Community Empowerment through the SOBAT Program: Technology-Based Optimization Synergy for Digital Transformation and Literacy in Muara Sugih

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Abstract

Background Digital transformation has become an important aspect of rural community development in the modern era. However, many villages in Indonesia still face limitations in digital infrastructure, technological access, and digital literacy among residents. Muara Sugih Village, located in Tanjung Lago District, Banyuasin Regency, experienced similar challenges, particularly in information dissemination, digital awareness, and technological education for children and teenagers.

Objectives This study aimed to describe the implementation of the SOBAT Program (Synergy of Technology-Based Optimization) in improving digital literacy, supporting village digital transformation, and strengthening community empowerment in Muara Sugih Village.

Methods The program applied a participatory and community-based approach through observation, socialization, training, mentoring, and digital system development. The activities involved village officials, children, teenagers, and local residents. Several programs were implemented, including village website development, digital literacy campaigns, Microsoft Word Basic Bootcamp, computer introduction classes for children, digital consultation services, and educational outreach regarding digital security and financial management.

Results The implementation of the SOBAT Program successfully improved community understanding of digital technology and responsible internet use. The village obtained a functional website and an official visual identity through the creation of a village logo. Children and teenagers demonstrated improved technological skills, particularly in computer usage and office software applications. In addition, residents became more aware of digital security, hoax prevention, and the importance of digital financial management. The establishment of the Digital Literacy Corner also provided sustainable educational support for the community.

Conclusion The SOBAT Program demonstrated that technology-based community empowerment can become an effective strategy for supporting sustainable rural development. The integration of technological innovation, educational activities, and community participation successfully strengthened digital literacy, improved technological awareness, and enhanced social collaboration within Muara Sugih Village.

Keywords: Community Empowerment, Digital Literacy, Village Website, Digital Transformation, SOBAT Program.

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INTRODUCTION

Digital transformation has become an important aspect of community development in the modern era. The rapid growth of information technology has influenced various sectors of life, including education, public administration, communication, and economic activities. Technology enables communities to access information more quickly, improve administrative efficiency, and create broader opportunities for social and economic development. However, despite these advancements, many rural areas in Indonesia still face limitations in technological infrastructure and digital literacy. These limitations often hinder communities from fully utilizing technology to support daily activities and village development.

Muara Sugih Village, located in Tanjung Lago District, Banyuasin Regency, is one of the villages

experiencing these challenges. Prior to the implementation of the program, the village had not yet possessed an official digital platform to provide public information and support administrative services. Village information dissemination was still carried out conventionally, making access to information less effective and less organized. In addition, many residents, especially adults and the elderly, had limited understanding regarding digital security, hoax information, and the proper use of digital technology in daily life. The lack of digital awareness increased the risk of misinformation and misuse of personal data among the community.

The condition was also evident among children and teenagers in the village. Many of them were still unfamiliar with computer hardware, software applications, and basic office programs such as Microsoft Word. Limited access to technological education caused unequal digital skills among the younger generation. In fact, digital competence is increasingly necessary to support educational activities and future employment opportunities. Therefore, efforts to improve digital literacy among children and teenagers became one of the important focuses of the community empowerment program.

To address these problems, KKN Group 132 implemented the SOBAT Program (Synergy of Technology-Based Optimization) as a form of community empowerment through technology-based education and digital transformation. The program was designed to improve technological awareness, strengthen digital literacy, and encourage community participation in adapting to the digital era. Several activities were carried out, including village system analysis, website development, user interface design, digital literacy socialization, Microsoft Word Basic Bootcamp, computer introduction programs for children, digital financial management education, and digital consultation services for residents.

One of the major achievements of the program was the successful development of the Muara Sugih Village website. The website was designed to provide village profile information, galleries, and administrative databases that could support public services more effectively. The development process involved several stages, including needs analysis, UI/UX design, coding, database integration, testing, and mobile optimization to ensure accessibility for the community. In addition, the program also initiated the creation of an official village logo to strengthen the visual identity of Muara Sugih Village in the digital environment.

Besides technological development, the SOBAT Program also focused on educational and social activities. Teenagers participated in Microsoft Word bootcamps that taught document formatting, paragraph arrangement, table creation, and paper writing skills. Children were introduced to computer hardware and software through interactive learning activities aimed at increasing their interest in technology. Furthermore, residents received education regarding digital security, the dangers of hoax information, and digital financial management to help them become more adaptive and responsible technology users.

The program also established a “Digital Literacy Corner” at the village office as a sustainable educational facility for residents. This facility was intended to become a center for independent learning and technological information. In addition, digital consultation services were provided to assist residents facing technical problems with smartphones and other digital devices. Through these initiatives, the SOBAT Program not only supported technological development but also strengthened social interaction and collaboration between students, village officials, and the community.

Therefore, the implementation of the SOBAT Program was expected to create sustainable community empowerment by increasing digital awareness, improving technological skills, and strengthening social

participation within the village community. The integration of educational, technological, and social activities in this program demonstrates that digital transformation can become an effective strategy for supporting rural community development in the modern era.

METHOD

The implementation of the SOBAT Program (Synergy of Technology-Based Optimization) applied a participatory and community-based approach to ensure active involvement from the local community throughout the program activities. The program was conducted from January to February 2026 in Muara Sugih Village, Tanjung Lago District, Banyuasin Regency. This approach emphasized collaboration between university students, village officials, children, teenagers, and local residents in identifying problems, planning activities, implementing programs, and evaluating outcomes. The participatory method was chosen to ensure that the programs implemented were relevant to community needs and could provide sustainable benefits after the completion of the KKN program.

The implementation process consisted of several stages, including observation, socialization, training, mentoring, system development, and community participation. Each stage was carried out systematically to support the achievement of the program objectives, particularly in improving digital literacy, strengthening technological awareness, and supporting village digital transformation.

1. Observation and Needs Analysis

The first stage of the program involved direct observation and needs analysis within the village environment. Students conducted field observations and discussions with village officials and residents to identify the main problems related to technology utilization, digital literacy, and public information services. Interviews were also conducted to collect information regarding the community's needs and expectations toward digital transformation in the village.

This stage helped students understand the condition of the village, including the absence of a digital information platform, limited public understanding regarding digital security, and the lack of technological education among children and teenagers. The results of the observation process became the basis for designing programs and determining the features needed for the village website and educational activities.

2. Socialization and Education

The socialization stage focused on increasing community awareness regarding responsible and safe technology use. Educational activities were conducted through direct outreach and face-to-face interaction with residents. Several socialization topics included digital security awareness, prevention of hoax information, and digital financial management.The activities were carried out in several locations within the village using a door-to-door approach and small community discussions to encourage active participation from residents. Through this method, the community was given practical explanations regarding the importance of protecting personal data, identifying false information circulating on social media, and utilizing digital financial systems effectively.

In addition to community outreach, educational activities were also directed toward children and teenagers. These activities aimed to improve digital understanding among the younger generation and encourage them to become more adaptive to technological developments.

3. Training and Mentoring

Training and mentoring activities were implemented to improve practical technological skills among children and teenagers in Muara Sugih Village. One of the main activities was the Microsoft Word Basic Bootcamp, which introduced participants to basic office software skills such as paragraph formatting, document arrangement, table creation, and paper writing.The program also included computer introduction classes for children. Participants were introduced to computer hardware and software through interactive learning methods. Students explained the functions of computer components and provided direct practice opportunities to increase participants' understanding and interest in technology.Mentoring methods emphasized practical learning and direct interaction between students and participants. The mentoring process allowed participants to ask questions and receive direct assistance while practicing computer skills. Through this approach, participants were expected to gain both theoretical knowledge and practical experience in using technology.

4. System Development

One of the main focuses of the SOBAT Program was the development of the Muara Sugih Village website as a digital platform for information dissemination and administrative support. The website development process involved several stages, starting from system analysis and planning to implementation and testing.The first step involved designing the user interface (UI) and determining the structure of the website based on village needs. After the design process, students continued with coding and database integration to develop the website system. Several features included village profiles, galleries, village information, and administrative data management.

The development process also involved testing and evaluation to identify errors and improve system performance. In addition, the website was optimized for mobile access using responsive auto-layout technology to ensure accessibility through smartphones and various digital devices. The final stage included website presentation and symbolic handover to village officials as a form of program implementation.Besides website development, students also designed an official village logo to strengthen the visual identity of Muara Sugih Village. The logo design process involved discussions and consultations with village officials to ensure that the design reflected the identity and characteristics of the village community.

5. Community Participation

Community participation became an important aspect of the SOBAT Program implementation. Village officials, community leaders, children, teenagers, and local residents were actively involved in every stage of the program. Their involvement included providing information during observation activities, participating in educational programs and training sessions, and contributing ideas during discussions regarding website and logo development.The participatory approach encouraged collaboration between students and the community, creating a sense of ownership toward the implemented programs. Community participation also supported the sustainability of the program outcomes, particularly in maintaining and utilizing the village website and Digital

Literacy Corner after the completion of the KKN activities.Through the integration of observation, education, training, technological development, and community participation, the SOBAT Program successfully implemented a collaborative empowerment model that supported digital transformation and community development in Muara Sugih Village.

RESULTS AND DISCUSSION

1. Village Digital Transformation

One of the major achievements of the SOBAT Program was the successful implementation of digital transformation in Muara Sugih Village through the development of a village website and the strengthening of village digital identity. Before the program was conducted, Muara Sugih Village did not yet have an official digital information system or online administrative platform. Information dissemination and administrative documentation were still carried out conventionally, causing limitations in public access to village information and reducing the effectiveness of administrative services.

To address this issue, KKN Group 132 initiated the development of the Muara Sugih Village website as a digital platform designed to support village administration, public information dissemination, and village promotion. The development process was conducted systematically, beginning with observation and needs analysis through discussions with village officials and community members. Based on the collected information, students designed a user-friendly interface (UI) that could be easily understood and accessed by the village community.

The website development process included several stages such as UI/UX design, coding, database integration, debugging, testing, and optimization. During the implementation stage, students encountered several technical obstacles, including coding errors and database connection problems. However, through continuous evaluation and system improvements, the website was successfully completed and optimized using responsive auto-layout technology, allowing it to be accessed through smartphones and various digital devices.

The website contained several important features, including village profiles, village galleries, administrative information, and data management systems. The existence of the website significantly improved access to information for both residents and external communities. The final stage of the program involved the presentation and symbolic handover of the website to village officials as a form of sustainable digital innovation.In addition to website development, the SOBAT Program also successfully designed an official village logo as part of strengthening the visual identity of Muara Sugih Village. The logo design process involved discussions and consultations with village officials to ensure that the logo reflected the cultural values, characteristics, and identity of the village community. This initiative contributed to creating a stronger village image in the digital era and supported the village's branding efforts.

The successful implementation of the website and village logo demonstrated that digital transformation can become an effective strategy for improving public services and strengthening village identity. The program also showed that collaboration between students, village officials, and residents could create sustainable technological innovations that benefit rural communities.

2. Improvement of Digital Literacy

Another important achievement of the SOBAT Program was the improvement of digital literacy among the residents of Muara Sugih Village. Prior to the program implementation, many residents had limited understanding regarding responsible technology use, digital security, and information filtering. The rapid spread of information through social media increased the risk of misinformation and hoax circulation among the community. Therefore, digital literacy education became one of the main focuses of the program.Digital literacy activities were conducted through direct socialization and educational outreach programs. The students used a door-to-door approach and small group discussions to create more effective interaction with residents. This approach allowed residents to ask questions directly and discuss digital-related problems they experienced in daily life.

Several important topics were introduced during the socialization activities, including personal data protection, digital security awareness, prevention of hoax information, and digital financial management. Residents were educated about the importance of protecting passwords, avoiding suspicious links, and identifying false information circulating on social media platforms. In addition, digital financial management education was provided particularly for residents involved in trading and small businesses to improve their understanding of digital transactions and financial recording systems.

The outreach activities received positive responses from the community because the information provided was directly related to their daily experiences. Many residents became more aware of the dangers of misinformation and began to understand the importance of responsible digital behavior. Furthermore, the socialization activities encouraged residents to become more confident in utilizing digital technology for communication and economic purposes.

Another important initiative implemented during the program was the establishment of the “Digital Literacy Corner” at the village office. This facility functioned as a center for technological information and independent learning for residents. The Digital Literacy Corner contained educational materials and visual information regarding digital literacy and safe internet use. The establishment of this facility was expected to provide sustainable benefits for the community even after the completion of the KKN program.The improvement of digital literacy in Muara Sugih Village demonstrated that direct educational approaches and community participation can effectively increase public understanding regarding technology. Through continuous socialization and practical education, the community became more adaptive and responsible in utilizing digital technology.

3. Youth and Children Empowerment

The SOBAT Program also focused on empowering children and teenagers through educational and technology-based activities. The program recognized that the younger generation plays an important role in supporting future digital transformation within the village. However, before the implementation of the program, many children and teenagers in Muara Sugih Village had limited exposure to computer technology and digital learning.

One of the main educational activities conducted was the Microsoft Word Basic Bootcamp. This activity aimed to introduce teenagers to basic office software skills, including paragraph formatting, table

creation, document arrangement, and paper writing. The training was conducted through practical learning methods in which participants directly practiced using the application while receiving guidance from students.

At the beginning of the training, many participants were still unfamiliar with the basic features of Microsoft Word. However, after several mentoring sessions, participants demonstrated significant improvement in their ability to create and organize documents independently. The bootcamp not only improved technical skills but also increased participants' confidence in using digital technology for educational purposes.

In addition to office software training, the program also introduced children to computer hardware and software through interactive educational activities. Students explained the functions of computer components such as monitors, keyboards, CPUs, and software applications in simple and understandable ways. Children were also given opportunities to interact directly with computers to increase their curiosity and interest in technology.The educational activities successfully created enthusiasm among children and teenagers toward digital learning. Many participants became more motivated to learn about technology and showed greater interest in computer-based education. These activities contributed to increasing digital awareness among the younger generation and prepared them to adapt more easily to future technological developments.

Besides technological education, the SOBAT Program also implemented religious guidance activities for children. These activities included training in ablution procedures, prayer movements, prayer recitation, and adzan practice. Students guided children directly and conducted memorization and practical evaluations to improve their understanding.The religious activities contributed positively to character building, discipline, and self-confidence among children. Through these activities, children became more enthusiastic about participating in religious practices and social interaction within the community. The integration of technological and religious education in the program demonstrated that community empowerment can be implemented comprehensively by addressing both intellectual and moral development.

4. Digital Consultation Services

One of the innovative activities implemented during the SOBAT Program was the establishment of digital consultation services or "Digital Clinics" for the community. This activity functioned as a technological assistance service aimed at helping residents solve technical problems related to smartphones, laptops, and digital applications.The digital consultation service was conducted at the village post and involved direct interaction between students and residents. Residents who experienced difficulties in operating digital devices, accessing applications, or managing digital data were able to receive direct guidance and assistance from students. The service also provided education regarding basic device maintenance and troubleshooting methods.The implementation of this activity showed that many residents still experienced difficulties in utilizing digital devices effectively. Some residents faced problems related to smartphone settings, internet access, application usage, and digital security. Through the consultation service, residents gained practical knowledge that could help them use technology more confidently and independently.

The existence of the digital clinic also strengthened the relationship between students and the village community. Residents felt more comfortable discussing technological problems directly, while students gained practical experience in community service and problem-solving. This activity demonstrated that simple

technological assistance services can provide meaningful benefits for rural communities, especially those with limited digital literacy.

Furthermore, the digital consultation services became an important support system for the sustainability of the village digital transformation process. As residents became more familiar with technology, they were more prepared to utilize the village website and other digital services developed during the program.

5. Social and Community Impact

In addition to technological and educational achievements, the SOBAT Program also created positive social impacts within the community of Muara Sugih Village. The implementation of various collaborative activities strengthened social interaction, community participation, and cooperation between students and residents.One of the social activities conducted during the program was communal exercise activities for children. These activities aimed to create enjoyable interaction and strengthen social relationships among children in the village. Through group exercise and recreational activities, children became more active, enthusiastic, and cooperative with one another.

Students also participated in community health service activities such as Posyandu programs. Through involvement in health-related activities, students contributed to community service while strengthening communication and collaboration with residents and local health workers.The participatory approach used throughout the program encouraged active involvement from village officials, parents, children, and community leaders. Residents not only became participants in the activities but also contributed ideas, suggestions, and support for program implementation. This collaborative atmosphere strengthened the sense of ownership toward the outcomes of the program, particularly regarding the village website and digital literacy facilities.

Overall, the implementation of the SOBAT Program demonstrated that technology-based community empowerment can create both technological and social benefits for rural communities. The integration of digital transformation, educational activities, social interaction, and community participation successfully improved digital capacity and strengthened social cohesion within Muara Sugih Village. The program also proved that collaboration between universities and local communities can contribute significantly to sustainable rural development in the digital era.

CONCLUSION

The implementation of the SOBAT Program (Synergy of Technology-Based Optimization) in Muara Sugih Village successfully contributed to community empowerment through digital transformation, educational development, and improvement of digital literacy. The program addressed several challenges faced by the village, particularly the lack of digital infrastructure, limited technological knowledge among residents, and low awareness regarding responsible technology use. Through the integration of technological innovation, educational activities, and social participation, the program created positive impacts for various groups within the community.

One of the major achievements of the program was the successful development and implementation of the Muara Sugih Village website. The website became an important digital platform for providing village information, supporting administrative activities, and strengthening village identity in the digital era. In

addition, the creation of an official village logo contributed to improving the visual identity and branding of the village. These innovations demonstrated that digital transformation can improve the effectiveness of public services and expand public access to information in rural communities.

The program also significantly improved digital literacy among residents through socialization and educational outreach activities. Residents gained better understanding regarding digital security, hoax prevention, personal data protection, and digital financial management. The establishment of the Digital Literacy Corner further supported sustainable learning opportunities for the community by providing access to educational information related to technology and digital awareness.Furthermore, the empowerment of children and teenagers through Microsoft Word bootcamps, computer introduction activities, and interactive digital education successfully increased participants' technological knowledge and interest in digital learning. Religious guidance activities also contributed positively to children's character development, discipline, and self-confidence. The implementation of digital consultation services provided practical technological assistance for residents and strengthened communication between students and the community.

The participatory and community-based approach used throughout the program encouraged active involvement from village officials, residents, children, and teenagers. This collaboration strengthened social relationships and created a sense of ownership toward the outcomes of the program. As a result, the SOBAT Program not only improved technological capacity but also strengthened social cohesion within Muara Sugih Village.Overall, the SOBAT Program demonstrated that technology-based community empowerment can become an effective strategy for supporting sustainable rural development in the digital era. Future programs are expected to continue supporting the sustainability of the village digital system, improving community digital literacy, and expanding educational initiatives that can further enhance the quality of life of rural communities.

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AUTHOR CONTRIBUTION STATEMENT

AYP contributed to program planning, manuscript preparation, data collection, and article writing. RUM contributed to the implementation of digital literacy programs, community socialization activities, and manuscript editing. MEHK contributed to website development, system analysis, coding, and database integration. MAC contributed to educational activities, mentoring programs, data documentation, and evaluation of community empowerment activities. All authors discussed the results and approved the final version of the manuscript.

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