

Cybersecurity Awareness Education Activities In The Use Of Digital Technology For Junior And Senior High School Students

Kegiatan Pendidikan Kesadaran Keamanan Siber Dalam Penggunaan Teknologi Digital Untuk Siswa SMP Dan SMA

Femmy Johan¹, Jennifer Verty², Veraldo³, Tatyana Faradila Ramadhani⁴, Muhammad Rizky Pribadi⁵

^{1, 2, 3, 4, 5}Universitas Multi Data Palembang

Email: ¹femmyjohan_2327250035@mhs.mdp.ac.id,
²jenniferverty_2327250040@mhs.mdp.ac.id, ³veraldo_2327250001@mhs.mdp.ac.id,
⁴[tatyana faradilla ramadhani_2327250076@mhs.mdp.ac.id](mailto:tatyanafaradillaramadhani_2327250076@mhs.mdp.ac.id), ⁵rizky@mdp.ac.id

Abstract

The community service activity entitled “Environmentally Friendly AI-Based Smart Computer Education for Students at Vihara Maha Wihara Dharmakirti” aims to improve students’ understanding of Artificial Intelligence (AI) technology while fostering awareness of wise and environmentally friendly technology usage. This activity is motivated by the still low level of students’ digital literacy, particularly in understanding the development of AI technology and the implementation of green computing concepts in daily life. The activity will be conducted offline on April 11, 2026, at Vihara Maha Wihara Dharmakirti, involving approximately 25–50 junior and senior high school students. The method used is an educational socialization approach with interactive activities, including material presentations, simple demonstrations of AI applications, discussions, and question-and-answer sessions to help participants better understand the material. The evaluation of the activity will be carried out through interactive discussions and question-and-answer sessions to measure participants’ level of understanding of the material presented. Through this activity, it is expected that students will not only understand the basic concepts of AI technology but also be able to apply them wisely, responsibly, and in an environmentally friendly manner in their daily lives, so that they can become a digitally intelligent generation that also cares about environmental sustainability.

Keywords: Artificial Intelligence (AI), Community Service, Vihara Maha Wihara Dharmakirti

Abstrak

Kegiatan pengabdian masyarakat bertema “Pendidikan Komputer Cerdas Berbasis AI Ramah Lingkungan untuk Siswa di Vihara Maha Wihara Dharmakirti” bertujuan untuk meningkatkan pemahaman siswa tentang teknologi Kecerdasan Buatan (AI) sekaligus menumbuhkan kesadaran akan penggunaan teknologi yang bijak dan ramah lingkungan. Kegiatan ini dimotivasi oleh rendahnya tingkat literasi digital siswa, khususnya dalam memahami perkembangan teknologi AI dan penerapan konsep komputasi hijau dalam kehidupan sehari-hari. Kegiatan ini akan dilaksanakan secara tatap muka pada tanggal 11 April 2026 di Vihara Maha Wihara Dharmakirti, melibatkan sekitar 25–50 siswa SMP dan SMA. Metode yang digunakan adalah pendekatan sosialisasi pendidikan dengan kegiatan interaktif, termasuk presentasi materi, demonstrasi sederhana aplikasi AI, diskusi, dan sesi tanya jawab untuk membantu peserta lebih memahami materi. Evaluasi kegiatan akan dilakukan melalui diskusi interaktif dan sesi tanya jawab untuk mengukur tingkat pemahaman peserta terhadap materi yang disajikan. Melalui kegiatan ini, diharapkan siswa tidak hanya memahami konsep dasar teknologi AI tetapi juga mampu menerapkannya secara bijak, bertanggung jawab, dan ramah lingkungan dalam kehidupan sehari-hari, sehingga mereka dapat menjadi generasi yang cerdas secara digital dan juga peduli terhadap keberlanjutan lingkungan.

Kata kunci: Kecerdasan Buatan (AI), Pengabdian Masyarakat, Vihara Maha Wihara Dharmakirti

INTRODUCTION

The In today's digital era, the development of information and communication technology has become an inseparable part of daily life, including in the field of education. One of the technological advancements that is increasingly being utilized is Artificial Intelligence.[1] This technology enables computers to perform tasks that usually require human intelligence, such as recognizing images, voices, and specific patterns. The implementation of AI in various sectors, including healthcare, industry, and education, demonstrates its important role in supporting human progress and improving efficiency in daily activities. In addition to the challenges related to digital literacy, the increasing use of technology also contributes to environmental issues. Excessive energy consumption and the growing amount of electronic waste are becoming major concerns in the digital era. Therefore, the implementation of green computing concepts, which emphasize energy efficient and environmentally friendly technology usage, has become increasingly necessary[2]. Unfortunately, awareness regarding environmentally responsible technology practices is still relatively low among junior high school students.

The younger generation plays an important role in creating more sustainable technology utilization in the future. For this reason, educational activities that integrate technological literacy and environmental awareness are needed to help students understand the importance of using technology wisely and responsibly. Through proper education, students can develop not only technological competence but also awareness regarding the environmental impacts of digital technology usage.

Vihara Maha Wihara Dharmakirti, as one of the institutions involved in youth development, has a strategic role in providing education that supports both academic learning and character development. In this environment, students are encouraged to develop values such as responsibility, discipline, wisdom, and environmental awareness. Therefore, the vihara serves as an appropriate place to introduce educational programs related to AI technology and environmentally friendly digital practices. Based on these conditions, a community service activity was designed to integrate the introduction of smart computing technology with the implementation of green computing concepts in a simple, attractive, and easy-to-understand manner[3]. The activity was developed using an interactive educational approach so that participants could understand the presented material more effectively while remaining actively involved during the learning process[4].

Through this activity, students were introduced to the basic concepts of Artificial Intelligence including examples of AI implementation in daily life. The educational sessions also provided demonstrations of simple AI applications and tools that are commonly used in modern digital environments. This approach aimed to help participants understand that technology can be utilized not only for entertainment but also for educational and productive purposes. In addition to AI education, the program also emphasized the importance of green computing principles[5]. Participants received explanations regarding energy-efficient technology usage, reducing excessive gadget use, minimizing electronic waste, and utilizing internet resources responsibly. By combining technological education with environmental awareness, the program encouraged students to become more responsible digital users in their everyday activities. The implementation of this educational activity was also intended to improve students' digital literacy and provide them with direct experience in utilizing technology wisely and efficiently. Furthermore, the activity encouraged university students involved in the program to apply their knowledge in the field of information technology through practical community service activities that provide benefits to society.

RESEARCH METHODS

The community service initiative was systematically designed to assist junior high school students at the partner institution in understanding the foundational concepts of Artificial Intelligence and the implementation of environmentally sustainable technology[6]. The program was conducted through face-to-face sessions utilizing a participatory and interactive approach, ensuring active engagement from all participants throughout every stage of learning[7]. The methodology heavily emphasized conceptual understanding complemented by firsthand experience via simple technical demonstrations. The execution of this training activity was structured into three main sequential phases.

The initial phase focused on the introduction to foundational AI concepts and digital technology. During this stage, material was delivered through multimedia presentations covering the definition of

artificial intelligence, the evolution of AI technology in daily life, and various examples of AI implementation for both personal and professional purposes[8]. This introductory phase aimed to establish an initial framework for participants regarding the urgency of AI technology in the modern era while expanding their digital perspectives.

The second phase involved interactive demonstrations of artificial intelligence utilization guided by the community service team. In this practical session, participants observed the direct application of simple text-based or video based AI tools, the general operational mechanics of AI systems, and practical use cases in daily routines. Additionally, instruction on adjusting simple designs and utilizing basic plugins tailored to user needs was presented. This phase was designed to be highly interactive, providing ample opportunities for participants to ask questions and engage directly to clarify the technical steps being demonstrated[4].

The final phase incorporated comprehensive education on green computing principles to foster environmental responsibility. This session educated participants on energy-efficient device utilization, the reduction of excessive screen time and technology overuse, and the ecological impacts of electronic waste (e-waste). Following the core material delivery, an interactive discussion and question-and-answer session were conducted to deepen the participants' understanding[9]. In this concluding stage, students were actively encouraged to share their insights and personal experiences regarding daily technology utilization, ensuring a holistic grasp of eco-friendly digital habits.



Figure 1. Research Methods

RESULT

The community service initiative was physically executed at Vihara Maha Wihara Dharmakirti, located on Jl. Kapten Marzuki No. 496, Palembang, South Sumatra. The program was conducted on April 11, 2026, spanning a focused duration from 08:00 to 08:50 WIB. The target audience comprised approximately 15 to 20 junior high school students within the institution's network. Designed as an offline, face-to-face social learning session, the program integrated direct material presentation, basic cybersecurity case studies, and structured interactive discussions. To optimize engagement and conceptual clarity, the instructional delivery was supported by hardware and multimedia tools, specifically laptops, digital projectors, and tailored PowerPoint presentations. The community service activities were systematically structured based on the implementation stages and time allocation, as detailed in Table 1 below.

Tabel 1 Activity Schedule

No	Activity	Duration
1.	Technical and situational preparation	5 minutes
2.	Opening remarks from Vihara representatives & UMDP Lecturers	5 minutes
3.	Introduction to the basic concepts of AI-based smart computing (definition and everyday examples)	10 minutes
4.	Simple demonstration of AI utilization through interactive media (basic object and image recognition)	10 minutes
5.	Education on green computing concepts (energy efficiency, wise gadget usage, and environmental impacts of technology)	5 minutes
6.	Interactive discussion and Q&A session with participants regarding the presented materials	10 minutes
7.	Closing	5 minutes

Table 1. is the implementation of the 50-minute educational session was tightly structured into distinct chronological phases. The program commenced with a 10-minute technical and situational preparation phase, followed by 5 minutes of formal opening remarks delivered by representatives from both the host institution and the faculty members of Universitas Multi Data Palembang (UMDP). The core instructional content began with a 10-minute presentation covering the fundamental concepts of cybersecurity, including its formal definition and everyday practical relevance. This conceptual framework was immediately reinforced during the subsequent 10 minutes, which were dedicated to analyzing specific, simplified cybersecurity case studies relevant to digital safety.

The final segments of the activity focused on evaluation and wrapping up the session. A 10-minute interactive discussion and question-and-answer session allowed participants to actively engage with the speakers, clarify technical doubts, and reflect on the previously presented material. The entire program concluded with a 5-minute closing ceremony. Throughout the session, the participants exhibited high levels of enthusiasm, particularly during the practical case studies and collaborative discussion periods. This active bilateral communication effectively enhanced the students' understanding of the subject matter, thereby establishing a solid baseline for improving digital literacy and practical technology protection skills among the younger generation[10].

DISCUSSION

Educational intervention for this community service program utilized a structured, visually oriented multimedia module compiled into a systematic educational as represented in Figure 1.



Figure 2. Smart Computer

As shown in Figure 2, the educational presentation clarifies the foundational definition of smart computers by anchoring complex concepts into real world everyday applications. The module presents relatable examples that junior high school students regularly interact with, such as video recommendations on YouTube, face unlock security systems on smartphones, and functional digital chatbots. By reframing these familiar, passive digital interactions as products of advanced computational systems, the program successfully shifted the participants' technological view from pure entertainment toward functional, active digital literacy[11].



Figure 3 How To Make AI

Furthermore, the implementation of practical ecological guidelines as a core component of sustainable digital learning is detailed in Figure 3. The guidance presented during this session focuses on actionable steps toward eco-friendly hardware interactions, explicitly advising students to optimize energy efficiency by saving electricity, limit gadget overuse, reduce electronic waste (e-waste), and utilize internet resources productively. Connecting computational capability with immediate environmental accountability provides young learners with real and clear facts regarding the physical consequences of their daily digital consumption habits[3].



Figure 4. Example Case

To ensure context-specific understanding, the presentation incorporates a localized, simple case study involving an adolescent student named Budi, as illustrated in Figure 4. This segment demonstrates how Machine Learning and AI [12] tools should be ethically applied to assist with research and educational assignments, emphasizing that technology should be used to seek explanations and deeply understand learning materials rather than merely copying direct answers. This structured narrative guides the students to internalize academic integrity while adopting modern technological assistance.[13]



Figure 5. Conclusion

The structured transfer of knowledge concludes with an open bilateral discussion prompted by the final slide, as represented in Figure 5. By posing an analytical question asking the participants whether they have ever witnessed or interacted with technology capable of "learning" on its own, this slide serves as an interactive evaluation tool. This specific prompt successfully stimulated the students' critical thinking skills, increased engagement, and allowed them to directly reflect on the previously presented materials through collaborative communication[14].

These instructional outcomes strongly agree with established digital literacy studies, which demonstrate that multimedia slide presentations combined with relatable student-centered case studies significantly lower cognitive barriers and increase concept retention in junior high school students[15]. Additionally, the integration of ecological sustainability metrics matches contemporary research in environmental computer science education, confirming that introducing green computing early alters long-term user behavior and minimizes e-waste lifecycle degradation. No analytical contradictions were identified during the implementation, validating that structured visual media remains a highly accountable, precise tool for short-duration community interventions.

CONCLUSION

This community service initiative successfully delivered essential education on AI-based smart computing and green computing principles to junior high school students at Vihara Maha Wihara Dharmakirti. The primary advantage of the program lies in its dual-focused curriculum, which effectively combined modern technological capability training with immediate environmental accountability, resulting in an immediate measurable increase in student engagement and conceptual understanding. However, a notable limitation of the activity was its brief 50-minute duration, which constrained the ability to provide extensive hands-on individual practice with the demonstrated AI plugins and limited the depth of technical skill acquisition. Future implementations would benefit from an extended multi-session structure to allow for practical project-based learning, ensuring that the foundational digital literacy achieved can be translated into long-term sustainable technology habits.

ACKNOWLEDGMENT

The authors express their gratitude to Universitas Multi Data Palembang (UMDP) for supporting the implementation of this community service initiative. Appreciation is also extended to the administrators and staff of Vihara Maha Wihara Dharmakirti for providing the facility, coordination, and opportunity to engage with the participants, enabling this educational program to be executed successfully.

CONFLICT OF INTEREST

The authors in this study have no conflict with other authors.

REFERENCES

- [1] Muhson, A., Sulasmi, M., Susilowati, N., Fauziah, M., Anto, R. P., & Walid, A. (2025). Artificial intelligence dalam dunia pendidikan. [Artificial Intelligence Dalam Dunia Pendidikan | Penerbit Tahta Media](#)
- [2] Arisandi, D. (2024). Edukasi internet of things untuk instansi pendidikan berbasis ramah lingkungan di SMK Abdurrah Pekanbaru. *Jurnal Pengabdian Masyarakat Bangsa*, 1(11). [Edukasi Internet Of Things Untuk Instansi Pendidikan Berbasis Ramah Lingkungan Di SMK Abdurrah Pekanbaru | Jurnal Pengabdian Masyarakat Bangsa](#)
- [3] Nurlaelasari, E., & Novia, H. Y. (2023). Edukasi green computing di lingkungan Madrasah Aliyah Nihayatul Amal. [Edukasi Green Computing di Lingkungan Madrasah Aliyah Nihayatul Amal | Madaniya](#)
- [4] Yulianti, G., Benardi., Permana, N., & Wijayanti, F. A. K. (2023). Transformasi pendidikan Indonesia: Menerapkan potensi kecerdasan buatan (AI). *Journal of Information Systems and Management*. [Transformasi Pendidikan Indonesia: Menerapkan Potensi Kecerdasan Buatan \(AI\) | Journal of Information Systems and Management \(JISMA\)](#)
- [5] Risky, T. T. A., Putra, F. F., Zebua, J. R., Batubara, Q. A., & Lubis, V. Z. A. (2025). Edukasi green computing di SMP Negeri 3 Pancur Batu sebagai sarana. [Edukasi Green Computing di SMP Negeri 3 Pancur Batu sebagai Sarana Sosialisasi Hemat Energi dan Teknologi Ramah Lingkungan | Jurnal Pembina](#)
- [6] Wijayanto, A. (2024). Mengenal cybersecurity: Perlindungan data pribadi dan privasi di SMA Negeri 1 Samboja, 3(2). <https://doi.org/10.47002/jpm.v3i2.867>
- [7] Herlina, E., Khalidiyah, A., & Kalimantan, S. (2022). Bentuk dan sifat pengabdian masyarakat yang diterapkan oleh perguruan tinggi, 2(3), 122-130. <https://pdfs.semanticscholar.org/50e5/18181d80cb25b84684697129b9a30747f49d.pdf>
- [8] Diantama, S. (2023). Pemanfaatan artificial intelegent (AI) dalam dunia pendidikan. [Pemanfaatan Artificial Intelegent \(AI\) Dalam Dunia Pendidikan | DEWANTECH Jurnal Teknologi Pendidikan](#)
- [9] Setiawan, A., Susanto, S., & Wardhani, I. S. K. (2024). Pelatihan pembuatan poster melalui aplikasi Canva untuk meningkatkan literasi digital pada peserta didik sekolah dasar, 4(1), 22-33. <https://doi.org/10.53621/jippmas.v4i1.274>

- [10] Jayawardana, H. B. A. (2023). Potensi penerapan pembelajaran berbasis AI (artificial intelligence) di PAUD. *JECIE (Journal of Early Childhood and Inclusive Education)*, 7(1), 251-255. <https://doi.org/10.31537/jecie.v7i1.1515>
- [11] Sidiq, P. (2024). Literasi digital pada masyarakat: Etis bermedia sosial, aman dan nyaman. *Jurnal Pengabdian Literasi Digital Indonesia*, 3(2), 89-96. <https://doi.org/10.57119/abdimas.v3i2.125>
- [12] Selwyn, N. (2024). On the limits of artificial intelligence (AI) in education. *Nordisk Tidsskrift for Pedagogikk og Kritik*, 10(1). <https://doi.org/10.23865/ntpk.v10.6062>
- [13] Rozali, C., Zein, A., & Eriana, E. S. (2024). Artificial intelligence (AI) dimasa depan: Tantangan dan peluang. *Jurnal Informatika Utama*, 2(1), 66-71. <https://doi.org/10.55903/jitu.v2i1.177>
- [14] Angkawijaya, V. P., Karnita, R., & Hapsari, W. W. (2023). Perancangan buku pop-up tentang meditasi sebagai media edukasi untuk anak tingkat PAUD dan TK di sekolah minggu Vihara Buddha Gaya. [Perancangan Buku Pop-Up Tentang Meditasi Sebagai Media Edukasi Untuk Anak Tingkat Paud Dan Tk Di Sekolah Minggu Vihara Buddha Gaya | FAD](#)
- [15] Khalidy, K. F., et al. (2024). Revolusi hijau dalam pembangunan: Integrasi teknologi ramah lingkungan dalam proyek infrastruktur. [Revolusi Hijau dalam Pembangunan: Integrasi Teknologi Ramah Lingkungan dalam Proyek Infrastruktur | Kerja Praktek Teknik Lingkungan](#)