Bersama : Jurnal Pengabdian Masyarakat
Vol. 3 No. 1, 2024, 27-36
Publisher : CV. Doki Course and Training
E-ISSN : 3032-5889

Artificial Intelligence Introduction Assistance for Children in Karangsari Village, Sapuran District, Wonosobo Regency

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ARTICLE INFO

Article History
Submission : 04 - 03 - 2025
Review : 23 – 03 -2025
Revised : 26 -03 - 2025
Accepted : 27 – 03 - 2025
Published : 27 – 03 - 2025

Keywords
Artificial Intelligence (AI)
Digital Literacy
Village Communities
Educational Technology
Participatory Approach

ABSTRACT

This program aims to improve children's digital literacy in Karangsari Village, Sapuran District, Wonosobo Regency, through basic introduction to Artificial Intelligence (AI) to bridge the digital divide between urban and rural areas which was carried out on January 28-29, 2025. The methods used include the preparation, implementation, and evaluation stages, with a participatory approach that includes socialization, interactive training, and direct assistance. Evaluation is carried out through observation, interviews, questionnaires, and simple tests to measure participants' understanding and skills. The results show a significant increase in understanding basic AI concepts and the ability to apply AI-based technology, as well as strengthening soft skills such as cooperation and critical thinking. However, there are several obstacles faced, such as limited technological devices, unstable internet access, and differences in participants' levels of understanding, so further strategies are needed in providing supporting infrastructure and more inclusive and adaptive learning methods.

INTRODUCTION

In the rapidly developing digital era, Artificial Intelligence (AI) has become a technology that cannot be separated from everyday life (Elliott, 2019) This technological advancement has brought significant changes in various aspects of life, including education and human resource development (Swanson, 2022) However, the digital divide is still evident between urban and rural areas, especially in terms of understanding and access to AI technology. Karangsari Village, located in Sapuran District, Wonosobo Regency, is one of the areas that requires attention in developing digital literacy, especially among children as the next generation.

Rural communities have an important role in the social and economic structure of a country, especially in Indonesia where the majority of the population still relies on the agricultural and community-based sectors (Prayoga et al., 2019). A village is a social, economic and cultural entity that has characteristics that are different from urban life (Pradani, 2020). Based on Law Number 6 of 2014 concerning Villages, a village is defined as a legal entity of society that has territorial boundaries, is authorized to regulate and manage the interests of the local community, and is recognized in the national government system. Villages are not only the center of life for their residents but also have great potential in developing local-based economies and social desires. The priority of village communities lies in local wisdom that is passed down from generation to generation,

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mutual cooperation, and close social relations among its citizens (Saidah, 2020). In contrast to urban communities that are more individualistic, rural communities generally still maintain the value of togetherness in various aspects of life, such as agriculture, fisheries, and home industries. In addition, villages also play a role in maintaining ecological balance, especially in the management of natural resources that are more sustainable compared to cities that tend to experience high exploitation of resources (Mayang et al., 2024). However, despite having various advantages, rural communities also face major challenges, one of which is the digital divide and low access to modern technology (Vardiansyah et al., 2025).

The rapid development of information and communication technology (ICT) has changed various aspects of life, including in the world of education and economy. Unfortunately, not all rural communities can access technology properly, resulting in a digital mix between villages and cities. This gap has an impact on reducing digital literacy among rural communities, especially children and the younger generation who should be prepared to face the digital era (Triwardhani et al., 2023). In fact, with the right use of technology, rural communities can improve their standard of living through digital-based education, creative economic opportunities, and technology-based resource management. Therefore, efforts to introduce technology, especially Artificial Intelligence (AI), to children in villages are a strategic step in preparing a generation that not only understands technology, but is also able to use it to improve the welfare of their community.

Introducing AI to children in rural areas is a strategic step in preparing a future generation that is tech-savvy. This program's mentoring is designed to provide a basic understanding of AI, its application in everyday life, and the potential for developing digital skills that can support village progress in the future. Through an interactive and locally contextualized approach, this program aims to bridge the digital divide and open the minds of village children to global technological developments. Artificial Intelligence (AI) is a branch of computer science that focuses on the development of computer systems that are able to imitate human intelligence in thinking, learning, and solving problems (Chatterjee, 2020) The concept of AI was first introduced by Alan Turing in 1950 through the "Turing Test" which became the initial milestone in the development of artificial intelligence technology (Friedman-Bernacchi, 2024). Over time, AI has undergone significant evolution from simple rule-based systems to complex machine algorithms as we know them today. In its historical development, AI has gone through several important phases that have formed the foundation of modern technology. In 1956, the Dartmouth conference became a historic moment when the term "Artificial Intelligence" was first put forward by John McCarthy. The 1960s to 1970s were marked by the development of expert systems and basic problem-solving algorithms. Entering the 1980s, neural networks and machine learning began to receive serious attention from researchers. Significant progress occurred in the early 21st century with the emergence of deep learning and big data that enabled AI to process and analyze data on an unprecedented scale.

The role of AI in modern life is vast and multidimensional. In the health sector, AI helps diagnose diseases, develop drugs, and plan patient care. In the education sector, AI supports adaptive learning and personalizes learning materials according to student abilities. In the industrial sector, AI optimizes production processes, supply chain management, and market demand predictions. In everyday life, AI is present through virtual assistants, recommendation systems, and facial recognition technology that facilitate various human activities.

This study aims to improve children's digital literacy in Karangsari through a basic AI introduction program. Through a participatory approach that includes socialization, interactive training, and direct assistance, this study is expected to provide participants with a basic understanding of AI and skills in using AI-based technology. In addition, this study also aims to identify obstacles faced in the AI learning process in rural areas and offer more adaptive solutions for more inclusive learning.

Based on the study, this study hypothesizes that a participatory AI introduction program will improve children's understanding of AI concepts and skills in using AI-based technologies, as well as contribute to the improvement of their soft skills, such as cooperation and critical thinking. If this hypothesis is proven, then this approach can be recommended as an effective technology learning model for children in rural areas.

METHOD

The research method in community service activities is systematically designed this study uses a qualitative approach with a case study research design to deeply understand the process of introducing artificial intelligence (AI) in improving digital literacy. to improve children's digital literacy in Karangsari Village, Sapuran District, Wonosobo Regency, through the introduction of basic concepts of Artificial Intelligence (AI) on January 28-29, 2025. The approach used involves a series of stages including preparation, implementation, and monitoring and evaluation to ensure the success of the program. This method combines socialization activities, interactive training, and practice-based mentoring so that the material presented can be optimally understood by participants according to the local context.

The study participants consisted of elementary and middle school children who participated in an AI training program. The selection of participants was carried out using purposive sampling, taking into account their active involvement in the program and varying levels of understanding of digital technology. In this study, data were collected through several complementary techniques to gain a deeper understanding of the process of introducing artificial intelligence (AI) to children. The first technique is participant observation, where researchers directly observe the interactions of participants during training sessions. Through this observation, the pattern of participant engagement, their level of understanding of the material, and the various challenges faced during learning can be recorded in detail. Another technique used is documentation, which includes collecting

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various related materials such as training modules, participant assignment results, and recordings in the form of photos or videos during the activity.

The research variables in this study consist of independent variables, namely participatory-based AI training programs, and dependent variables, namely increasing participants' understanding and skills in using AI-based technology. In addition, environmental factors such as access to technological devices and internet network quality are contextual variables that can affect research results.

The research population was children in Karangsari who had limited access to technology. The sample was selected purposively based on their involvement in the training program, with a total of 30 children participating. Data collection methods were carried out through observation, interviews, questionnaires, and simple tests. Observations were used to observe participant involvement during training sessions, interviews helped understand participants' experiences and constraints, while questionnaires and simple tests were used to measure improvements in AI understanding and skills before and after the program. Data analysis was carried out by evaluating the process and results. Process evaluation was carried out through direct observation of participant participation during the implementation of the program.

The implementation stage is carried out through a series of activities consisting of socialization, training, and mentoring. Initial socialization is carried out to introduce the program to the community and provide an understanding of the goals, benefits, and importance of digital literacy in preparing a technology-literate generation. The training is held in the form of interactive sessions involving an introduction to the basic concepts of AI, examples of its application in everyday life, and direct practice using simple AI-based technology. The training is designed to combine theory and practice, so that participants not only understand the concept, but are also able to apply it. Mentoring is carried out directly by the implementing team to help children overcome difficulties that arise during the learning process. The monitoring and evaluation stage is carried out to measure the effectiveness of the program and the impact it produces. The evaluation is carried out in two stages, namely process evaluation during the activity and evaluation of the results after the activity is completed. During implementation, evaluation is carried out through direct observation of participant participation and responses, as well as short interviews to measure their level of understanding of the material presented. After the activity is completed, an evaluation is carried out using a questionnaire and a simple test to assess the increase in participants' knowledge and skills related to AI. The evaluation results are analyzed to determine the extent to which the program can improve participants' soft skills and hard skills, as well as to provide input for future program development.

RESULTS AND DISCUSSION

In this community service activity, the focus is on implementing a mentoring program to introduce Artificial Intelligence (AI) to children in Karangsari Village, Sapuran District, Wonosobo Regency. This program is designed to provide a basic understanding of AI technology through a participatory, interactive, and practice-based approach. In the preparation stage, identification of partner needs showed that most children in this village do not have adequate access to digital technology, including AI. This is due to limited technological infrastructure and low digital literacy among the community. Therefore, the material prepared focuses on introducing AI in a simple, relevant, and contextual way, so that it can be accessed and understood by children who have diverse technological backgrounds. At the implementation stage, the activity began with socialization involving parents, village officials, and children as the main participants. This socialization aims to provide an overview of the importance of digital literacy in the modern era and the benefits of mastering AI for individual and village development. The positive response from the community shows enthusiasm and awareness of the importance of this program. The training is then conducted in several sessions that include an introduction to the basic concepts of AI, the application of AI in everyday life, and direct practice using technology-based tools. For example, children are taught to use simple applications that utilize AI, such as voice or image recognition applications, to show how this technology works in a real-life context. This approach successfully builds participants' curiosity and interest in technology. The results of this study are based on a participatory approach, with evaluations including observations, interviews, questionnaires, and simple tests to measure the increase in digital literacy of children in Karangsari after participating in the AI training program. The discussion focuses on changes in participants' understanding, the effectiveness of the methods applied, and the challenges faced in implementing the program.

Figure 1. Training Implementation Session

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The program implementation stage begins with socialization to the community, which includes parents, village officials, and children as the main participants. This socialization aims to provide an understanding to the community about the importance of digital literacy in the modern era and the benefits of mastering AI for the development of individuals and the village as a whole. The positive response from the community shows enthusiasm and awareness of the importance of this program, as shown by the high level of participation in the socialization session. The results of observations and simple tests showed a significant increase in the understanding of basic AI concepts among participants. Before joining the program, most children had a very limited understanding of AI and its use in everyday life. After the training, they were able to explain basic AI concepts, such as how speech and image recognition technology works, and apply them through available devices. In addition, the results of the questionnaire showed that most participants felt more confident in using AI-based technology and were more interested in learning more about it.

After the socialization stage, training is carried out in several sessions that include an introduction to the basic concepts of AI, the application of AI in everyday life, and direct practice using technology-based tools. This training is designed to combine theory and practice, so that participants not only understand the concept of AI theoretically, but are also able to apply it in everyday life. For example, children are taught to use simple AI-based applications such as voice recognition or image recognition, which helps them understand how AI works in real life. This approach has proven effective in building curiosity and increasing children's interest in technology. The results of the research on Cause-Related Marketing (CRM) which showed a significant influence on consumer purchasing interest have relevance to the approach used in introducing artificial intelligence (AI) to children in Karangsari Village. Both studies highlight the importance of social engagement-based strategies in shaping people's behavior and perceptions of a product or program (Muhammad Hisyam Syafii & Halim Purnomo, 2024).

Mentoring is carried out by an implementing team consisting of teachers and students, who directly guide children in exploring AI technology. In this process, it was found that children have quite good abilities in understanding the basic concepts of AI, although there are still challenges in its technical implementation. One of the challenges faced is the difference in the level of understanding between participants, which causes the need to adjust the teaching method so that all participants can understand the material optimally.

Figure 2. Training Implementation Session

The evaluation results showed that the program succeeded in significantly improving participants' understanding and skills. Based on the training, participants were able to re-explain the basic concepts of AI that were taught, and from them they were able to use AI-based applications to complete simple tasks, such as recognizing patterns or utilizing voice recognition features. In addition, most participants showed an increased interest in technology, as seen from their enthusiasm in asking questions and trying new applications during the training. This shows that a practice-based and interactive approach is effective in improving digital literacy in children in rural areas. Interactive methods and hands-on practice have proven effective in improving participants' understanding. With a combination of socialization, training, and direct assistance, children find it easier to understand the concepts taught. The practice-based approach also allows them to directly apply theory to the use of simple AI technology, such as pattern recognition using AI-based applications. Interviews with participants and parents showed that this approach makes the learning process more interesting and less boring, so that participants are more active in training sessions.

Evaluation

The evaluation of this community service activity was carried out in two stages, namely evaluation during the implementation of the activity (process evaluation) and evaluation after the activity was completed (result evaluation). The process evaluation was carried out by directly observing the participation of participants during the activity. From the observation results, it was seen that the participants showed high enthusiasm, especially in the practical session on using Artificial Intelligence (AI)-based applications. In addition, short interviews with the children participants showed that most of them were able to understand the material presented well. The participants were also active in asking

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questions and discussing, which showed an increase in their curiosity about the technology being taught. In the outcome evaluation, measurements were carried out using questionnaires and simple tests to evaluate the increase in participants' understanding and skills. Based on the evaluation results, participants were able to re-explain the basic concepts of AI that were taught, such as the definition of AI and examples of its application in everyday life. In addition, participants successfully used AI-based applications, such as voice or image recognition applications, to complete simple tasks given during the training. These results show a significant increase in participants' digital literacy after participating in the program. This evaluation also recorded an increase in participants' soft skills, such as the ability to work together in groups and the courage to ask questions and express opinions.

In addition, feedback from parents of participants and village officials showed that the program was considered relevant and useful, especially in preparing children to face the digital era. However, although the evaluation results showed the success of the program, there were several aspects that still needed to be improved, such as increasing access to technological devices and involving more participants in the future.

Obstacle

During the implementation of the activity, there were several obstacles faced, both from technical and non-technical aspects:

1. Limited technological devices

   Not all participants have technological devices, such as computers or smartphones, that are adequate to optimally participate in the training. Some children have to share devices provided by the implementation team, so that practice time is limited. This affects the efficiency of the activity, especially in practice-based sessions.

2. Limited internet access

   Another obstacle faced is unstable internet access in Karangsari Village. Several AI-based applications require an internet connection to function properly. To overcome this, the implementation team chose applications that can be used offline, although this option is quite limited.

3. Differences in participants' level of understanding

   The children who took part in the training had different backgrounds and levels of technological understanding. Some children understood the material taught more quickly, while others took longer to master the basic concepts of AI. This affected the flow of the training, because the facilitator had to pay special attention to

participants who had difficulties, so that the implementation time was longer than planned.

CONCLUSION

The results of this study indicate that introducing artificial intelligence (AI) to children in Karangsari Village can be an effective strategy in improving their digital literacy. With a participatory and hands-on approach, children not only understand the basic concepts of AI but are also able to apply this technology in their daily lives. This program has a positive impact on improving digital skills and strengthening soft skills, such as critical thinking and teamwork.

However, the effectiveness of this program still faces several challenges, such as limited access to technological devices, unstable internet connections, and differences in participants' levels of understanding. Therefore, a more adaptive follow-up strategy is needed, including the provision of supporting infrastructure and the development of more inclusive learning methods so that the benefits of this program can be sustainable and applied more widely in other communities.

Thus, this study confirms that digital literacy in rural areas can be significantly improved through an innovative educational approach based on local needs. The integration of technology in education, especially AI, can be a solution to bridge the digital divide between urban and rural areas, while equipping the younger generation with relevant skills for the future.

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