



Improving Digital Literacy of Village Communities in Indonesia through Information Technology-Based Community Service Programs

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Abstract: This Community Service Program (PKM) aims to improve the digital Literacy of rural communities in Indonesia through information technology-based Training. This activity was conducted online and involved 50 participants with a varied basic understanding of digital technology. Interactive training methods using the Zoom application and mentoring via WhatsApp are carried out to ensure participants can understand and practice the training material, especially in social media and e-commerce. The Training results showed a significant improvement in the participants' abilities. Before the Training, only 20% of participants could use social media, and 15% could take advantage of e-commerce. After the Training, this figure increased to 85% and 70%, respectively. Although there are challenges in the form of limited internet access in some regions, the provision of materials that can be accessed offline helps participants in the learning process. This program increases digital Literacy and contributes to improving the local economy through digital marketing of village products. With positive results, this program can be replicated in other regions to empower the community through information technology. This study shows that the right digital training approach can significantly impact Literacy and economic empowerment in rural communities.

Keywords: Digital Literacy; Online Training; Village communities; Social media; e-commerce

Introduction

The development of information technology in the digital era has changed various aspects of human life, including access to and management of information (Borges et al., 2021; Sheikh et al., 2021; Williams, 2021). Digital platforms and social networks improve connectivity, enabling unprecedented access to information, although they also introduce challenges such as the spread of misinformation and social isolation (Kalganov, 2023; Mabruroh, 2023).

One of the critical aspects of this transformation is increased access to information. Digital technology facilitates instant access to various sources of information, changing traditional methods of acquiring knowledge (Suroedova et al., 2021). The internet has also democratized information, allowing diverse voices to contribute to knowledge creation (Manurung & Thalib, 2022).

In addition, social interaction patterns have also undergone significant changes. Social media is creating new forms of community relationships and engagement,

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although overreliance on digital communication can reduce face-to-face interactions, ultimately leading to social isolation (Mabrurroh, 2023). On the other hand, the development of this technology also impacts business practices. Businesses must adapt to digital technology to remain competitive, emphasizing innovation and operational efficiency (Berutu et al., 2024). The digital ecosystem demands rethinking traditional processes to effectively use technology (Appio et al., 2019).

While the digital age offers significant advantages in information access and management, it also raises concerns regarding privacy, social inequality, and the quality of interpersonal relationships. Therefore, a balanced approach to the use of technology is needed to maximize its benefits without ignoring the negative impacts that may arise (Kalganov, 2023; Mabrurroh, 2023).

The digital literacy gap is one of the significant challenges the community faces, especially in rural areas (Samane-Cutipita et al., 2022). According to the latest study, digital literacy skills are essential in supporting the community's quality of life because they can open access to various economic, educational, and social resources (Heena & Nidhi, 2022; Khanlou et al., 2021). However, rural communities in Indonesia are often lagging in terms of technology mastery due to factors such as limited access to infrastructure, low levels of education, and lack of knowledge about information technology (Fauzia & Hidayati, 2023; Paradise & Ritonga, 2024; Funan, 2024).

Previous research has discussed the importance of digital Literacy in improving people's welfare. For example, Husna et al. (2023, and Kurniawan et al. (2021), in their research, show that increasing digital Literacy through technology-based Training can encourage the ability of village communities to access information and online services. Similarly, the study by Arianti (2023) and Mesakh et al. (2024) emphasizes that digital Literacy is vital in advancing the local economy's potential through online product marketing. However, most of the programs that have been carried out still focus on small-scale Training or are limited to technical aspects without a holistic approach involving various elements of village communities.

This PKM article offers novelty in a more inclusive and sustainable information technology-based approach. Not only does this program provide technical Training, but it is also designed to involve all levels of village society, from young people to adults, in understanding the benefits of technology in daily life, both socially, economically, and educationally. This differs from previous studies that only focused on one group or aspect. The gap identified from previous research is the lack of integration and sustainable

approaches in digital literacy programs targeting rural communities.

The importance of this PKM article lies in its ability to answer the actual needs of rural communities in Indonesia that are facing the challenges of globalization and digitalization. By increasing digital Literacy, rural communities will be more independent in accessing information, opening up new economic opportunities, and strengthening their social networks. The program can also be a model for other regions facing similar problems.

This article aims to explain the implementation and results of the information technology-based digital literacy improvement program in Indonesian village communities. In addition, this article also aims to examine the program's impact on the community's welfare and involvement in the daily use of information technology.

Method

This Community Service (PKM) activity is carried out online through the Zoom application to improve the digital Literacy of village communities in Indonesia. The process begins with the planning stage, where the service team conducts initial surveys and interviews with village community leaders to identify specific needs related to digital Literacy. Based on the results of these identifications, a training program was designed to answer the existing information technology gap, including preparing training modules, selecting digital platforms, and scheduling activities. Collaboration with the village government and local educational institutions is carried out to ensure active participation from various elements of society so that the program can be carried out optimally (Rasda et al., 2024; Siregar & Ivanna, 2024).

During the program, the training was conducted in several online sessions, with critical topics such as the use of basic information technology, social media for local product marketing, and internet security. Each session was filled by competent speakers in digital Literacy, followed by interactive discussions and practical tasks for participants. After the Training, the service team continues to provide regular assistance through WhatsApp groups to ensure the application of the material learned in daily activities, especially in supporting economic activities such as online product marketing (Sanitias & Dani, 2022). This activity was evaluated through participant surveys and interviews to measure the impact of the program on improving the digital Literacy of village communities.

The final stage of this activity is the preparation of PKM articles based on the training and evaluation results. This article presents empirical findings on the

impact of digital literacy programs on the lives of rural communities and provides a comprehensive overview of the methods and approaches used. The article is prepared following the guidelines for scientific writing for publication in PKM journals, including introduction, activity methods, results, and conclusions that are expected to be a reference for similar programs in the future.

Result and Discussion

Result

Participation and Participant Profile

This Community Service (known with PKM) activity was attended by 50 participants from several villages in Indonesia who were the program's target. Participants consisted of various age groups, ranging from 18 to 55 years old, with diverse backgrounds, including homemakers, MSME actors, and village youth. Based on an initial survey conducted before the Training, only 20% of participants understood information technology. Most participants, namely 80%, experienced a digital literacy gap, especially regarding the use of technology for economic activities, such as online product marketing. This shows that the target audience of this program is very appropriate, considering the significant need related to digital Literacy in the village.

Table 1. Participant Participation

Criterion	Sum
Number of Participants	50
Participants with Basic Understanding (%)	20
Participants Without Basic Understanding (%)	80

Improving the Digital Literacy of Participants

After the implementation of four online training sessions, there was a significant improvement in participants' digital understanding and skills. The evaluation results through a questionnaire filled out by participants showed that 85% of participants reported an improvement in their ability to use social media to promote local products. In addition, 70% of participants successfully practiced using e-commerce applications to expand the market for their products. This significant change indicates that the training materials provided have successfully answered the needs of the village community related to digital Literacy, primarily for economic purposes.

Table 2. Improving the Digital Literacy of Participants

Digital Literacy Aspects	Before Training (%)	After Training (%)
Social Media Capabilities	20	85
E-commerce Usage	15	70

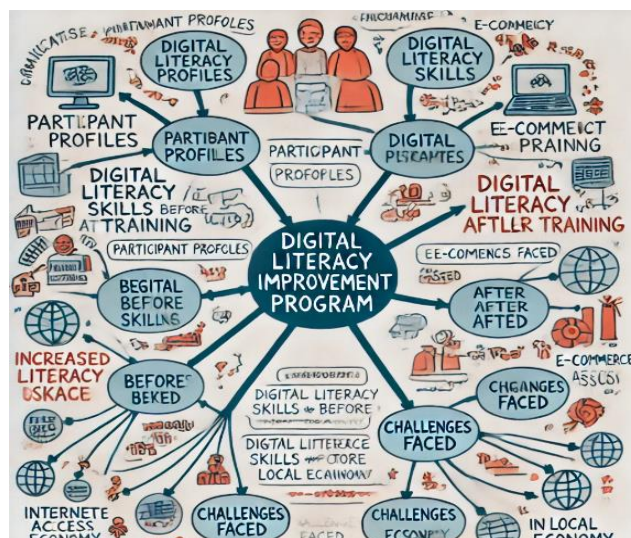


Figure 1. Mind Map Results of the Digital Literacy Improvement Program in Indonesian Rural Communities

Post-Training Assistance

During the four weeks of post-training mentoring, participants interacted with the service team through WhatsApp groups. This mentoring aims to help participants overcome difficulties in implementing training materials. The results showed that most participants could utilize information technology consistently in their daily activities, such as online product marketing. This reflects the success of a continuous mentoring approach to ensure participants can apply the new knowledge they have acquired.

Challenges and Obstacles to Implementation

Although the program is running well, several obstacles are faced during the implementation, including minimal internet access in several village areas. This obstacle makes it difficult for some participants to participate optimally in the training session. However, the service team overcame this obstacle by providing access to training materials that could be downloaded and studied independently at flexible times.

Evaluation of the Impact of Activities

The program evaluation shows that this PKM activity has significantly increased the digital Literacy of village communities. Participants who previously did not have digital skills can now use information technology to support local economic activities. The program also overcame the gap identified in previous studies: the lack of a sustainable digital literacy program focused on local needs. The positive impact felt by the participants also reflects the sustainability of this program in the long term.

Discussion

The results of Community Service (PKM) activities show the success of the program in significantly increasing participants' digital Literacy. As seen in the tables and graphs, there was a substantial improvement

in participants' skills in utilizing social media and e-commerce. Before the Training, only 20% of the participants had basic skills in using social media, while after the Training, this figure increased to 85%. The same thing happened with e-commerce applications, which increased from 15% to 70%. This increase shows that the Training and mentoring provided efficiently answer participants' digital literacy needs.

This success can be attributed to the online application-based training method and interactive approach. Participants are given materials tailored to their needs and abilities to be applied directly to daily activities, especially for marketing local products. This supports previous research findings that emphasize the importance of digital Literacy for the economic empowerment of rural communities (Fuadi et al., 2021; Irawan, 2023; Pitrianti et al., 2023).

In addition, post-training mentoring is also an essential factor that contributes to the success of this program. With the mentoring through the WhatsApp group, participants receive training materials and ongoing support to overcome technical obstacles they may face when applying technology in their daily activities. This approach is in line with studies by (Anwar et al., 2023; Wulandari, 2024), which stated that continuous assistance plays a role in ensuring the sustainability of the impact of digital literacy programs.

However, obstacles related to internet access in several village areas remain a challenge that must be overcome to ensure that all participants can participate optimally in the Training. This limited access affects some participants' ability to access the material in real time. To address this issue, procuring materials that can be accessed offline is beneficial, although it does not entirely eliminate the obstacle.

Overall, this PKM activity answered the previously identified digital literacy gap. Significant improvements in social media and e-commerce capabilities show that the program is relevant and can sustainably impact rural communities. Furthermore, this program can be a model for similar activities in other villages, especially with improving digital infrastructure in more expansive rural areas.

Conclusion

This Community Service Program (PKM) has succeeded in increasing the digital Literacy of village communities in Indonesia, especially in terms of social media and e-commerce use. A significant improvement in participants' skills showed the effectiveness of the online-based training method and the mentoring approach. From the results of the Training, participants who initially had limited abilities in utilizing digital

technology can now apply these skills in their daily lives, especially in increasing the potential of the local economy through digital marketing.

However, some challenges are still obstacles, such as limited internet access in some village areas. Therefore, developing digital infrastructure in rural areas and providing materials that can be accessed offline are necessary steps to ensure that this program can be carried out more inclusively. Overall, this program has a significant positive impact and has the potential to be replicated in other regions to empower the community through increasing digital Literacy.

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