Creation of Mayang Village Website Application And Community Empowerment Through Digital Literacy

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ABSTRACT

Background: The advancement of information and communication technology (ICT) has transformed various aspects of life, including education, the economy, and public transparency. Technology is now an essential part of daily activities. However, in rural areas like Mayang City, digital literacy remains low, limiting the community's ability to use technology effectively. Although the region has strong human and natural resource potential, many residents—especially those in agriculture and MSMEs—have not yet optimized technology for improving efficiency and welfare. These challenges highlight the need for targeted digital literacy programs and infrastructure support.

Contribution: This program contributes to community empowerment by combining digital literacy training with the development of a village website tailored to local needs. It addresses the digital divide in rural areas through practical solutions that strengthen both individual skills and institutional transparency. The approach not only improves access to information and public services, but also builds community capacity to engage with technology sustainably.

Method: This activity used a qualitative descriptive approach to examine the digital literacy conditions in Mayang Village. Data were collected through observations and informal interviews. The website development followed the waterfall model, which consists of structured stages: analysis, design, implementation, testing, and maintenance. This method ensured a systematic process suitable for small-scale community-based systems.

Results: The program resulted in the development of a village website and a series of digital training sessions for the community. These efforts significantly increased public access to information and reduced dependence on verbal announcements or physical notice boards. The website improved transparency by making government data accessible anytime. The community also became more active in using digital tools for daily tasks, supporting more effective and efficient practices.

Conclusion: The integration of digital literacy training and a functional village website has enhanced technological readiness in Mayang Village. It improved information access, governance transparency, and community engagement with technology. This initiative serves as a foundation for future digital transformation in rural areas.

INTRODUCTION

Community service activities are part of the Tri Dharma of Higher Education. Community service (PKM) is an activity aimed at assisting a specific community in various activities without expecting any form of compensation [9]. Technology has penetrated various aspects of life, including the world of education, by presenting opportunities to create more personal, efficient, and adaptive learning [7]. The advancement of data and communication innovation (ICT) within the current advanced period has brought major changes in different viewpoints of life, from instruction, economy, to open administrations. Innovation has gotten to be an indivisible require in day by day exercises. Be that as it may, the greatest utilization of innovation is frequently hampered by moo levels of advanced education, particularly in provincial regions such as Mayang Town. Mayang Town is one of the regions with very expansive potential for human assets and normal assets. Most of the individuals in this town work within the agrarian division and small scale, little, and medium undertakings (MSMEs). In any case, there are still numerous individuals who have not utilized computerized innovation ideally to extend efficiency and welfare. Constrained get to to data, need of understanding of innovation, and negligible preparing are the most challenges in expanding advanced proficiency in this town. A sub-district is the smallest government unit at the same level as a village, but a sub-district has the right to regulate a more limited area than a village and in its development, a village can have its status changed to a sub-district [10]. For this reason, a Village Information System Application is needed which can archive and protect data so that it is not easily lost [11].

With the theme "Creating a Mayang Village Website Application and Empowering the Community Through Digital Literacy", this program aims to educate the community about the importance of digital literacy and improve their ability to use information technology devices. A website is a medium consisting of several pages that are interconnected with each other, and functions as a medium for displaying information, whether in the form of images, videos, text, sound, or a combination of all of them [18]. Through basic computer training, wise use of the internet, introduction to business support applications, and digital information management, the community is expected to be able to face the challenges of the digital era better. In addition, this program also aims to encourage local economic development through the use of digital technology, such as online marketing of MSME products and access to other digital platforms. Therefore, the background to the implementation of this program is based on the need to bridge the digital gap that still exists in the Mayang Village community. It is hoped that this program will not only provide short-term benefits, but also have a sustainable impact on the village community towards digital independence. The purpose of this study is:

1. Identifying the level of digital literacy of the Mayang Village community and the obstacles faced in utilizing information technology.
2. Providing appropriate training to improve community skills in using technology devices and the internet optimally.
3. Encouraging local economic development through the use of digital technology, such as online marketing of MSME products and technology-based business management.
4. Increasing community capacity in facing the digital era by building a good understanding of digital literacy, information security, and internet usage ethics.
5. Measuring the impact of digital literacy programs on the lives of the Mayang Village community, both in the social, economic, and educational fields.

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Through this information system website, the quality of village performance can be improved and it can provide convenience for village heads and village officials in managing village gawanuntuk better [12]. A system is a collection of various elements that work together and interact to achieve a specific goal that has been determined from the start [19].

Digital literacy is a key component in ensuring inclusive participation in the digital era. According to the Indonesian Ministry of Communication and Informatics, digital literacy encompasses four pillars: digital skills, digital ethics, digital safety, and digital culture [1]. These components are essential in preparing communities, especially in rural areas, to adapt to the growing use of information technology in governance, economy, and communication.

Previous studies highlight the role of digital training programs in increasing digital competence and local empowerment [4] emphasize that information systems at the village level can improve transparency and efficiency in administrative services. Similarly, note that training based on community needs significantly boosts engagement and sustainability of digital initiatives. [5]

The development of village websites is also aligned with the *Peraturan Menteri Desa PDTT No. 13 Tahun 2020* concerning village information systems, which mandates each village to provide accessible digital platforms for public services and governance transparency. [2]

However, while existing literature often focuses on either system development or digital training separately, this study offers a dual intervention—website creation and digital literacy training—designed to address both infrastructure and human resource gaps in rural digital transformation

METHOD

In carrying out this community service activity, the following implementation methods are used
1. The observation method is a data collection method using direct observation of the research object (Mayang Village) to obtain data, descriptions, and information regarding the existing system [13]
2. The interview method is a data collection method used by the author by directly asking relevant parties, including the village head and village officials in Mayang Village, to obtain the data and information needed to build a system [14].
3. The literature study method is a data collection method by studying books related to information system design provided in the library [15].
4. The documentation method is a method for collecting supporting data for system development in Mayang Village [16].

The research approach used in this activity is descriptive qualitative. This approach was chosen to describe the digital literacy conditions of the Mayang Village community before, during, and after the implementation of the empowerment program. By using this method, researchers can understand the problems faced by the community, design appropriate solutions, and evaluate the effectiveness of the program based on data and observations in the field. The reason for choosing a descriptive approach is to provide a factual picture of the level of digital literacy of the Mayang Village community, including the needs and obstacles faced. while choosing a qualitative approach aims to explore the perceptions, experiences, and changes felt by the community during the program.
The stages of the approach taken are:

1. Initial Observation

    In this case, researchers observe and study existing problems in the field that are closely related to the object being studied.

    - Identifying the initial conditions of the community related to digital literacy, access to technology, and basic understanding of digital devices.
    - Observations are conducted through direct visits to the location and informal interviews with the community and village officials.

2. Program Implementation

    The implementation stage is the stage of carrying out the application process in each part of the system [6].

    - Providing training and assistance related to the use of digital technology, such as computers, the internet, and supporting applications.
    - Applying participatory learning methods to ensure that the community is actively involved in each training session.

3. Evaluation and Data Collection

    - Using in-depth interviews, questionnaires, and focus group discussions to measure the impact of the program on the community's digital literacy.
    - Documenting changes in community behavior or skills related to the use of technology.

4. Data Analysis

    Data analysis is the process of systematically searching for and organizing data obtained from data collection, so that the data is easy to understand and the findings can be communicated to others [20]

    - Analyzing qualitative data obtained from observations, interviews, and discussion results to assess the success of the program.
    - Compiling data-based recommendations for the development of empowerment programs in the future.

The SDLC (Software Development Life Cycle) method is the process of creating and changing systems as well as the models and methodologies used to develop software engineering systems [17]. The method used to create a website is the waterfall method. The waterfall method is a linear and sequential software development approach, where each phase (such as requirements analysis, design, implementation, testing, and maintenance) must be completed before the next phase begins. This method resembles a waterfall, flowing from top to bottom sequentially. The waterfall method consists of several stages, namely requirements analysis, design, implementation, testing and maintenance. [3]

Figure 1. Waterfall Method

Figure 1 illustrates the waterfall development model used in this study. This model was chosen due to its structured and sequential approach, which is suitable for small-scale, one-time website development projects with clearly defined requirements.

RESULTS AND DISCUSSION

1. Information Technology and Computer Training

Based on the background of the problems in Mayang village, researchers provide training in the use of information technology to several Mayang village officials and some of the Mayang village community so that in the future they can carry out training independently. Some of the training carried out are as follows:

a. Basic Computer Training

The material provided includes the procedures for turning on and off the computer. In general, the steps to turn on the computer. In addition, there is also material on recognizing computer parts, ports, computer specifications, software in Computer Information Systems and general software installed on the operating system. Introducing what hardware is needed for information technology and introducing the new Mayang village website.

b. MS Office Training(word, excel and powerpoint)

Microsoft Office training is conducted to provide participants with knowledge and skills in using Microsoft Office applications such as Word, Excel and PowerPoint. The purpose of this training is to make work easier, increase effectiveness and efficiency, and improve digital skills in the village environment. The training conducted includes how to use the tools in Microsoft Word, Excel and PowerPoint.

c. Internet Training

In this training, the internet material provided includes the use of email (creating messages and replying to electronic messages) and Google Drive (creating Google forms and Google Docs).

Based on the assessment indicators, namely pre-test (questions given before the material) and post-test (questions given after the material), the following results were obtained. First, in the Introduction to Basic Computer material, the pre-test score obtained an average score of 50 and the post-test score obtained an average of 80. These results indicate that participants understand the basic computer material provided. Second, in the Ms. Office material (Word and Excel) the average pre-test score was 60 and the average post-test score was 90. These results indicate that the Ms. Office material (Word and Excel) can be understood. Third, the average post-test score for the Internet material was 50 and the post-test score was 70. These results also indicate that participants understand the Internet material provided. From the implementation of the training, partners were very happy and enthusiastic about the basic computer, MS Office and internet training that had been implemented. Some photos of the training conducted in Mayang Village are shown in the following pictures:

Figure 2 Training Microsoft Office

Figure 2 shows participants engaged in Microsoft Office training sessions, where they practiced basic document processing, spreadsheets, and presentations relevant to daily village administration.

Figure 3. community internet training

Figure 3 captures the community internet training session. Participants learned how to use email and cloud storage platforms to improve digital communication and file management.

2. **Development of the Mayang Sukoharjo village website**

The implementation of the development and implementation of the information website of Mayang Sukoharjo Village aims to provide easier and faster access for the community to information related to village activities, public services, and various programs in the village. This website was launched with the aim of increasing transparency, facilitating communication between the village government and the community, and providing wider access to information to residents [16]. In the initial stage, this website provides various main features that include:

1. News and Announcements: Provides the latest information related to village activities, important announcements, and upcoming events. This feature allows residents to always get the latest information that is relevant to village life.
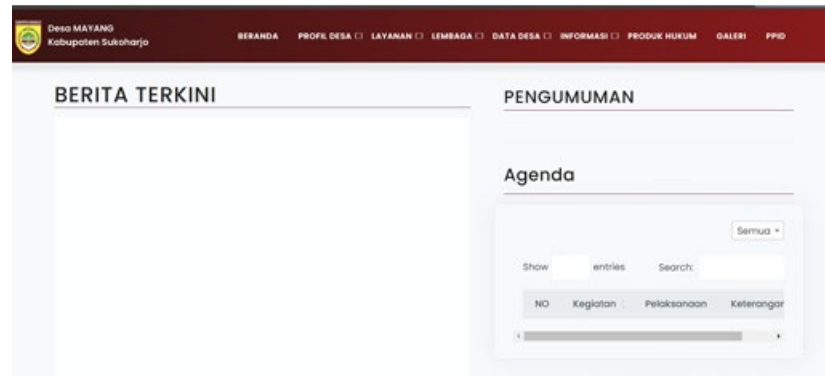
Figure 4. Home Page

Figure 4 shows the homepage of the Mayang Village website, where users can access the latest news and announcements from the village government. This section is regularly updated by the admin to ensure information remains current.

2. Village Profile: This page contains general information about the history of Mayang Village, the vision and mission of the village government, organizational structure, and the potentials of the village.

Figure 5. village profile

Figure 5 illustrates the profile page, which includes historical information, organizational structure, and the village's vision and mission.

3. Public Services: This feature provides access to submit applications or administrative services online, such as cover letters, certificates, and other documents commonly needed by residents.

Figure 6. village History

Figure 6 shows the dedicated section that describes the historical background of Mayang Village to strengthen cultural identity and heritage awareness.

4. Interactive Village Map: With the digital map, residents can easily find important locations in the village, such as the village office, health facilities, schools, and other public infrastructure.
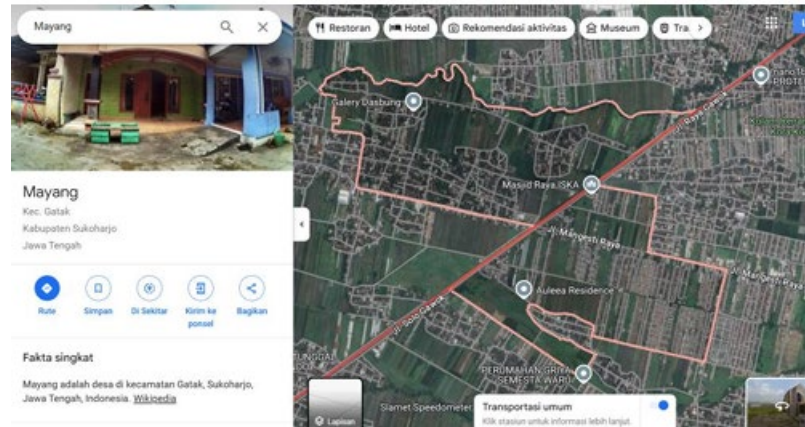

Figure 7. Mayang village maps

Figure 7 presents an interactive digital map embedded on the website, enabling users to locate key village facilities and infrastructures with ease.

To support the functionality of the website, the system was developed using PHP and MySQL as the backend technologies, with a responsive front-end built using HTML, CSS, and JavaScript. The website is hosted on a cloud-based server to ensure 24/7 accessibility. The admin dashboard allows village officials to manage news, public documents, and respond to inquiries from residents efficiently.

The public-facing interface prioritizes simplicity and accessibility, featuring a user-friendly layout compatible with mobile devices, considering the limited access to laptops or desktops in rural areas. Security measures, such as user authentication and CAPTCHA validation, were implemented to maintain data privacy and system integrity.

5. Contact and Communication: This feature allows residents to contact village officials more easily via email or the contact form provided. This is expected to facilitate two-way communication between residents and the village government.

Figure 8. public service

Figure 8 illustrates the public service interface of the website, where residents can request documents or services online, improving administrative efficiency.

CONCLUSION

Based on the results of the pretest and posttest conducted, it was shown that the training conducted had a significant impact on the knowledge of village officials and some of the community. With the information technology training conducted, it is hoped that Mayang village can increasingly utilize technology to make work easier and more effective and efficient.

The Mayang Sukoharjo Village information website has been successfully designed and implemented to provide easier, faster, and more efficient access to information for the village community. This website functions as the main channel to inform residents about various activities, village programs, public services, and important announcements, as well as providing interactive features such as village maps, direct communication with the village government, and online submission of administrative services. The implementation of this website shows a significant increase in the accessibility of information by the community. With this platform, the community is no longer fully dependent on verbal information or physical notice boards, which have limitations in terms of time and reach. This website also supports the transparency of the village government by providing information that can be accessed by anyone, at any time. In addition, this website provides great benefits in terms of efficiency of administrative services, making it easier for the community to submit applications or access documents online, without having to come directly to the village office. However, this success must also be balanced with efforts to overcome several challenges that still exist.

In the long term, the website and digital training program are expected to serve as foundational steps towards sustainable digital transformation in Mayang Village. By equipping local residents with the necessary skills and infrastructure, the program has the potential to reduce information gaps, improve public service transparency, and stimulate local economic activities through digital means. Future programs can focus on maintaining and expanding digital services, integrating e-commerce platforms for MSMEs, and enhancing cybersecurity awareness among villagers. This training is highly relevant to the spirit of the Independent Curriculum, which emphasizes independent learning, formative assessment, and differentiated learning [8]

Acknowledgement

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