

Digital Learning Transformation: Education and Application of Generative AI at SMK Darus Sa'adah

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Abstract

The continuous progress of digital technology has transformed many educational practices, bringing artificial intelligence (AI) into classroom settings, including vocational education. Among the latest advancements in this field is Generative AI exemplified by ChatGPT which offers new possibilities for enhancing creativity and interactive learning. This Community Service (PkM) initiative was designed to strengthen the competencies of students in the Visual Communication Design (DKV) department at SMK Darus Sa'adah, enabling them to use ChatGPT in an ethical, effective, and innovative manner. The program consisted of three sequential phases: initial coordination and preparation, a series of nine intensive training sessions across three grade levels, and an evaluation stage. The learning modules introduced the fundamentals of ChatGPT, its creative applications in design oriented learning, and ethical considerations in AI usage. Findings from the evaluation revealed strong enthusiasm and solid conceptual understanding among students, along with increased ability to use ChatGPT for content creation and idea development. Participants also showed growing curiosity to explore AI applications beyond the classroom context. Overall, the program improved students' self-reported digital literacy and supported the integration of AI driven learning practices within vocational education. This activity serves as an essential foundation for promoting the responsible and innovative adoption concerning Generative AI in educational settings.

Keywords: ChatGPT; Generative AI; Visual Communication Design; Vocational Education.

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Introduction

Over the past twenty years, the rapid digital revolution has reshaped numerous dimensions of contemporary life, and the education sector is no exception (Belostecinic & Jomir, 2023; Khan et al., 2024; Shiva & Khatri, 2023). Among the key technological drivers of this shift is Artificial Intelligence (AI), which offers transformative potential to improve learning effectiveness, operational efficiency, and the personalization of educational experiences (Naeem et al., 2023). Within this domain, Generative AI stands out as a major innovation that can autonomously produce new forms of content, including text, imagery, and audio, through learned data patterns. A prominent example is ChatGPT, a language model designed to generate coherent, human like responses and creative written materials (Jauhiainen & Guerra, 2023). Recent studies also highlight that generative AI technologies are increasingly integrated into educational environments to support interactive learning, idea generation, and problem-solving activities among students (Mittal et al., 2024; Wei et al., 2025).

In the framework of vocational teaching and learning, the use involving Generative AI has become increasingly pertinent, particularly in disciplines centered on creative and digital content development. SMK Darus Sa'adah, a vocational high school situated in Bogor Regency, offers three key study programs: Visual Communication Design (DKV), Information and Network Systems, and Software Engineering. Among these, the DKV program provides the greatest opportunity to integrate Generative AI into educational practice especially for design oriented activities such as poster production, digital promotion, and creative

visual projects (Kong & Yang, 2024; Mittal et al., 2024). The integration of AI based tools in vocational education is considered important because it helps students develop industry relevant digital competencies and creative thinking skills required in modern workplaces (Benvenuti et al., 2023).

Nevertheless, findings from initial observations and discussions with the school's representatives revealed that many DKV students still lack sufficient knowledge and practical skills in utilizing ChatGPT. Specifically, preliminary observations indicated that while approximately 90% of the students had heard of ChatGPT, less than 15% had used it for design-oriented workflows. Their current use of digital technology remains largely limited to searching for information rather than employing it as a tool for creative exploration and content generation. This situation reflects a gap between technological potential and students' digital literacy levels, highlighting the need for structured guidance and practical learning experiences. Previous research has also reported that without proper training and guidance, students tend to use AI tools only for basic information retrieval rather than for higher level creative or analytical learning processes (Alzubi et al., 2025).

To respond to this gap, a Community Service (Pengabdian kepada Masyarakat or PkM) initiative was organized by lecturers from Universitas LIA. The program aimed to strengthen students' capacity to apply Generative AI effectively within classroom based creative projects at SMK Darus Sa'adah. Unlike general AI training, the added value of this program lies in its specific tailoring to the Visual Communication Design (DKV) context, which integrates simulated client-designer interactions and visual design-oriented prompt engineering. The activities were designed around three interconnected stages: (1) introducing ChatGPT and its basic functions, (2) conducting hands on workshops for project based creative learning, and (3) promoting awareness of digital ethics and responsible AI practices (Rahimzadeh et al., 2023; Ray, 2023). Through this participatory approach, students were not only introduced to AI concepts but also gained direct experience in applying the technology ethically and productively.

Ultimately, this initiative is expected to enhance the digital literacy and creative competence of DKV students, preparing them to adopt Generative AI effectively and responsibly within their vocational learning context. Furthermore, the collaboration between higher education institutions and vocational schools demonstrates a sustainable model of educational community empowerment helping to address the emerging challenges brought by the Fourth Industrial Revolution and nurturing an innovative, adaptive learning culture aligned with ongoing technological progress. Such collaborations between universities and schools have been recognized as an effective strategy for strengthening community based educational innovation and technology adoption in learning ecosystems (Jakhelln & Postholm, 2022).

Method

This Community Service (Pengabdian kepada Masyarakat / PkM) initiative was structured as an integrated education and training program designed to enhance students' technological literacy particularly in applying Generative AI through ChatGPT within the Visual Communication Design (DKV) department of SMK Darus Sa'adah. The program combined conceptual instruction with practical workshops, enabling participants to not only grasp the essential principles of Artificial Intelligence but also implement them directly to enrich classroom learning and creative design activities (Han & Cai, 2023). Furthermore, the pedagogical framework embedded discussions on digital ethics to strengthen students' understanding of responsible and reflective technology use (Abulibdeh et al., 2024; Airaj, 2024).

The implementation of the program followed a progressive model consisting of three sequential phases: the initial stage focused on coordination and preparation, followed by an intensive training phase centered on practical application, and concluded with evaluation and followup sessions aimed at reinforcing the outcomes and sustainability of the activity, as depicted the first figure.



Figure 1. Stages of the Community Service Program

Preparation and Coordination

The preparation stage involved coordination meetings between the Universitas LIA PkM team and the management of SMK Darus Sa'adah, particularly the DKV department. During this stage, the objectives, scope, and expected outcomes of the program were discussed and agreed upon. The team also designed the training materials, which consisted of three main modules: (1) Introduction to ChatGPT and Generative AI, (2) Application of ChatGPT in creative learning and content development, and (3) Ethics and digital responsibility in AI use.

In addition, preobservations were conducted to identify students' initial understanding and readiness in using AI based tools. This assessment revealed that most participants had never received formal exposure to ChatGPT prior to the training.

Training Implementation

The core activity consisted of a series of nine training sessions conducted over a seven-week period, from November 11 to November 28, 2024. Each sessions lasted distributed across three grade levels (Grades 10, 11, and 12), with each grade receiving three dedicated two-hour sessions in collaboration with DKV teachers. A total of 45 students participated, representing these three grade levels: (1) Grade 10 (14 students) (2) Grade 11 (17 students), (3) Grade 12 (14 students).

Each grade participated in three consecutive sessions covering the three modules mentioned above. The learning process used a participatory and practice oriented approach, combining short lectures, demonstrations, and hands on activities. Students were guided to create prompts in ChatGPT, conduct brainstorming for design projects, and participate in a client-designer role-play simulation. The specific purpose of this role-play activity was to train students in extracting key design requirements from a hypothetical client and translating those needs into effective, structured ChatGPT prompts for creative assignments.

To foster sustained participation, the facilitators integrated a variety of interactive tools and collaborative learning activities. Students were guided to share their reflections and to explore how Artificial Intelligence could be meaningfully applied in their classroom projects and prospective professional pathways (Burju et al., 2024).

Evaluation and Follow Up

After the training sessions, an evaluation was carried out using a Google Form questionnaire distributed to all participants. The evaluation instrument consisted of 15 items measured on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). To ensure content validity and reliability, the questionnaire was reviewed by experts in educational technology and information systems prior to distribution. The questionnaire measured three main aspects: (1) Understanding of ChatGPT concepts, (2) Ability to apply ChatGPT in creative learning, and (3) Awareness of ethical and responsible AI use.

Quantitative results obtained from the questionnaire were processed through descriptive statistics in the form of percentage distributions. Meanwhile, qualitative feedback was examined using a thematic interpretation approach to identify recurring perspectives and reflections among students.

Specifically, the quantitative evaluation outcomes reflected positive participant responses across all three dimensions, calculated as the percentage of students who responded with 'Agree' or 'Strongly Agree' (ratings 4 and 5 on the 5-point Likert scale). The results indicated that 85% of participants reported improved understanding of ChatGPT functionality, 78% expressed agreement regarding their ability to apply ChatGPT in design-related tasks, and 82% demonstrated high agreement concerning their ethical awareness in AI use. The evaluation also collected qualitative feedback for program improvement, such as including additional modules on advanced AI tools.

Result and Discussion

Preparation and Coordination Stage

The implementation of the Community Service (*Pengabdian kepada Masyarakat / PkM*) initiative commenced with a coordination meeting and introductory visit to SMK Darus Sa'adah, specifically engaging the Visual Communication Design (DKV) department. This initial phase was intended to build collaborative understanding, synchronize program goals, and ensure institutional endorsement for the training activities. An official proposal detailing the program's aims, advantages, methodological design, and anticipated impacts was formally submitted and subsequently approved by the school principal, Mr. Anwar, M.Pd. The coordination meeting, which took place on October 12, 2024, concluded with a mutual agreement regarding the schedule, participant roles, and the mechanism for evaluation (Figure 2)



Figure 2. Coordination meeting with the principal of SMK Darus Sa'adah

After the coordination stage, the PkM team developed instructional resources centered concerning the practical implementation of Generative Artificial Intelligence particularly ChatGPT within vocational learning creative learning contexts. The prepared materials were organized into three thematic modules: (1) an overview of Generative AI and ChatGPT, (2) practical implementation of ChatGPT in design based learning and creative content development, and (3) digital ethics and accountability in the responsible use of AI (Figure 3).



Figure 3. Overview of the three training modules

Each instructional module was designed through a collaborative and experiential learning framework, enabling students to apply newly acquired concepts directly within simulated scenarios and creative design tasks. This pedagogical strategy reflects the principles of participatory learning, which advocate for learners' active engagement and shared contribution throughout the educational process (Marcellino et al., 2023).

Training Implementation

The main training phase consisted of nine sessions held between November 11 and November 28, 2024, with a total of 45 student participants from grades 10, 11, and 12. Each session lasted approximately two hours and was guided by the PkM team from Universitas LIA alongside DKV teachers.

Grade 10, sessions introduced the basic concepts of Generative AI, ChatGPT features, and prompt creation techniques. Students were trained to generate short text prompts, explore creative brainstorming, and simulate AI based content creation (Alto, 2025).



Figure 4. Training session with Grade 10 DKV students

Grade 11, sessions focused on practical applications of ChatGPT in the design process. Students worked in small groups to develop design ideas such as poster concepts, logo prototypes, and marketing narratives using ChatGPT as an idea generator.



Figure 5. Training session with Grade 11 DKV students

Grade 12, sessions emphasized advanced use and ethical implications of AI in professional contexts. Students discussed real world case studies of AI use in creative industries and reflected on responsible practices in content creation.



Figure 6. Training session with Grade 12 DKV students

This hands on approach enabled students to integrate AI technology into their learning activities. It also fostered teamwork and creative thinking while building ethical awareness about avoiding plagiarism and misuse of AI generated content.

Evaluation Results

The effectiveness of the program was assessed through an online questionnaire distributed via Google Forms following the completion of the final training session. The evaluation instrument measured three key aspects of student learning: (1) conceptual comprehension, (2) practical ability to utilize ChatGPT in creative learning contexts, and (3) awareness of ethical principles and responsible use of AI technology. A concise summary of the quantitative findings Table 1 presents.

Table 1. Overview of Evaluation Outcomes (n = 45)

Indicator	Percentage (%)	Interpretation
Understanding of ChatGPT functions	85	High
Ability to apply ChatGPT in creative work	78	High
Awareness of ethical and responsible AI use	82	High
Interest in exploring other AI tools	74	High

Note: Percentage represents the proportion of participants who responded with "Agree" or "Strongly Agree" (ratings 4 and 5 on a 5-point Likert scale).

Students showed a marked improvement in their understanding of ChatGPT and its applications in creative design projects. The majority expressed strong enthusiasm and motivation to continue exploring other AI based technologies.

Figures 7 to 9 illustrate the evaluation outcomes, including students perceived usefulness of materials, understanding of ethical implications, and overall satisfaction with the training.

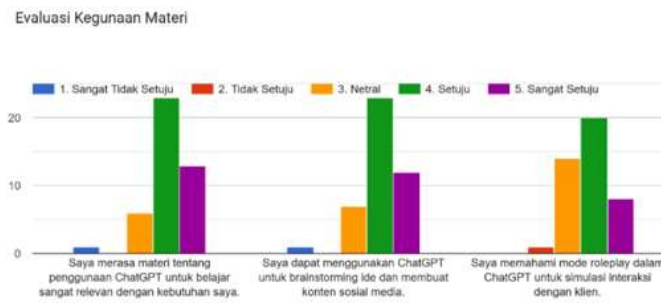


Figure 7. Evaluation of material usefulness



Figure 8. Ethical awareness and responsibility in ChatGPT use

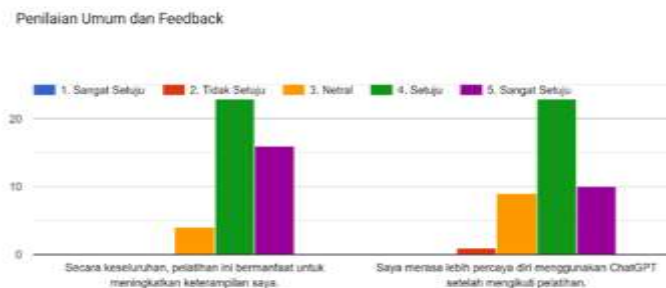


Figure 9. Overall feedback and satisfaction

To analyze the qualitative feedback, open-ended responses from the Google Form were reviewed and categorized into recurring themes: practical relevance, instructional engagement, and future training needs. The thematic analysis revealed that students found the training highly interactive and directly aligned with their DKV coursework. For instance, one Grade 11 student highlighted the value of the practical exercises, stating, 'The role-play session was my favorite part because it felt like receiving a brief from a real client. Now I know how to use ChatGPT to structure my design ideas better.' Furthermore, under the theme of future needs, participants expressed a strong desire to expand the program's scope. As one Grade 12 student suggested, 'The training was very helpful, and I hope there will be an advanced session focused specifically on using AI for 3D animation and digital illustration.'

The training also provided an avenue for DKV teachers to observe and consider integrating AI based learning activities into their teaching practices. This reflects a growing interest in embedding digital literacy and AI understanding in vocational education.

Discussion

The findings demonstrate that integrating Generative AI into vocational learning is both feasible and impactful. The improvement in students' self-reported understanding, practical application in design tasks, and ethical awareness suggests that AI-based tools like ChatGPT can effectively support students' creative exploration and design workflows when implemented with proper guidance.

These results are consistent with previous studies indicating that AI integration supports student engagement and innovation in design education (York, 2023). Moreover, the participatory training method

aligns with the principles of community empowerment, where learning outcomes are achieved through active involvement and reflection.

From a community development perspective, this PkM activity not only increased the students' digital competence but also strengthened collaboration between higher education and vocational institutions. The activity contributed to sustainable educational empowerment by introducing innovation, improving technological literacy, and promoting ethical AI adoption in the learning ecosystem.

To ensure this empowerment is sustained beyond the initial training, all developed instructional modules and prompt-engineering guidelines were officially handed over to the DKV teachers. Furthermore, discussions with the school administration have established a preliminary plan to integrate Generative AI activities into regular DKV lessons. To support this pedagogical transition, the Universitas LIA team has committed to providing ongoing online consultation and follow-up mentoring for the teaching staff.

Ethically, the students' understanding of digital responsibility grew as they learned to distinguish between productive AI use and potential misuse such as plagiarism or overreliance. This balance between innovation and ethics is essential to ensure long term positive impacts in education, as emphasized in prior research on ethical AI literacy ([Rahimzadeh et al., 2023](#)).

Conclusion

The community service program titled "Utilization of Generative AI in Education at SMK Darus Sa'adah" was successfully implemented and achieved its intended objectives. In terms of program delivery, the activity consisted of three main sessions for each grade level (10, 11, and 12), covering fundamental topics such as an introduction to ChatGPT, its application in creative learning, and digital ethics. Beyond successful execution, the evaluation demonstrated clear outcomes tied to the measured indicators: students reported a significantly improved understanding of AI functionality, enhanced practical ability to apply ChatGPT in design-related tasks, and heightened awareness of ethical AI use. To sustain these positive outcomes, the initiative concluded with the handover of instructional modules to the school and established a commitment for ongoing follow-up mentoring, ensuring that DKV teachers can effectively integrate responsible AI practices into their continuous curriculum.

The evaluation results showed that participants not only improved their technical competencies in operating ChatGPT but also developed a deeper awareness of ethical use and the potential risks of AI misuse, such as plagiarism or dependency. High enthusiasm and active participation from students during discussions and role play exercises reflected the relevance and effectiveness of the program in enhancing digital literacy and creative learning.

This PkM initiative produced meaningful social and educational impacts by empowering vocational students to adapt to technological changes in the era of Industry 4.0. It also strengthened the collaboration between higher education and vocational schools in fostering innovation and responsible digital behavior.

To enhance the long term impact of this initiative, future community training programs are encouraged to incorporate a wider range of advanced Artificial Intelligence tools and extend their application to diverse academic and vocational fields, thereby expanding students' creative and critical perspectives. Educational institutions, particularly those offering Visual Communication Design (DKV) programs, are advised to embed AI related competencies such as the practical use of ChatGPT into relevant productive subjects within the curriculum. In addition, capacity building activities targeting teachers should be prioritized to ensure the continuity and pedagogical sustainability of technology assisted learning. Regular monitoring and reflective evaluations are also essential to uphold both the moral integrity and functional effectiveness of AI utilization in the context of education.

Overall, such a program represents an important initial step in promoting the positive adoption of Generative AI within the education sector, building a foundation for continuous innovation, ethical awareness, and community empowerment through technology.

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Conflict of Interest

The authors declare that there is no conflict of interest related to the publication of this article.

Use of generative AI

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References

- Abulibdeh, A., Zaidan, E., & Abulibdeh, R. (2024). Navigating the confluence of artificial intelligence and education for sustainable development in the era of industry 4.0: Challenges, opportunities, and ethical dimensions. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2023.140527>
- Airaj, M. (2024). Ethical artificial intelligence for teaching-learning in higher education. *Educ. Inf. Technol.*, 29, 17145–17167. <https://doi.org/10.1007/s10639-024-12545-x>
- Alto, V. (2025). *Practical Generative AI with ChatGPT - Second Edition*. Packt Publishing. <https://www.oreilly.com/library/view/practical-generative-ai/9781836647850/Text/Preface.xhtml>
- Alzubi, A., Nazim, M., & Alyami, N. (2025). Do AI-generative tools kill or nurture creativity in EFL teaching and learning? *Education and Information Technologies*, 30, 15147–15184. <https://doi.org/10.1007/s10639-025-13409-8>
- Belostecinic, G., & Jomir, E. (2023). Digital Marketing – a New Stage in the Evolution of the Modern Marketing Concept. *Economica*. <https://doi.org/10.53486/econ.2023.123.007>
- Benvenuti, M., Cangelosi, A., Weinberger, A., Mazzoni, E., Benassi, M., Barbaresi, M., & Orsoni, M. (2023). Artificial intelligence and human behavioral development: A perspective on new skills and competences acquisition for the educational context. *Comput. Hum. Behav.*, 148, 107903. <https://doi.org/10.1016/j.chb.2023.107903>
- Burju, S. U., Sudarno, & Priyono. (2024). *Pembelajaran Berbasis Paikem: Aktif, Inovatif, Kreatif, Efektif, dan Menyenangkan (Tinjauan Pendidikan Dasar, Menengah, dan Pendidikan Tinggi)*. PT Literasi Nusantara Abadi.
- Han, A., & Cai, Z. (2023). Design implications of generative AI systems for visual storytelling for young learners. *Proceedings of the 22nd Annual ACM Interaction Design and Children Conference*. <https://doi.org/10.1145/3585088.3593867>
- Jakhelln, R., & Postholm, M. B. (2022). University–school collaboration as an arena for community-building in teacher education. *Educational Research*, 64, 457–472. <https://doi.org/10.1080/00131881.2022.2071750>
- Jauhiainen, J., & Guerra, A. G. (2023). Generative AI and ChatGPT in School Children's Education: Evidence from a School Lesson. *Sustainability*. <https://doi.org/10.3390/su151814025>
- Khan, N., Khan, Z., Koubaa, A., Khan, M. K., & Salleh, R. Bin. (2024). Global insights and the impact of generative AI-ChatGPT on multidisciplinary: a systematic review and bibliometric analysis. *Connect. Sci.*, 36. <https://doi.org/10.1080/09540091.2024.2353630>
- Kong, S.-C., & Yang, Y. (2024). A Human-Centered Learning and Teaching Framework Using Generative Artificial Intelligence for Self-Regulated Learning Development Through Domain Knowledge Learning in K–12 Settings. *IEEE Transactions on Learning Technologies*, 17, 1588–1599. <https://doi.org/10.1109/TLT.2024.3392830>
- Marcellino, A., Fernandes, D. R., Caroline, F., Hasan, N. J. P., Moniung, Y. C., & Pribadi, M. R. (2023). Pengenalan Web Ai Chatgpt (Generative Pre-Trained Transformer) Oleh Openai Di Smp Indriasana Palembang. *Abdimas Iptek*, 3(2), 96. <https://doi.org/10.53513/abdi.v3i2.8351>
- Mittal, U., Sai, S., Chamola, V., & Sangwan, D. (2024). A Comprehensive Review on Generative AI for Education. *IEEE Access*, 12, 142733–142759. <https://doi.org/10.1109/ACCESS.2024.3468368>
- Naeem, M., Honorary, S., Jameel, A. D., & Jalibi. (2023). AI Revolution: Empowering The Future with Artificial Intelligence. *Pakistan Journal of International Affairs*. <https://doi.org/10.52337/pjia.v6i4.961>
- Rahimzadeh, V., Kostick-Quenet, K., Barby, J. B., & McGuire, A. (2023). Ethics Education for Healthcare Professionals in the Era of ChatGPT and Other Large Language Models: Do We Still Need It? *The American Journal of Bioethics*, 23, 17–27. <https://doi.org/10.1080/15265161.2023.2233358>

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- Ray, P. (2023). ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope. *Internet of Things and Cyber-Physical Systems*. <https://doi.org/10.1016/j.iotcps.2023.04.003>
- Shiva, A., & Khatri, P. (2023). Digital Revolution. *Journal of Content Community and Communication*. <https://doi.org/10.31620/jccc.06.23/01>
- Wei, X., Wang, L., Lee, L.-K., & Liu, R. (2025). The effects of generative AI on collaborative problem-solving and team creativity performance in digital story creation: an experimental study. *International Journal of Educational Technology in Higher Education*, 22. <https://doi.org/10.1186/s41239-025-00526-0>
- York, E. (2023). Evaluating ChatGPT: Generative AI in UX Design and Web Development Pedagogy. *Proceedings of the 41st ACM International Conference on Design of Communication*. <https://doi.org/10.1145/3615335.3623035>