

Workshop On Integration of Digital Technology In Deep Learning Models For Elementary School Teachers

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Abstrak

The workshop aims to strengthen the competence of elementary school teacher in implementing in-depth learning through the integration of digital technology such as the Word wall platform, LearningApps and YouTube. This activity is a Community Service of Elementary School Teacher Education, Universitas Pelita Bangsa which involves elementary schools in the Wanajaya Cluster, Cibitung, Bekasi. Specifically, 27 teachers and 1 principal of SDN Wanajaya 3, and 4 students were involved in the training class on Integrating Digital Technology in Deep Learning Models. The workshop was carried out in three stages, the preparation stage where the community service team prepared the workshop offline by inviting several schools in Wanajaya to collaborate with the MoU and IA Cooperation. In the implementation stage, workshop participants participated in theoretical presentations and guided practice in using digital platforms to explore in-depth learning interactively, then evaluation was carried out via GForm. The evaluation results showed that 81% assessed that the presenter mastered the material very well, 82% assessed that the material was easy to understand, 83% assessed that the presenter actively involved the participants very well, 86% assessed that the material explanation strategy was very effective, and 88% assessed that the presenter stimulated participant discussion very well. The evaluation results showed that 81% assessed that the presenter mastered the material very well, 82% assessed that the material was easy to understand, 83% assessed that the presenter actively involved the participants very well, 86% assessed that the material explanation strategy was very effective, and 88% assessed that the presenter stimulated participant discussion very well. 86% of presenters were considered very good at managing time, 81% of presenters were considered very effective in using technology. 86% rated the speaker's attitude and interaction with participants as very good, 82% rated the material as relevant to the needs of elementary school teachers, 86% of participants were assessed as being able to provide real examples of classroom learning, 87% considered the workshop to be very useful, solution-oriented and innovative, 100% considered the in-depth learning workshop easy to follow and 55% of teachers found it easy to use YouTube, 35,7% Wordwall, 11% LearningApps, dan 8,5% Mentimeter. Thus, this in-depth learning workshop integrated with digital technology effectively improves teacher competency.

Keywords: Workshop; Technology; Deep Learning; Elementary School Teachers

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Lokakarya Integrasi Teknologi Digital Dalam Model-Model Pembelajaran Mendalam Untuk Guru Sekolah Dasar

Abstract

This Workshop bertujuan menguatkan kompetensi Guru SD dalam implementasi pembelajaran mendalam melalui integrasi teknologi digital seperti platform Wordwall, LearningApps dan

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YouTube. Kegiatan ini merupakan Pengabdian Masyarakat PGSD Universitas Pelita Bangsa yang melibatkan SD di Gugus Wanajaya, Cibitung, Bekasi. Secara khusus yang mengikuti kelas pelatihan Integrasi Teknologi Digital dalam Model-model Pembelajaran Mendalam sebanyak 27 Guru dan 1 Kepala Sekolah SDN Wanajaya 3, dan 4 Mahasiswa yang dilibatkan. Workshop dilaksanakan melalui tiga tahapan, tahap persiapan tim pengabdian mempersiapkan workshop secara luring dengan mengajak kerjasama beberapa sekolah di Wanajaya dengan MoU dan IA Kerjasama. Tahap implementasi, peserta workshop mengikuti pemaparan teori dan praktik terbimbing dalam penggunaan platform digital untuk mengeksplorasi pembelajaran mendalam secara interaktif, kemudian pada evaluasi dilaksanakan via GForm. Hasil evaluasi 81% menilai pemateri menguasai materi sangat baik, 82% menilai materi mudah dipahami, 83% pemateri melibatkan secara aktif peserta sangat baik, 86% strategi penjelasan materi sangat efektif, 88% pemateri menstimulus diskusi peserta sangat baik. 86% pemateri dinilai sangat baik mengelola waktu, 81% Pemateri dinilai sangat efektif menggunakan teknologi. 86% menilai sikap dan interaksi pemateri terhadap peserta sangat baik, 82% menilai materi relevan dengan kebutuhan guru SD, 86% peserta dinilai mampu memberikan contoh nyata pembelajaran di kelas, 87% menilai Workshop yang dilaksanakan sangat bermanfaat, solutif dan inovatif, 100% menilai Workshop Pembelajaran Mendalam Mudah diikuti dan 55% Guru merasa mudah menggunakan YouTube, 35,7% Wordwall, 11% LearningApps, dan 8,5% Mentimeter. Dengan demikian workshop pembelajaran mendalam terintegrasi teknologi digital ini efektif meningkatkan kompetensi guru.

Kata kunci: Workshop; Teknologi; Pembelajaran Mendalam; Guru Sekolah Dasar

Introduction

The development of 21st-century education demands a transformation of learning that is not only oriented towards mastering content, but also towards developing higher-order thinking skills such as critical, creative, collaborative, and communicative thinking. The deep learning approach is a strategic solution because it emphasizes the process of constructing meaningful knowledge through active student involvement. The integration of digital technology in learning has been proven to strengthen the implementation of deep learning by providing an interactive, adaptive, and student-centered learning environment (Fullan, Quinn, & McEachen, 2017; Hattie, 2012). In addition, research in international journals shows that the use of digital technology can significantly improve the quality of learning and student engagement when used pedagogically (Koehler & Mishra, 2009).

However, the implementation of digital technology integration in in-depth learning models at the elementary school level still faces various challenges. International studies show that many teachers experience difficulties in integrating technology effectively due to limited digital competencies, lack of ongoing training, and minimal institutional support (Ertmer & Ottenbreit-Leftwich, 2010). In addition, teacher confidence in using technology and the suitability between technology and pedagogy are also major obstacles in learning practices (van Tonder et al., 2021). This indicates that increasing teacher capacity is an urgent need to face the demands of 21st century learning.

This condition is also reflected in one of the elementary schools in Cibitung District, Wanajaya Village, where most of the teachers still apply conventional teacher-centered learning. The use of digital technology in learning is still limited to simple presentation media, such as PowerPoint slides, and has not yet led to the use of interactive learning platforms or in-depth learning models such as project-based learning and inquiry learning. The use of digital technology in learning is still limited to simple presentation media, such as PowerPoint slides, and has not yet led to the use of interactive learning platforms or in-depth learning models such as project-based learning and inquiry learning. The impact is that student involvement in the learning process is relatively low and high-level thinking skills have not developed optimally. In fact, research shows that appropriate technology integration in project-based and inquiry-based learning can improve students' conceptual understanding and 21st-century skills (Voogt, Erstad, Dede, & Mishra, 2013).

Several community service activities have previously been carried out to improve teachers' competence in using technology, such as training in the use of learning applications and digital media. However, these activities are generally still technical in nature and have not fully integrated the pedagogical aspects of in-depth learning. Research shows that training that only focuses on technological aspects without linking it to pedagogical strategies tends to be less effective in improving the quality of learning (Koehler & Mishra, 2009). Therefore, a training approach is needed that integrates technology, pedagogy, and content holistically.

Based on this analysis, this community service activity offers novelty in the form of an integrative workshop that combines the use of digital technology with in-depth learning models in a systematic and contextual manner. This activity is designed to provide teachers with hands-on experience in designing and implementing technology-based learning that supports in-depth learning. The aim of this activity is to improve the pedagogical and digital competencies of elementary school teachers, improve the quality of student-centered learning, and encourage the creation of sustainable learning innovations. Thus, this activity is expected to be able to answer partners' problems while contributing to improving the quality of basic education in the digital era.

Method

The Digital Technology Integration Workshop in Deep Learning Models for Elementary School Teachers was initiated through the Community Service activities of Elementary School Teacher Education Lecturers at Pelita Bangsa University in collaboration with the Elementary School Teachers Working Group (KKG SD) in Wanajaya. This workshop is held by implementing various strategies, such as lectures, demonstrations, and direct practice by teachers. This approach is designed to ensure that Elementary School teachers not only understand the concept of deep learning, but also have the opportunity to integrate digital technologies in deep learning models. The success indicators of this activity are determined based on teachers' skills in integrating digital technology in in-depth learning models. The main objective of this community service program is to improve the skills of elementary school teachers in designing and integrating digital technology into Deep learning models. With this workshop, it is hoped that teachers will be more confident in utilizing various digital platforms to create more engaging and interactive learning experiences for students through in-depth learning.

The implementation of this workshop consists of three main stages, (1) The preparation stage, which includes a series of initial activities before implementing the core workshop. This stage begins with coordination with the target school's KKG, sending invitations to teachers, MoU, MoA and also IA Cooperation, as well as coordination with the school to ensure optimal participation. In addition, students are also invited to participate in this activity so they can contribute to the workshop. (2) The core stage of the workshop, namely the delivery of material and practical sessions. In this stage, participants were introduced to two digital learning platforms, namely LearningApps, Wordwall, Wheel of Names, YouTube and Padlet, which can be used as more interesting and interactive learning evaluation tools for students without the need to install applications because they only use the browser available on their respective smartphones. The resource person provided an explanation of the features, advantages, and disadvantages of each platform so that teachers can choose and adjust the use of digital platforms according to the learning needs of

students in the classroom. After the presentation of the material, participants were given the opportunity to directly practice creating digital evaluations using the two platforms. This session provides an opportunity for participants to explore the various features available, try applying them in real-life learning scenarios, and discuss any challenges or obstacles they may encounter. A question-and-answer session was also held to provide solutions to various obstacles encountered by participants during the practice. (3) Evaluation and follow-up stage, at this stage participants are asked to fill out an online questionnaire via Google Form to assess the effectiveness of the workshop implementation based on their experiences during the activity.

The indicators of success of this workshop include: Mastery of Material, Ability to Explain, Participant Involvement, Learning Strategy, Interactivity, Time Allocation, Media and Technology, Attitude of the Resource Person, Relevance of Material, Real Implementation. Feedback provided by participants is very important to understand the extent to which this workshop provides benefits and aspects that still need to be improved in the future. In addition, participants who have attended the workshop until completion will be given a certificate as a form of appreciation for their participation. After the evaluation stage, the results of the collected questionnaires were analyzed to determine the impact of this activity. The organizing team then compiled a comprehensive activity report and began writing community service articles that would be published based on the data collected from the participant evaluation results. The sustainability of this community service program is carried out by providing periodic in-depth learning support at target schools.

Through this series of stages, the Workshop on Integrating Digital Technology in Deep Learning Models for Elementary School Teachers not only provides new insights for teachers in optimizing technology in learning, but also encourages them to be more active in creating innovations in the teaching process. With this activity, it is hoped that digital literacy among educators will increase, so that the quality of learning in elementary schools can further develop in accordance with the demands of the digital era.

Result and Discussion

The Technology Integration Workshop in the Deep Learning Model was held on April 18, 2026 offline at SDN Wanajaya 5. This activity was attended by 1 Principal, 27 Teachers from SDN Wanajaya 3 while a total of 84 Teachers from various Public Elementary Schools in the Wanajaya Cluster participated in a series of workshops in different classes and 4 Students from Pelita Bangsa University.



Figure 1. Group Photo of Lecturers of the Elementary School Teacher Education Program at Pelita Bangsa University and Teachers from the Wanajaya Cluster

The following is a recapitulation of the distribution of participant responses, which is shown in the following table:

Table 1. Recapitulation of The Distribution of Participant Responses

No	Aspect	Participant Responses			
		Excellent	Good	Fair	Poor
1	To what extent does the presenter master the material presented in the workshop?	81%	17,9%	0%	1,2%
2	How is the speaker's ability to explain the material so that it is easy to understand?	82%	16,7%	0%	1,2%
3	To what extent was the presenter able to actively involve participants during the workshop?	83%	15,5%	0%	1,2%
4	What is the quality of the learning methods and strategies used by the presenter?	86%	13,1%	0%	1,2%
5	To what extent does the presenter give participants the opportunity to ask questions and discuss?	88%	10,7%	0%	1,2%
6	How is the presenter's ability to manage time during the delivery of the material?	86%	13.1%	0%	1,2%
7	To what extent do the presenters use learning media or technology effectively?	81%	17,9%	0%	1,2%
8	How was the speaker's attitude and interaction with the participants during the workshop?	86%	13,1%	0%	1,2%
9	To what extent is the material presented relevant to the participants' needs as elementary school teachers?	82%	16,7%	0%	1,2%
10	How is the speaker's ability to provide real examples of implementation in classroom learning?	85%	14,3%	0%	1,2%
Average		84%	14.9%	0%	1,2%

Based on the data in the recapitulation of participant responses, it can be seen that 84% of respondents considered the implementation of community service in the form of in-depth learning workshops to be very good, reviewed from the aspects of material mastery, participant involvement, strategy, time, media, interactivity, relevance and real examples.

The platforms introduced in this service are Wordwall, YouTube in the form of animated videos using the Videoscribe application.



Figure 2. Introduction to Animated Videos with Videoscribe

One of the next platforms demonstrated to teachers was Wordwall, a platform with simple yet interactive games for students across all levels and subjects in elementary school. The wordwall platform will help teachers create more interactive, in-depth learning. Wordwall, allows teachers to easily create engaging learning materials, including multiple-choice questions, word-matching exercises, and image- and text-based games (Yuliyanto et al., 2026). Wordwalls can increase student engagement in learning, allowing them to practice the concepts taught in a fun and interactive way (Yuliyanto et al., 2025).

Teachers can design digital learning activities or interactive games digitally via students' mobile phones, such as adding text, images, numbers, and even simple mathematical formulas via wordwalls. Interactive Deep learning by integrating digital technology will encourage students' interest and motivation and even understanding in learning. In-depth learning with a fun design will make participants understand the topics being studied more meaningfully, interactive learning will also make students more interested and able to explore their understanding (Silvie, 2023). The use of digital platforms can transform conventional learning into something more modern and digital. The study stated that the use of integrated deep learning approaches and Wordwall media is effective in creating meaningful, contextual, and student-centered Pancasila Education learning, and contributes to improving the quality of learning in elementary schools (Firdaus, 2026). The following shows the creation of interactive and fun in-depth learning activities as seen in the following image with a wordwall:



Figure 3. Teacher Success in Creating Digital Learning Activities in Deep Learning

Based on Figure 2, it can be seen that the teacher looks enthusiastic in practicing using the digital wordwall platform with his friends, even though there are also some who find it difficult and are seen helping each other. It is hoped that teachers' enthusiasm in using digital platforms will encourage their motivation in designing technology-based in-depth learning and encourage students' motivation to learn as well. With enthusiasm, teachers will make students interested and assess that the material provided has important meaning (Pohan, Yulia, & Husna, 2021).

In order to obtain participant responses to the implementation of the workshop regarding the use of digital platforms in in-depth learning models. The presenter distributed

a questionnaire via Google Forms when the material delivery session was finished and the question-and-answer session was over. This questionnaire contains questions that focus on expecting participant responses regarding the implementation of the Technology Integration Workshop in Deep Learning Models which is intended for school principals, teachers, and students who are present.

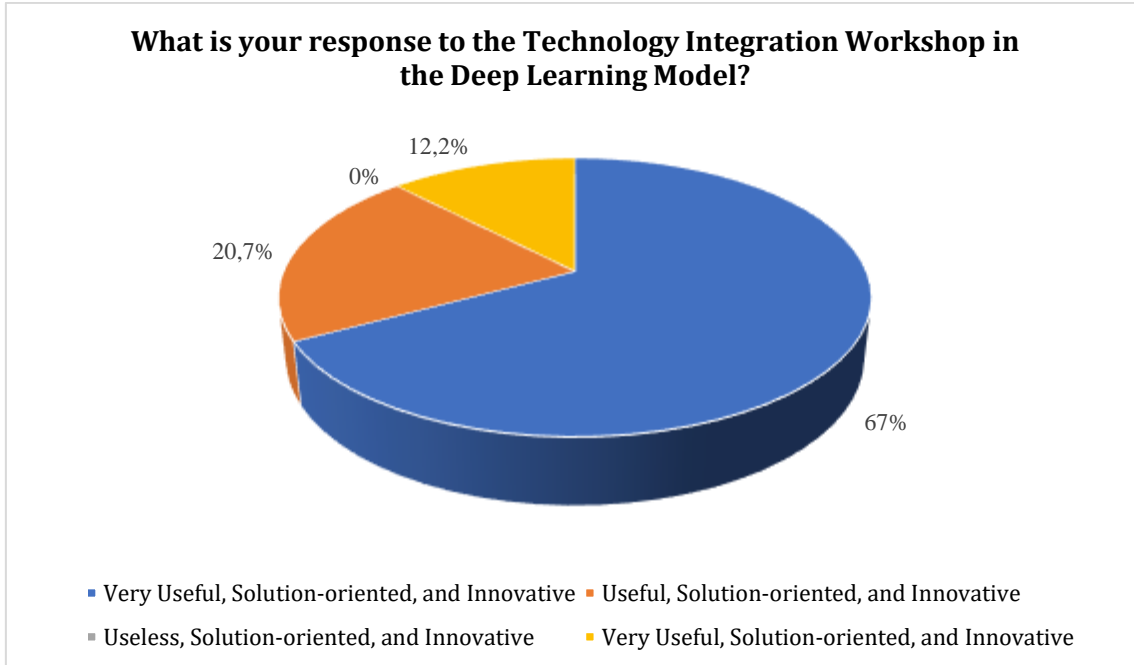


Figure 4. Participant Responses regarding the Technology Integration Workshop in

Deep Learning Based on the diagram in Figure 3, it can be concluded that the Technology Integration Workshop in Deep Learning activities showed a positive response. 67% of respondents rated the workshop as Very Beneficial, Solution-Oriented, and Innovative, and 20% rated it as Beneficial, Solution-Oriented, and Innovative. These absolute percentages indicate that participants felt a direct impact from the workshop. This is because the topics presented in theory and practice are relevant to the needs of integrated 21st century learning by utilizing mobile phones as devices owned by students and teachers. Learning with theory and practice is able to change learning to be more active and stimulate students to be able to think higher order (Hidayat & Sumadi, 2018). Thus, the Technology Integration in Deep Learning Workshop provides a stimulus for theoretical and practical skills that educators and prospective educators can put into practice.

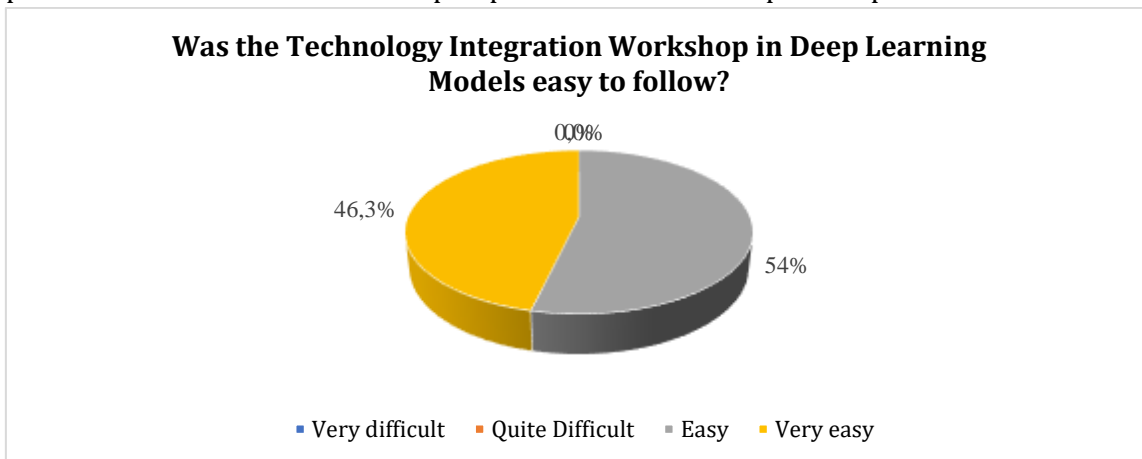


Figure 5. Responses to the Ease of Technology Integration in Deep Learning Workshop

Based on the diagram above, it can be seen that the majority of participants in the Technology Integration Workshop in Deep Learning felt that this activity was very easy to follow. It was seen that 54% found it easy and 46.3% found it very easy. Thus, the majority of all participants considered that this community service was presented in a simple, coherent manner, and included guided practice, making it very meaningful for the participants. An easy-to-understand workshop will be able to improve participants' ability to implement the material presented (Ridwan, Qur'ani, Hamsar, Nurhijrah, & Suryana, 2023).

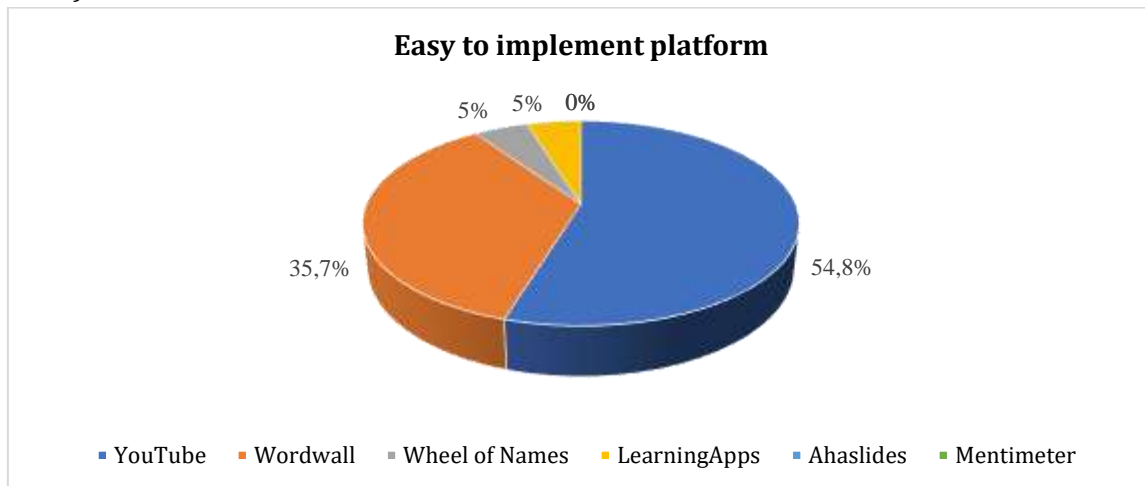


Figure 6. Easiest Platform According to Participants

Furthermore, based on the responses of 54.8% of YouTube participants, they considered the platform the easiest to implement, followed by wordwall at 35.7%. So, it can be concluded, YouTube is considered an easier and simpler platform to use because it only involves sharing the video link to students on WhatsApp. The ease of accessing YouTube and the availability of interesting audiovisuals are the main factors that make YouTube considered easy to implement in the classroom.

From these results, it can be concluded that in the context of digital learning, participants are more likely to choose the YouTube platform which has a simple and easy to access interface. Apart from that, Wordwall is the next choice, namely 35.7%, which can be caused by the various features, interactive, easy to access because there is no need to download a special application and can be accessed via mobile phone. Based on the student interview sheets, it is known that many students consider animated videos as entertainment, as well as a learning medium. YouTube can increase children's interest in learning and make it easier for them to understand the material (Muliati, Ihlas, & Muslim, 2026). This is most likely due to students' familiarity with digital content such as YouTube (Maulana, Yuliyanto, & Amanarrakhmah, 2025). Wordwalls that are practiced by teachers and when wordwalls are implemented in class will stimulate in-depth learning that is more interactive and meaningful for students and explore their creative thinking skills through digital learning activities in each of its features such as click, drag, open, matching pairs, etc. The use of word walls can train students' creativity, this is because they play while learning with their friends, either individually or in groups. Students' creativity is required in working on the games presented in the word wall which have previously been designed by the teacher (Mumtaza, Oktaviani, & Miftah, 2025).

83 jawaban

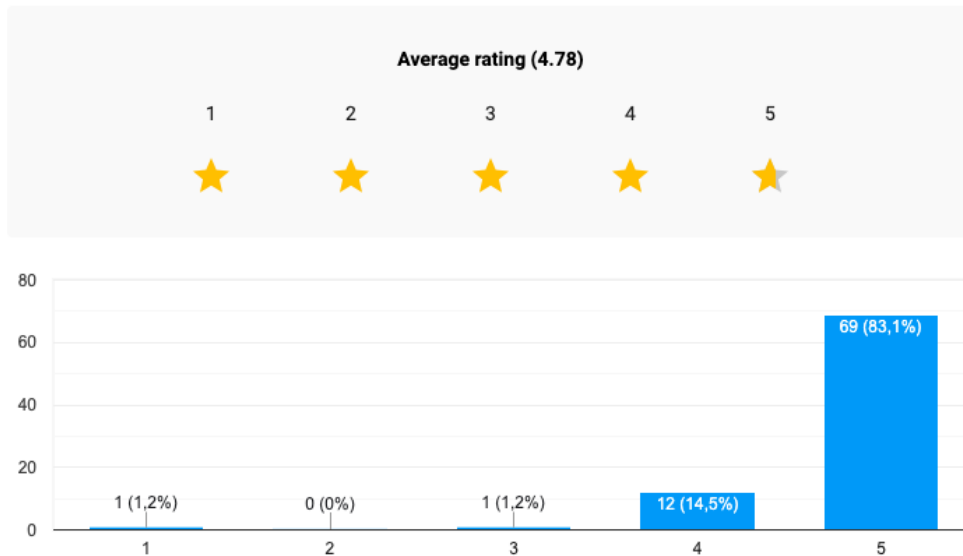


Figure 7. Rating of Technology Integration Workshop in Deep Learning Models

The rating results show that the Technology Integration Workshop in Deep Learning Models received a high rating of 4.78 out of 5.00. It can be concluded that the teachers who attended the workshop felt very satisfied with the Technology Integration Workshop in Deep Learning Models, which was reviewed from the aspects of material mastery, participant involvement, strategy, time, media, interactivity, relevance and real examples. However, there were participants who gave a score of 4, possibly because the implementation was carried out close to midday so that there were parts of the delivery that were not optimal due to fatigue or hunger, or the agenda during the day and other factors that disturbed concentration. Feeling tired can make it difficult for someone to concentrate (Nurlela, 2023). Apart from that, physiologically it also requires readiness from participants and resource persons. Aspects of physical health, neurological conditions, and gender are included in physiological factors. For example, feeling tired can hinder children from participating in learning activities (Putri, Adrias, & Zulkarnaini, 2025).



Figure 8. Group Photo of Teachers and Resource Persons at the Technology Integration Workshop in Deep Learning Models

Overall, the technology integration workshop in Deep learning encouraged teachers to create interactive Deep learning and explore students' creativity through the use of simple digital platforms.

Conclusion

The Technology Integration Workshop in Deep Learning Models held offline on April 18, 2026 at SDN Wanajaya 5 was assessed to be able to encourage the competency of Elementary School teachers in the Wanajaya Cluster, namely in implementing interactive deep learning. This workshop is designed to introduce the Wordwall platform and YouTube to be a bridge in implementing Deep learning to be more interactive and explore the creativity of teachers and students. Through this workshop, 27 teachers from various Wanajaya Elementary Schools, 3 out of 84 participants who attended the Wanajaya Cluster, received direct learning in the use of several platforms for in-depth learning. They are given theoretical guidance and direct guided practice. Thus, this workshop has a positive impact in encouraging teachers' competence in integrating digital technology in in-depth learning models. Through this workshop, teachers can feel more capable of using digital platforms to design more interactive, in-depth learning for students. The success of this workshop is the first step in promoting more massive digital technology in the elementary school learning system, so that it can encourage a more interactive and innovative learning environment and be in line with learning in the 21st century. Of course, this workshop still has several shortcomings, especially the introduction of digital platforms in digital learning models, so there is a need to explore other digital platforms and learning.

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