

Leveraging Artificial Intelligence In The Development of Interactive Learning Multimedia : A Vocational Training Initiative For Broadcasting Students At Smk Cipta Insan Mandiri Depok

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Abstract.

The rise of Artificial Intelligence (AI) has reshaped how the multimedia and education sectors operate. Even so, students in the broadcasting program at SMK Cipta Insan Mandiri Depok continue to struggle with several issues: they understand little about how AI can be applied in multimedia production, they are not yet skilled at building interactive learning content, and they rarely get to train with up-to-date technology. Such gaps may weaken graduates' competitiveness in a job market that increasingly expects fluency in digital tools and AI-driven creativity. This community service activity was therefore intended to strengthen the abilities of broadcasting students at the school so that they can use AI to create interactive learning multimedia that is creative, fresh, and suited to what the digital industry actually needs. The approach taken was a structured plan delivered through workshops, hands-on practice, and close mentoring, with participants guided toward concrete results in the form of AI-based interactive learning media. The method itself was arranged in a systematic, participatory, and applied way to tackle the core problem, that is, the limited use of AI in producing interactive learning multimedia. Throughout the process, partners were actively involved at every step, from identifying needs to running the training and mentoring and finally evaluating the results. The material covered the basic ideas behind AI, an introduction to an AI tool (NotebookLM), techniques for producing AI-based multimedia, and the development of interactive learning media. Eighteen students took part in the session, which ran on May 19, 2026. Afterward, participants showed a clear improvement in grasping AI concepts and in their practical ability to create AI-based multimedia content. The post-activity questionnaires showed that 95.7% of participants were satisfied with the program, 31.9% strongly agreeing and 63.8% agreeing that the training lived up to their expectations. The program also yielded a relevant AI-based training module built with NotebookLM along with interactive learning products, which supports the longer-term goal of raising education quality in the digital era.

Keywords: Artificial intelligence, interactive multimedia, vocational training, and community service.

I. INTRODUCTION

The fast pace of digital technology, and Artificial Intelligence (AI) in particular, has left a strong mark on both education and the creative industry. Within vocational education, and broadcasting programs especially, bringing AI into the classroom matters a great deal if students are to be ready for industries that now run on technology. At SMK Cipta Insan Mandiri Depok, however, students still know relatively little about AI and have had few chances to practice using it for interactive multimedia work. Many of them keep working in conventional ways, so the multimedia they produce tends to feel dated and falls short of what the industry expects today. On top of that, the shortage of AI-based learning modules and technology-focused mentoring has only widened the distance between what students can do and what employers are asking for. Vocational institutions, then, need learning innovations that are adaptive and practice-driven if they want to sharpen students' digital skills and keep them ready for technology that changes quickly.

A number of recent studies have pointed to how central Artificial Intelligence has become in lifting the quality of vocational education and interactive multimedia learning. AI makes a real difference in vocational settings by supporting adaptive learning systems, automatic evaluation, and learning experiences tailored to each student[1]. In the same vein, weaving AI into multimedia learning settings tends to boost how engaged students are, how interactive the lessons feel, and how readily they work together[2]. Beyond

that, AI-based interactive multimedia has been shown to spark creativity and make better use of technology in classroom activities[3]. That said, most of the earlier work has tended to center on teachers, on building curricula, or on education in general, and far less has looked at vocational broadcasting students themselves as the people actually doing AI-based multimedia production training. The literature has likewise said little about how community service programs tied to vocational training might directly close the gap between what vocational students can do and what the digital creative industry expects. As a result, a clear gap remains around running AI-based interactive multimedia training that is built specifically for broadcasting students in vocational schools.

This study sets out to describe how AI-based learning programs were put to work in producing interactive multimedia learning among the broadcasting students at SMK Cipta Insan Mandiri Depok. It looks at how AI-based training can build up students' knowledge, technical skills, creative sense, and digital ability for multimedia production, and at how effective the workshops, practice sessions, mentoring, and project work were in deepening their grasp of AI. The effectiveness side of the study reports on participant satisfaction and on how the training helped narrow the competency gap between vocational school graduates and the industry. The hope is that this work contributes both academically and practically to AI-integrated vocational education, while also backing community empowerment, the spread of technology, and capability building as a form of educational innovation for the digital future.

What makes this research pressing is that vocational schools simply have to keep up with technological change if they want to prepare students for digital industries that are growing more competitive by the day. Bringing Artificial Intelligence into broadcasting education is no longer just a nice-to-have; it has turned into a strategic must for keeping vocational learning relevant and of good quality. The study expects to show that AI-based multimedia training works not only as a piece of technology dropped into the classroom but as a transformative teaching strategy that can grow students' creativity, independence, and readiness for digital work. Folding AI into vocational education can strengthen students' employability and their ability to adapt by giving them hands-on, technology-oriented learning settings [4]. Multimedia tools and digital media platforms matter more and more in vocational training because they make learning flexible, interactive, and closely tied to what industry actually does[5]. For all these reasons, the study aims to offer evidence that AI-based interactive multimedia training can be an effective way to raise the quality of vocational education, shrink competency gaps, and keep the digital transformation of broadcasting education moving in a sustainable direction.

II. RESULT AND DISCUSSION

2.1 Place and Time of Implementation

This community service activity was run by lecturers and students from the Faculty of Computer Science at IBI Kosgoro 1957, working together with SMK Cipta Insan Mandiri Depok. It took place on Tuesday, May 19, 2026, in a second-floor classroom. The address at Jl. Curugan No. 94, RT.RW 11/RW.RT 06, Tanah Baru, Beji District, Depok City, West Java 16426, roughly 11.8 km from the IBI Kosgoro 1957 campus.



Fig. 1. SMK Cipta Insan Mandiri Depok School Building

Held in person, the community service activity drew 30 participants in all: 17 tenth-grade students from SMK Cipta Insan Mandiri Depok, 6 lecturers from IBI Kosgoro 1957, 3 IBI Kosgoro 1957 college students, and 4 teachers from the school.

2.2 Training Content and Module Overview

The training material was split into five clusters arranged in sequence, each building on the one before so that conceptual understanding and practical skills for AI-based multimedia production developed together.

The first cluster eased participants into the basics of Artificial Intelligence as it applies to multimedia and education. It walked through core ideas such as machine learning, generative AI, and natural language processing, together with everyday uses like text-to-image, text-to-speech, and AI document assistants, among others.

The second cluster focused on Google NotebookLM as the main AI tool. Participants practiced setting up digital notebooks, uploading learning documents, and using the platform to generate summaries, quizzes, presentations, and narration scripts. This part also brought in the KPLPT prompting framework (Context, Role, Prohibitions, Length, Additional Instructions), which participants used to write prompts that returned sharper, more specific results.

The third cluster turned to actually producing multimedia. Participants drew on AI-generated content to build PowerPoint learning materials, scripts for educational videos, infographics, and templates for structured documents. Facilitators also walked them through ten AI recipes tailored to broadcasting and vocational multimedia tasks.

The fourth cluster dealt with pulling these pieces together and polishing them into complete, classroom-ready multimedia products. Through guided peer review and critique sessions, participants reworked their content so that it was accurate and genuinely useful for its intended audience.

The fifth and last cluster dealt with the ethics of using AI. The message here was that AI tools should support human judgment and decision-making rather than stand in for them, which means checking facts carefully, verifying against trustworthy sources, and folding AI into the work responsibly so that learning genuinely improves.

2.3 Implementation Method

Earlier work has tackled AI-related problems and training in a number of ways, including training-based approaches, hands-on practice, and continued mentoring[[6]. Here we worked through seven stages.

The program ran through a seven-stage sequence built to keep delivery orderly, keep participants actively involved, and make the outcomes measurable.

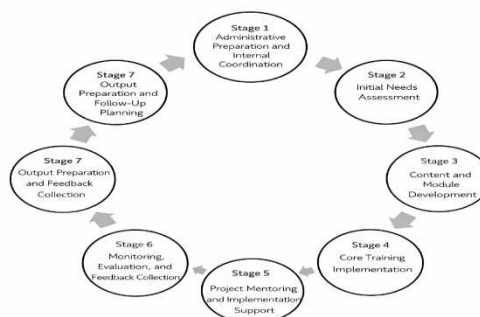


Fig. 1. Program Implementation Stages

The first stage dealt with administrative preparation and internal coordination. The team held planning meetings to divide up responsibilities, put together the training materials, sort out logistics with the partner school, and draft the observation instruments, pre-tests, and participant questionnaires.

In the second stage the team carried out an initial needs assessment at SMK Cipta Insan Mandiri, observing classes and talking with the broadcasting teachers. This step revealed how little AI tooling was in use, what kinds of multimedia production were actually needed, and what the school's technological setup looked like, all of which then shaped the training design.

The third stage covered building the training content and modules. The team assembled a modular guide with theoretical explanations, step-by-step tutorials, AI prompt templates, and project guidelines, all written so teachers could reuse them on their own later on.

The fourth stage was the main training itself, delivered through interactive lectures, live demonstrations, and guided hands-on practice. The work moved from introducing AI concepts and getting oriented in NotebookLM to creating multimedia projects. Pre-tests and post-tests were given to gauge how much participants' skills had grown.



Fig. 2. Training Implementation Method

The fifth stage centered on mentoring and support during the projects. Facilitators offered technical help, creative direction, and troubleshooting as participants developed their multimedia work.

The sixth stage brought together monitoring, evaluation, and feedback. The team gauged how engaged participants were, how good their projects turned out, and what they had learned, using observation, project evaluation rubrics, and satisfaction questionnaires.

The seventh stage handled wrapping up the outputs and planning what came next. The team finalized the training modules, pulled together the documentation, wrote the final activity report, and put forward recommendations to keep AI-integrated learning going at the partner school.

2.4 Conceptual Background: Artificial Intelligence and Interactive Multimedia

Artificial Intelligence refers to the area of computer science devoted to building systems that can carry out tasks normally calling for human cognition, such as understanding natural language, spotting patterns, producing content, and reasoning toward conclusions [6]. In education, AI plays several roles at once: adaptive platforms that sequence content to fit each learner, intelligent tutoring systems that give immediate, situation-specific feedback, automated tools that grade open-ended answers, and generative assistants that turn out teaching materials on request [7]. At its heart, the idea of AI rests on rational thinking carried out by a rational agent, an idea that grows from the belief that computers can reason logically and then act rationally on that reasoning [8].

For this initiative, interactive multimedia means digital learning materials that bring together two or more complementary media, text, image, audio, animation, plus interactive controls such as quizzes or branching navigation, all inside a single learner-centred experience [9]. Pairing AI-driven content generation with the principles of interactive multimedia design turns out to be an especially strong match for vocational education: AI can speed up the production of raw content, while sound multimedia design makes sure those pieces come together into engaging, pedagogically coherent lessons.

Google NotebookLM, the main tool used in this program, works as a document-grounded AI assistant. Users drop their source materials into a dedicated 'notebook' workspace, and the system's language model then builds its answers only from what is in those documents, which sharply cuts the chance of the hallucinated or off-topic output that often comes with unconstrained generative AI [10].

Learning cannot run well without interaction between learning components, so these types of learning components must help each other to create efficient learning[11]. Since broadcasting students usually work from specific subject-area content, this document-anchored design fits them especially well, keeping the summaries, quizzes, and scripts it produces tied closely to the curricular sources.

2.5 Activity Documentation

The program generated three kinds of evidence pointing to its effectiveness: quantitative data on competency, results from the participant satisfaction survey, and qualitative records of the multimedia artifacts participants made.

1. Results in Terms of Achieving Stated Objectives

The findings pointed to a stronger grasp of AI technology, particularly using NotebookLM for interactive learning. Both teachers and students came away understanding the concept noticeably better. In the training and discussion sessions they could name the various services NotebookLM offers and explain how each helps in a learning context. Bringing modern technology into the process pushed students to be more inventive, as Figure 3 shows.



Fig. 3. Presentation of Material for Activity I Devotion To the Community

2. Results reviewed from the benefits

Looking qualitatively at what participants produced, it was clear that students used AI help to turn out work far more complex and polished than they could normally manage in the same amount of time with conventional methods alone. Standout examples include a full five-minute video lesson script on computer networks written with the KPLPT-guided method, an interactive presentation on AI fundamentals generated as a document through NotebookLM, and a structured practice-placement notebook template with a column-based table of obstacles and solutions drafted entirely with AI assistance.



Fig. 4. Presentation of Material for Activity II Devotion To the Community

3. Results reviewed against targets

Through this Community Service (PKM) program, SMK Cipta Insani Mandiri hit its main target: giving students a solid understanding of Artificial Intelligence (AI) by way of NotebookLM and how to fold it into their learning. As a result, students are now well able to design interactive, technology-driven learning materials. The initiative also left them more confident about using AI for academic and professional projects and lifted their motivation by making the technology's relevance to their future careers clear, as shown in Figure 5.



Fig. 5. Students are able and understand to work on NotebookLM based AI projects

2.6 Evaluation Questioner

When the training wrapped up, participants filled out an evaluation questionnaire made up of ten items. Sixteen participants completed it, as set out in the table below.

Table 1. Evaluation PKM Questioner (n = 16)

No	Question	SS (%)	S (%)	N (%)	TS (%)	STS (%)	Total
1	The material is organized in a clear and easy-to-understand manner	43.8%	56.2 %	0%	0%	0%	100%
2	The material is highly relevant and aligned with my expectations	37.5%	50.0 %	12.5 %	0%	0%	100%
3	The material is sufficiently comprehensive for understanding AI-based multimedia production technology	25.0%	75.0 %	0%	0%	0%	100%
4	The material is sufficient for understanding network configuration techniques	18.8%	62.5 %	18.8 %	0%	0%	100%
5	The instructor demonstrates a thorough command of the material presented	25.0%	75.0 %	0%	0%	0%	100%
6	The time allocated for material delivery is sufficient	25.0%	68.8 %	6.2%	0%	0%	100%
7	The instructor presents content in a clear, comprehensible, and applicable manner	43.8%	50.0 %	6.2%	0%	0%	100%
8	The time allocated for discussion is adequate for knowledge enhancement	31.2%	68.8 %	0%	0%	0%	100%
9	The instructor provides well-reasoned answers to participants' questions	43.8%	56.2 %	0%	0%	0%	100%
10	Overall, the discussion and Q&A sessions effectively enhance participants' understanding	25.0%	75.0 %	0%	0%	0%	100%
	Average	31.9%	63.8 %	4.4%	0%	0%	100 %

Note:

SS = Strongly Agree; S = Agree; N = Neutral; TS = Disagree; STS = Strongly Disagree

The survey results make clear that the AI-based interactive multimedia production training at SMK Cipta Insan Mandiri Depok did very well against its goals. The bulk of participants responded positively, with 95.7% choosing “Agree” or “Strongly Agree” across every item, a sign of strong satisfaction with the materials, the way they were delivered, and the instructors’ expertise.

Participants found the material clear, relevant, and easy to follow, and they valued how well the presenters knew their subject and explained it. They also rated the discussion and question-and-answer sessions highly, which speaks to the good communication and interaction during the training.

On the practical side, the time set aside for presentations and discussion was, on the whole, seen as enough. A few participants did note, though, that more time and deeper hands-on explanation, especially around network configuration techniques, would have made the experience even better.

All in all, the training did a good job of deepening participants’ understanding and pulling them into using AI tools for multimedia production, while also surfacing useful pointers for sharpening future sessions.

IV. CONCLUSION

Going by the community service evaluation questionnaire at SMK Cipta Insan Independent, the program clearly met its goals. The questionnaire data in the table show that participants were satisfied with the activities, based on the share who answered strongly agree and agree (31.9% and 63.8%), which works out to an average of 95.7% positive responses. Among these, 100% of participants were happy with the quality of the material delivered, calling it well structured, easy to grasp, and good enough for learning AI-based multimedia production. The instructor also drew satisfied responses from 100% of participants on both knowledge and clarity when fielding questions in the question-and-answer session.

The suggestions for improvement came from only a handful of participants (the 6.2% who were neutral felt the time for delivering material and for discussion ran a bit short). Taken as a whole, the technical guidance at SMK Cipta Insan Mandiri added to the skills and knowledge of both teachers and students about the benefits of cloud computing technology, which is highly relevant in today’s world and proved valuable to them.

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REFERENCES

- [1] A. Suparyati, I. Widiastuti, I. N. Saputro, and N. A. Pambudi, “The Role of Artificial Intelligence (AI) in Vocational Education,” *J. Ilm. Pendidik. Tek. dan Kejuru.*, vol. 17, no. 1, 2023, doi: 10.20961/jiptek.v17i1.75995.
- [2] A. Almusaed, A. Almssad, I. Yitmen, and R. Z. Homod, “Enhancing Student Engagement: Harnessing ‘AIED’’s Power in Hybrid Education—A Review Analysis,” *Educ. Sci.*, vol. 13, no. 7, 2023, doi: 10.3390/educsci13070632.
- [3] H. T. Maria et al., “Integration of Artificial Intelligence with Studio D-ID for Development of Interactive Learning Media,” *I-Com Indones. Community J.*, vol. 5, no. 1, pp. 67–75, 2025, doi: 10.70609/icom.v5i1.5843.
- [4] E. Çela, N. R. Vajjhala, P. Eappen, and A. Vedishchev, “Artificial intelligence in vocational education and training,” *Transform. Vocat. Educ. Train. Using AI*, pp. 1–16, 2024, doi: 10.4018/979-8-3693-8252-3.ch001.
- [5] A. K. R. Avinash Kumar Rohit, “Role of media in Enhancing Vocational Education: Opportunities and Challenges,” *Int. J. Adv. Eng. Manag.*, vol. 7, no. 5, pp. 452–457, 2025, doi: 10.35629/5252-0705452457.
- [6] W. Cahya et al., “AI Introduction Training For Umkm In Srengseng Sawah Village To Enhance Digital Marketing,” *Int. J. Community Serv.*, vol. 5, no. 3, pp. 276–280, 2025, doi: 10.51601/ijcs.v5i3.779.
- [7] Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.
- [8] OECD. (2021). *Artificial intelligence in education: Challenges and opportunities*. Paris: OECD Publishing.

- [9] Suyanto.(2014). Artificial Intelligence Searching, Learnig, Planning, dan Learning. Bandung : Informatika Bandung.
- [10] Suyanto, M. (2018). Multimedia: Alat untuk meningkatkan keunggulan bersaing. Yogyakarta: Andi.
- [11] Pane, A., & Dasopang, M. D. (2017). Belajar dan pembelajaran. FITRAH: *Jurnal Kajian Ilmu-Ilmu Keislaman*, 3(2), 333–352.
- [12] N. Purwandari, F. Angellia, W. Cahya, and H. Rifiyanti, "Multimedia-Based Learning Video Training for Teachers at SDIT Al-Kautsar Cikarang," Indones. Berdaya, vol. 3, no. 4, pp. 961-968, 2022, doi: 10.47679/ib.2022329.
- [13] I. Setyawan, A. Fatoni, F. Angellia, N. Purwandari, and K. I. Yulianto, "Village websites as promotional media for tourist destinations in Sukajadi Village, Tamansari, Bogor," Community Empowerment, vol. 7, no. 3, pp. 523-530, 2022, doi: 10.31603/ce.6375.
- [14] S. Hidayat, W. Cahya, and H. Rifiyanti, "Technical Guidance on Digital Marketing Content Management at the Ahe Tanah Baru Tutoring Institute," *Jurnal Pengabdian Teratai*, vol. 4, no. 2, pp. 189-194, 2023.
- [15] F. Angellia, W. Cahya, R. Ramadhan, and I. Hariyansah, "Socialization of the Use of Virtual Meetings to Support MSME Business Activities During the Covid-19 Pandemic," *Jurnal Pengabdian Teratai*, vol. 1, no. 2, pp. 189-194, 2023. 206-213, 2020.