and [Grabinger & Dunlap \(2002\)](#), who argued that such pedagogical designs promote higher-order thinking and student engagement.

Nevertheless, several limitations of this study should be acknowledged. First, the program involved a relatively small number of teachers from only two schools, which limits the generalizability of the findings. Second, the evaluation relied mainly on self-reported perceptions and short-term outcomes, without direct observation of classroom implementation or measurement of student learning outcomes. Third, the study did not include a comparison or control group, making it difficult to attribute the observed changes solely to the program. These limitations suggest that the results should be interpreted cautiously and that further research is needed to examine the long-term and broader impacts of similar programs.

Despite these limitations, this study offers important practical and theoretical implications. Practically, it demonstrates that school-based, sustained professional development combining training and mentoring can effectively support teachers in operationalizing deep learning within the Merdeka Curriculum. This model can inform future community service and teacher development programs seeking to promote meaningful and joyful learning. Theoretically, the findings contribute to the literature on professional learning by highlighting the importance of integrating conceptual understanding with guided practice and product-oriented mentoring. At the policy level, the study suggests that curriculum reform efforts should be accompanied by structured support systems for teachers to ensure that policy intentions are realized in classroom practice.

In summary, this program provides evidence that targeted and sustained professional development can help teachers overcome challenges in implementing deep learning and support the transformation of teaching and learning envisioned by the Merdeka Curriculum. With further refinement and broader implementation, this model has the potential to contribute to sustainable improvements in educational quality in Indonesia.

CONCLUSION

Based on the results of this community service program at SMP Negeri 12 and SMP Negeri 13 Yogyakarta, it can be concluded that the activities have significantly improved teachers' understanding and practical ability to implement deep learning—based, meaningful, and joyful learning in alignment with the Merdeka Curriculum. Through training and mentoring sessions, teachers successfully developed classroom-ready teaching modules that reflect strong deep learning principles, indicating effective transfer of knowledge into classroom practice. The very high level of participant satisfaction further confirms that the program was relevant, beneficial, and efficiently implemented. Despite its positive outcomes, the program encountered several challenges, including differences in teachers' initial pedagogical competence, limited time for classroom practice, and difficulties in integrating deep learning across subject areas. To address these issues, follow-up actions such as differentiated mentoring, extended classroom-based assistance, and the provision of subject-specific exemplar lesson designs are recommended.

Overall, this program has strengthened teacher competence and supported efforts toward continuous improvement in learning quality at the school. As a follow-up, sustained mentoring and classroom monitoring are recommended to ensure the long-term

implementation and refinement of the developed modules. Moreover, future initiatives may broaden collaboration with other schools to disseminate best practices and further expand the positive impact on enhancing teacher competence in implementing meaningful and joyful learning as envisioned in the *Merdeka Curriculum*.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: AF., TF.; Methodology: SM.; Formal analysis: JS.; Investigation: NNF.; Data curation: SM.; Writing – original draft: TF, AF.; Writing – review & editing: TF, JS.; Supervision: SM.; Project administration: NNF.

AI DISCLOSURE STATEMENT

The author used Gemini 3 during the preparation of this work for helping translation the manuscript. After using the tool/service, the author thoroughly reviewed and edited the content as needed and takes full responsibility for the content of the publication. The authors declare that this research was prepared, researched, written, and edited without the aid of artificial intelligence (AI) techniques.

ACKNOWLEDGMENTS

This community service program was financially supported by the Faculty of Engineering, Universitas Negeri Yogyakarta (FT UNY) through the DIPA FT UNY funding scheme. The authors would like to express their sincere gratitude to the Dean and leadership of FT UNY for the trust and support provided throughout the implementation of this program. Appreciation is also extended to the principal, teachers, and staff of SMP Negeri 12 Yogyakarta and SMP Negeri 13 Yogyakarta for their active participation, cooperation, and commitment, which greatly contributed to the success of this community engagement activity.

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