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Empowering the Future: AI-Based Website Development Training to Boost High School Students' Creativity and Digital Skills

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Abstract

In the rapidly evolving digital era, Artificial Intelligence (AI) has become one of the key technologies that plays an important role in various fields to help perform daily tasks to change the way businesses and industries operate, including website development. So the need for AI-based website development training is a strategic step to improve the skills and creativity of the younger generation in the digital era. This activity was conducted at SMA Al Huda, South Lampung, followed by 22 participants, with the aim of equipping students by understanding of basic concepts, steps for creating websites, and how AI can be utilized to enhance creativity in the digital world. The methods used included interactive presentations, demonstrations, hands-on practice, and discussions. The activity also assessed students' knowledge before and after the training through an interactive quiz using Quizizz. The results of the study showed a significant improvement in students' understanding of AI-based website development. In conclusion, this training program was effective in enhancing students' skills and creativity in the digitalization world, particularly in creating AI-based websites. This activity succeeded in fostering students' creativity and awareness of the importance of digitalization,

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INTRODUCTION

In the rapidly evolving digital era, Artificial Intelligence (AI) has become one of the key technologies playing an important role in various fields, including website development. The fields of artificial intelligence and web-based programming have seen tremendous advancements, enabling developers to create dynamic and interactive websites and applications (Kenwright, 2023). The main goal of Artificial Intelligence is to create machines that can learn, understand, plan, and adapt in order to perform tasks independently. In the field of education, the use of AI can boost learning motivation and make learning more engaging (Collins et al., 2021; Danu et al., 2024; Suhirman, 2009). According

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to Luckin et al. (2016), AI in education enables personalized learning experiences by adapting to individual student needs (Luckin & Holmes, 2016). Similarly, a report by UNESCO (2021) emphasizes the transformative potential of AI to enhance both teaching and learning processes (UNESCO, 2021). Moreover, research by Holmes et al. (2019) highlights that integrating AI tools into classrooms can promote student-centered learning and foster higher-order thinking skills(Holmes et al., 2019).

AI not only selects and uses learning media but truly understands the purpose and benefits of the media, ensuring effective communication of the content (Malik et al., 2023; Sarkar & Ghosh, 2024; Vieriu & Petrea, 2025). The development of artificial intelligence (AI) technology has brought significant changes in various sectors, including government, education, and industry. One example of the application of AI in government agencies is an activity organized by the BPS of Sanggau Regency, entitled "Optimizing Office Productivity with AI: Knowledge Sharing Session BPS Sanggau." This activity emphasized the importance of adopting AI technology to improve work efficiency and minimize human error. Seeing the real benefits of utilizing AI in a professional environment, it is important to introduce this technology early on to the younger generation. Therefore, AI-based website development training for high school students is a strategic step in preparing them to face the challenges of the digital era (Sanggau, 2024).

The 2024 e-Conomy SEA report, prepared by Google, Temasek, and Bain & Company, identifies three key sectors driving AI adoption in Indonesia: marketing, gaming, and education. As interest in AI continues to grow across these sectors, the report also projects a significant expansion of Indonesia's AI infrastructure, estimated to grow by 268 percent. Supporting this rapid development, Indonesia now ranks as the second-largest country in Southeast Asia in terms of data center capacity, reaching 202MW, just behind Singapore (Indonesia, 2024). The utilization of AI not only simplifies the website creation process but also opens opportunities for individuals to design more innovative and interactive websites. As the demand for digital skills continues to rise, understanding how to harness AI in website development has become an essential skill. For secondary school students, in particular, mastering this technology equips them to face the rapidly evolving digital landscape, where the ability to create, analyze, and adapt digital content is increasingly crucial. By integrating AI into their learning process, students can develop the problem-solving, creativity, and technical skills needed to thrive in future academic and professional environments.

Among these students, Islamic youth represent a significant segment of the younger generation who are actively involved in community-based organizations, schools, and extracurricular activities. Their involvement presents a unique opportunity to incorporate AI training into faith-based educational initiatives. Empowering Islamic youth with digital and AI skills not only supports their personal growth but also enhances their ability to contribute to the advancement of their organizations and communities in a meaningful way (Fransisca et al., 2024). However, despite the many benefits that technology offers, its rapid advancement—if not accompanied by wise and responsible use—can also pose challenges for Islamic youth. One notable challenge is the difficulty in effectively integrating technology into daily teaching practices, which may hinder its educational potential. In addition, excessive reliance on digital tools may reduce youth's opportunities for direct social interaction, potentially weakening their sense of empathy and social awareness within their communities (Hennessy et al., 2022; Hosseini & Ramchahi, 2014; Minarti et al., 2023; Tranggono et al., 2023). To address the negative impacts of technological development, one solution is to improve the quality of human resources (HR). One of the efforts to support the improvement of human resources, especially the younger generation, is through training(Dewi et al., 2024). This training aims to enhance understanding and knowledge, particularly in the field of technology. For today's younger generation, understanding how AI works and how to use it in creative and productive contexts is very valuable knowledge(Sahara et al., 2024). Therefore, the younger generation needs to be provided with a deeper understanding of the basic concepts of AI (Aprilia et al., 2024).

Therefore, they require assistance in designing and implementing relevant evaluations through adequate training in adopting AI technology in learning. This can influence their level of confidence and comfort in using the technology. Acknowledging the importance of this, the formed PKM team initiated a training program on creating AI-based websites to enhance the skills and creativity of high school students, particularly those at SMA Al Huda, South Lampung.

The method used in this community service activity is a combination of training and workshops, which allows for a more interactive and hands-on learning experience. Unlike

conventional lecture-based approaches, this method encourages active participation, where students not only receive material but also directly apply what they learn through guided practice. During the workshop, students had the opportunity to interact with the speakers, ask questions, and receive immediate feedback—an approach that helps reinforce their understanding and build confidence. This experiential learning strategy is considered more effective in cultivating both technical skills and creativity. It is also expected to motivate students to further explore the potential of AI and how they can play an active role in the development of technology in the future. This approach is expected to motivate students to further explore the potential of AI and how they can play an active role in the development of technology in the future.

AI is a great way to streamline the web development process, making it easier even for noobs. This activity aims to equip them with an understanding of basic concepts, steps to create a website, and how AI can be utilized to increase creativity in the digital world, so that this combination is able to differentiate this community service activity from others. However, learning the fundamentals with tools such as HTML and JavaScript is always a plus, especially if you want to pursue web development as a professional (Darius, 2023). The target for community service has also been achieved and serves to provide problem solving for problems that occur with partners (Muthoharoh et al., 2022). Through this training, students not only gain theoretical insights but also have hands-on experience in developing AI-based websites. With an interactive approach, this activity is expected to foster a spirit of exploration and innovation, while also raising awareness of the importance of digitization in the modern era. As a result, they can become competent individuals, ready to face the increasingly digital challenges of the future. Through this training, SMA Al Huda hopes to contribute to the development of human resources that are highly competitive and capable of making a positive impact on society and the nation. Based on this background, this program highlights the integration of AI tools in basic web development training for high school students, which is rarely applied in similar community service programs. This unique combination is expected to not only improve technical skills but also introduce future-oriented thinking from an early age.

METHOD

The AI-based website development training at SMA Al Huda, South Lampung, was designed to open up new perspectives and significantly enhance the students' understanding of how Artificial Intelligence can be leveraged in the digital world. It was followed by 22 students because the capacity of the computer lab room could not accommodate too many students. This initiative aimed to bridge the knowledge gap between traditional education methods and modern technological advances, specifically in the realm of AI. The training program focused on providing high school students with the essential skills required for creating websites powered by AI tools. By introducing students to the transformative potential of AI in web development, the training sought to inspire creativity, critical thinking, and innovation among the students. Moreover, this hands-on training session not only aimed to increase the students' technical proficiency but also fostered a deeper understanding of AI's role in shaping the future of digital technology. Through this program, students were encouraged to see AI not just as a theoretical concept but as a practical tool that can be applied to real-world projects, enabling them to stay competitive in the increasingly digital job market.

Preparation Stage

This stage was conducted to identify the issues faced by the students of SMA Al Huda about problems related to the integration of AI tools in basic web development for high school students, and to request permission to hold the event. The next step involved preparing the materials for the training on Creating AI-based Websites to Enhance Creativity and Digital Skills for High School Students.

Implementation Stage

The community service with the theme "Creating AI-based Websites to Enhance Creativity and Digital Skills for High School Students" was carried out at this stage. The training was held offline, and a pre-test was conducted beforehand to assess the students' initial knowledge of the material to

be covered. Additionally, there was a hands-on session where participants were given the opportunity to use basic AI tools and techniques.

Monitoring and Evaluation Stage

At this stage, a questionnaire was created at the end of the program for the participants from SMA Al Huda, South Lampung, as feedback to assess the responses from the participants and their post-test answers. The evaluation was carried out after the workshop was completed. Through the 10 questionnaires and interviews, participants were asked to provide feedback on their satisfaction with the training, their understanding of the material taught, and their ideas or plans for applying the knowledge gained in real-life contexts. The data collected from the questionnaire were analyzed using descriptive statistical methods, such as calculating frequencies and percentages to measure satisfaction levels and comprehension. Meanwhile, the responses from interviews were examined through thematic analysis to identify recurring patterns, ideas, and suggestions. This mixed-methods approach helps assess the effectiveness of the training in achieving its educational objectives and provides valuable insights for future program improvemen to assess the success of the training in achieving educational goals and provide insights for future improvements.

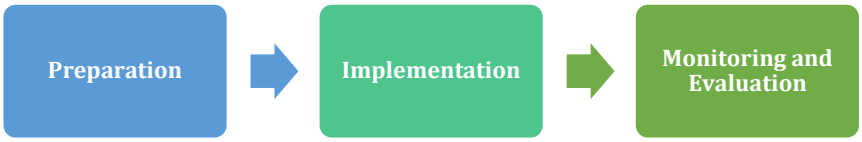

Figure 1. Research Flow

RESULTS AND DISCUSSION

The implementation of this community service activity was carried out on Saturday, February 22, 2025, at SMA Al Huda, South Lampung. Through this activity, participants not only learned the basic concepts and steps of website creation but also realized how AI can assist in creating more interactive, innovative, and engaging designs. The community service activity was conducted according to the planned stages, and Figure 2 shows a group photo of the committee members, speakers, and participants of the PKM event During the implementation stage, the activity ran smoothly, with the speakers teaching the participants how to implement AI to help create websites in order to enhance creativity and digital skills. This activity was attended by 22 participants, who were students from SMA Al Huda. AI provides instant design and content inspiration, so users can explore various styles such as Designing a home page, creating a web description, adding a chatbot to answer questions, adding school activity graphics made with Canva AI, learning to edit basic HTML and CSS to understand the structure. where the application of AI will provide Digital skills for users to learn to think logically, understand website workflows, and get to know future technologies such as NLP and machine learning. in addition, the application of this method will result in time efficiency in terms of reducing technical barriers for beginners to start creating websites. The participants received hands-on training on how to directly practice website creation with the help of AI, guided by the speakers and supported by the committee members who assisted in the execution of the training. During the training activity, the participants appeared enthusiastic as they learned the instructions from the speaker on how to write programming code, how to process it, and how to view the results of the process.

Figure 2. Documentation of Training Activity

In Figure 3, it can be seen that the speakers and committee members are assisting the participants during the training. The benefits achieved through this community service activity are that the participants now have the skills to create artificial intelligence applications easily without using coding. The improvements observed in the participants before and after the activity can be seen in the results of the questionnaire data processing, where the majority of the post-test answers were correct compared to the pre-test answers. In addition to equipping students with technical skills, this training also instilled an awareness of the importance of digitalization in the modern era. They began to understand that AI is not just a tool, but also a great opportunity to develop creativity and innovation. This awareness not only motivated them to continue learning and utilizing AI in various aspects of life but also inspired them to share their knowledge with their families and the community around them.

Figure 3. Documentation of Speaker's Training

This activity also conducted a knowledge assessment of the students before (pre-test) and after (post-test) the training through an interactive quiz using Quizizz. The results of the study showed a significant improvement in the students' understanding of creating AI-based websites. Some questions from the total 10 questions in the pre-test and post-test were related to the definition of HTML, the URL function on a website, changing the appearance using JavaScript features, writing AI-based code to create websites, website development using AI, and others.

Figure 4 shows the number of people who answered questions 1 to 10 correctly. The graph clearly illustrates a noticeable improvement, with nearly all questions showing an increase in the number of participants answering correctly when comparing the pre-test and post-test results. This positive trend is particularly evident in questions 1, 3, 4, 5, 6, and 7. However, for questions 2, 8, 9, and 10, there was a slight decline in the number of correct responses between the pre-test and post-test. However, in questions 2, 8, 9, and 10, there was a slight decrease in the number of correct answers between the pre-test and post-test. This could be caused by several factors. One factor is that some of these respondent groups did not want to listen to the material carefully, so that the post-test results decreased while all the questionnaire materials were included in the media used to deliver the material. There is another factor, namely that during the pre-test they answered randomly and played guessing games. Overall, this activity is not only opened new perspectives for students in the digital world but also fostered a spirit of exploration and innovation. With enhanced

skills and a deeper understanding, they are increasingly prepared to face challenges and contribute to technological transformation in the future.

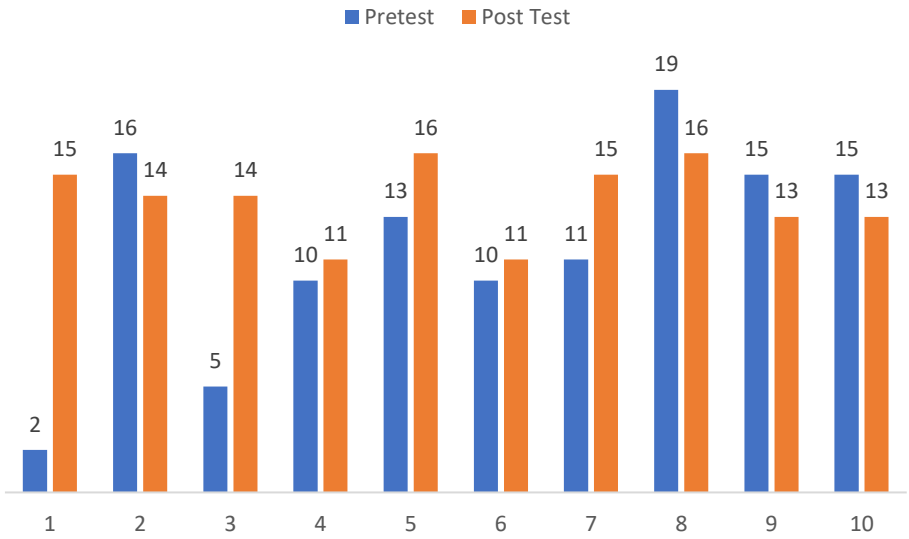

Figure 4. The Number of People Who Answered The Question Correctly

More than just theory, students were also given the opportunity to directly practice creating AI-based websites. This approach not only made the learning process easier to understand but also sparked enthusiasm and interest in AI technology among the students. Many students were increasingly motivated to explore advanced features such as designing a home page, creating a web description, adding a chatbot to answer questions, adding school activity graphics made with Canva AI, learning to edit basic HTML and CSS to understand the structure and develop more creative websites in line with their imaginations. This finding is consistent with Solihat et al. (2024) who showed that the use of AI-based learning media increases student engagement. This impact was also observed in community service training where students showed high enthusiasm in using AI tools for web development. Furthermore, Fitrianingsih et al. (2023) emphasized that a project-based approach in digital media development can increase creativity and digital literacy, which results in empowering high school students to explore and apply AI creatively in building their own websites(Damayanti et al., 2021; Fitrianingsih et al., 2023). However, unlike those studies, this activity placed a stronger emphasis on the creative integration of AI tools in real-time web design, which was new for most participants. As a result of enhancing learning experiences, autonomy, and critical thinking skills, AI tools were found to positively influence motivation. Motivation, however, was not significantly influenced by academic level. Despite ethical concerns, students held a moderately positive view of artificial intelligence in education. Further research on optimal AI implementation and ethical considerations in education is necessary based on these findings demonstrating that website-based learning can significantly improve students' creative abilities (Marini et al., 2025; Mohamed et al., 2024). Through presentations, demonstrations, hands-on practice, and interactive discussions, the students not only gained a deep understanding of website development but also received direct experience in creating AI-based websites. This program provided valuable insights for the students, particularly in the aspect of digitalization, which is expected to continue developing both in their daily lives and in the future.

CONCLUSION

The AI-based website development training at Al Huda High School, South Lampung, has gone well and achieved the expected goals as stated in the Introduction Chapter. Through presentation methods, hands-on practice, and interactive discussions, students gain in-depth understanding as well as hands-on experience in creating AI-based websites. This can be seen from the results of the pretest and posttest which showed an increase in student understanding. This activity succeeded in fostering students' creativity and awareness of the importance of digitalization, so that it is in line

and compatible with the formulation of the initial objectives of the training. The results of this training open up opportunities for further research, both in terms of implementing AI technology in interactive web development and further exploration about the use of AI in the field of digital education. So for future research, more complex AI integration is needed such as educational chatbots or learning recommendation systems, long-term evaluation of improving students' digital literacy, and developing a structured curriculum based on project-based learning with AI support. Thus, this program is not only an initial step that has a positive impact, but can also be used as a foundation for future studies that is relevant to technology-based learning.

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