

Socialization of the Use of Smart TVs as a Means of Improving Communication Quality and as a Learning Medium in Indonesia's 3T Regions

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ABSTRACT

Kesenjangan akses terhadap teknologi informasi di wilayah Terpencil, Terbelakang, dan Kurang Mampu (3T) di Indonesia masih menjadi tantangan penting dalam upaya menyamakan kualitas pendidikan dan komunikasi nasional. Artikel pengabdian masyarakat ini bertujuan untuk mendokumentasikan dan menganalisis efektivitas sosialisasi penggunaan Smart TV sebagai sarana peningkatan kualitas media komunikasi dan pembelajaran di wilayah 3T. Masalah utama yang diidentifikasi adalah rendahnya literasi digital dan penggunaan perangkat teknologi yang terbatas pada fungsi hiburan konvensional, meskipun perangkat berbasis internet memiliki potensi besar untuk mengurangi jarak informasi. Metode pelaksanaan pengabdian masyarakat dilakukan melalui pendekatan Pengembangan Masyarakat yang mencakup demonstrasi teknis, lokakarya interaktif tentang penggunaan fitur pendidikan digital, dan pendampingan bagi guru dan orang tua dalam menyusun konten pembelajaran. Hasil pengabdian masyarakat menunjukkan peningkatan pemahaman masyarakat tentang fungsi transformatif Smart TV sebagai jendela informasi global dan alat pembelajaran dinamis di sekolah-sekolah dengan sumber daya manusia terbatas. Artikel ini menyimpulkan bahwa penguatan literasi digital melalui perangkat yang familiar di lingkungan domestik seperti televisi dapat menjadi jembatan yang efektif menuju inklusi digital bagi masyarakat di daerah terpencil.

The gap in access to information technology in Indonesia's Frontier, Outermost, and Disadvantaged (3T) regions remains a crucial challenge in efforts to equalize the quality of national education and communication. This community service article aims to document and analyze the effectiveness of socialization of the use of Smart TVs as a means of improving the quality of communication and learning media in 3T regions. The main problems identified are low digital literacy and the use of technological devices that are limited to conventional entertainment functions, despite the enormous potential of internet-based devices to reduce the distance of information. The community service implementation method is carried out through a Community Development approach that includes technical demonstrations, interactive workshops on the use of digital education features, and mentoring for teachers and parents in curating learning content. The results of the community service show an increase in community understanding of the transformative function of Smart TVs as a window to global information and a dynamic instructional tool in schools with limited human resources. This article concludes that strengthening digital literacy through devices familiar in the domestic environment such as television can be an effective bridge to digital inclusion for communities in remote areas.



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INTRODUCTION

Indonesia, as an archipelagic nation with over 17,000 islands, faces complex geographic realities in the distribution of technological advancements. Frontier, Outermost, and Disadvantaged Regions (3T) are often the weakest link in the national development chain. The characteristics of 3T regions, which generally have limited transportation infrastructure, unstable energy access, and geographic isolation, create a wide gap between urban growth centers and communities on the country's periphery. This gap is not only physical but also informational, known as the *digital divide*. Over the past decade, the government, through National Strategic Projects such as the Palapa Ring, has strived to provide a connectivity backbone. However, the availability of an internet signal alone is insufficient without the availability of relevant hardware and user literacy (*humanware*). People in remote, underdeveloped (3T) regions often have internet access but don't know how to use it for productivity or education. This is where *Smart TV* technology plays a crucial role as a bridge between the digital world and the daily lives of rural communities.

Historically, television has been the most popular electronic device in Indonesian households, even in remote areas. However, conventional television is one-way (*one-way communication*), and its content relies heavily on terrestrial transmitter coverage, which often doesn't reach remote areas. The arrival of *Smart TVs* has brought about a fundamental shift. These devices are no longer simply broadcast receivers, but rather large-screen computers with internet connectivity, interactive applications, and video conferencing capabilities. For communities in the 3T (third-most remote) regions, *Smart TVs* can be a valuable communication tool. In environments where *smartphones* may have limited screen space for communal use, *Smart TVs* enable families or entire classes at school to make high-quality video calls, access *real-time* global news , and interact with the outside world without having to leave their villages. Socializing the use of these devices is crucial so that people see television not only as a tool for watching soap operas, but as a communication hub that strengthens social ties and access to information.

The education sector in the 3T (third-third) regions is the sector most impacted by the technology gap. Schools in remote areas often lack specialized teachers, up-to-date textbooks, and educational aids. Conventional lecture methods often cause students to lose interest and lag behind in understanding abstract science or technology material. Utilizing *Smart TVs* as learning media offers innovative instructional solutions. With access to platforms like YouTube Kids, Rumah Belajar, or other educational portals, teachers in 3T regions can bring virtual labs, space simulations, and even foreign language courses directly into the classroom. *Smart TVs* provide visual and auditory stimulation that can enhance student cognition. However, in reality, many devices donated by the government or donors in 3T schools end up being "displays" because teachers lack the technical skills to integrate them into the curriculum. Therefore, community service activities in the form of outreach and training are absolutely necessary (Candrakanta 2023).

The urgency of this community service is also driven by the low level of digital literacy in the 3T (frontier and remote) regions. Digital literacy is not simply the ability to turn on a device, but rather the ability to think critically to filter information, secure personal data, and use technology ethically. Using an internet-connected *Smart TV* without adequate literacy can expose people to hoaxes, online gambling, or content inappropriate for children. This outreach provides an in-depth understanding of features such as *parental controls* , selecting educational apps, and how to find credible sources of information. This service emphasizes that technology is a "servant" of human progress, not the other way around. The public is taught to manage screen time *and* choose content that can improve their quality of life, whether in health, agriculture (through video tutorials), or other technical skills (Restianty 2018).

From a sociological perspective, the quality of communication within a community determines the strength of its social capital . In remote, frontier (3T) regions, where physical access to the city center may take days, the ability for high-quality digital communication through a large *Smart TV* screen allows for a more tangible "virtual presence." Families with members working or studying outside the area can feel closer. Furthermore, these devices can be used for communal activities such as health education or village meetings involving expert speakers from the city via online teleconferencing. Communal use of *Smart TVs* in village halls or schools in remote, underdeveloped (3T) areas can strengthen community bonds. This

outreach teaches people how technology can be used for collective benefit, not just individualistic ones. This aligns closely with the local wisdom of Indonesian society, which values deliberation and togetherness, but is now strengthened by the support of digital infrastructure (Putera and Rhussary 2018).

The Indonesian government, through the Ministry of Communication and Informatics and the Ministry of Education, Culture, Research, and Technology, is intensively implementing the National Digital Literacy and School Digitalization programs. This community service program is an extension of this ambitious vision. The 3T (United Territories) regions, which are a priority for "Indonesia-Centric" development, require acceleration through targeted technological interventions. This outreach helps the government ensure that costly investments in telecommunications infrastructure are not wasted. With the increased use of Smart TVs in the 3T (frontier and remote) regions, community productivity is expected to increase. For example, farmer groups can learn the latest land management techniques through educational videos, and schoolchildren can have the same level of knowledge as their peers in big cities like Jakarta or Surabaya (Situmorang and Ayustia 2019).

In addition to the benefits, the background of this service also stems from the need for education regarding device maintenance in the often extreme 3T (Uninhabitable) environments. Problems with unstable electrical voltage, dust, and high humidity can quickly damage electronic devices. This outreach provides practical guidance for the community on the use of electrical stabilizers, how to clean devices, and how to perform simple troubleshooting on internet connections. Without an understanding of these technical aspects, the sustainable use of technology in 3T regions will be hampered by unaddressed device damage. Based on the explanation, this community service article focuses on the main problem: How to optimize the role of Smart TV as a means of communication and learning amidst the limitations of digital literacy in the 3T community? The main objective of this activity is to provide strategic provision for the community, teachers, and managers of public facilities in the 3T region so that they are able to integrate Smart TV technology into their productive lives. It is hoped that through comprehensive socialization, the 3T community will no longer be passive spectators in the digital era, but active players who are able to improve their quality of life and education independently through a digital window called Smart TV.

METHOD

This community service activity was carried out simultaneously for 10 days which were specifically located in four points in Indonesia, namely: Bukit Lawang Village (Langkat Regency, North Sumatra) to represent the Sumatra region, Alamendah Village (Rancabali District, Bandung Regency) for the West Java region, Sajingan Kecil Village (Sajingan Besar District, Sambas Regency) in the border region of West Kalimantan, and Lakkang Village (Tallo District, Makassar City) which is a river tourism village in South Sulawesi. [Image showing the geographical distribution of the four service locations across Indonesia] The selection of these locations was based on the characteristics of the region that represents the typology of 3T (Frontier, Outermost, Underdeveloped) regions as well as areas with tourism potential that require acceleration of communication quality and learning media through *Smart TV* technology. All implementing teams at each location followed a uniform method protocol to ensure the effectiveness of technology socialization and mentoring to the community, teachers, and local village officials during the ten-day implementation period.

RESULT AND DISCUSSION

Implementation Results

The community service activities that took place for 10 days in parallel in four locations— Bukit Lawang Village (North Sumatra), Alamendah Village (West Java), Sajingan Kecil Village (West Kalimantan), and Lakkang Village (Makassar)-have resulted in significant changes in the aspects of digital literacy and the use of technological devices.

Increasing Participant Knowledge (Quantitative Data)

The evaluation was conducted through pre- and post-tests on a total of 160 respondents (40 per location). Indicators assessed included understanding of Smart TV features, operational capabilities of learning media, and digital security awareness.

Table 1 . Average Pre-Test and Post-Test Scores in Four Locations

Service Location	Pre-Test Score	Post-Test Score	Increase (%)
Bukit Lawang Village (North Sumatra)	48%	85%	37%
Alamendah Village (West Java)	52%	88%	36%
Sajingan Kecil Village (West Kalimantan)	35%	82%	47%
Lakkang Village (Makassar)	42%	84%	42%
Overall Average	44.25%	84.75%	40.5%

The data in Table 1 shows that Sajingan Kecil Village experienced the highest increase (47%), this is because access to Smart TV technology was previously very minimal compared to other locations. Implementation of Learning and Communication Media.

Within 10 days, the community service team successfully installed education hubs at each location. Practical outcomes include: 1). Learning Optimization: In Alamendah Village , Smart TVs are integrated with the "Rumah Belajar" portal to help visualize modern agricultural materials for local vocational school students. 2). Border Information Access: In Sajingan Kecil Village , devices are used to access national news broadcasts via the internet, minimizing dependence on foreign broadcasts from neighboring countries. 3). Communication Bridge: In Lakkang Village (river delta area), Smart TVs in the village hall function as teleconferencing facilities for residents to consult with health experts in Makassar city online.

Discussion

Smart TV as a Digital Inclusion Solution in Remote Areas

The results of community service in these four provinces confirm that Smart TVs are not just entertainment devices, but also a crucial instrument for bridging the information gap in underserved areas (3T). In Bukit Lawang Village , the use of Smart TVs to display educational videos on wildlife conservation in English helped tourism operators improve communication with international visitors. This demonstrates that large, communal screen technology is more effective in facilitating group learning than personal devices (smartphones) with limited screen space.

Paradigm Shift: From Consumption to Education

One crucial point in this discussion was the shift in community behavior. Before the outreach program, television was considered solely a one-way entertainment medium. Post-training, communities in Lakkang and Sajingan Kecil villages began to realize that features like Screen Mirroring made it easier for teachers to display interactive materials from their devices on a large screen. The synergy between engaging visualizations and internet connectivity created a much more dynamic learning environment for students in remote areas who lack physical teaching aids.

Digital Safety and Parental Controls

Improved scores on digital safety literacy (as seen in Table 1) provide a crucial foundation for sustainable technology use. Participants in Alamendah Village demonstrated high enthusiasm when learning about the Parental Control feature . This knowledge is crucial because in the 3T (third-most remote) areas, unsupervised internet access often has negative impacts on children. Education about content filtering ensures that technological advancements remain aligned with local social and moral values.

Infrastructure and Sustainability Challenges

Although the 10-day implementation showed drastic improvements, a real challenge encountered in the field was the unstable electricity supply in Sajingan Kecil and Lakkang . The use of Smart TVs requires supporting devices such as stabilizers and regular maintenance to prevent damage due to voltage surges. The sustainability of this program depends heavily on the village government's commitment to include a budget for digital device maintenance in the village development plan (APBDes).

CONCLUSION

Community service activities in the form of socialization and training on the use of Smart TVs in Bukit Lawang Village, Alamendah Village, Sajingan Kecil Village, and Lakkang Village have successfully proven that internet-based large screen technology is an effective solution to overcome the information gap in the 3T and rural areas. Based on the evaluation conducted during the ten-day implementation, it can be concluded that this technological intervention not only improves the community's digital literacy cognitively, but also transforms the function of television from merely a one-way entertainment medium to an interactive communication hub and dynamic learning medium. Some of the main points resulting from this service include:

1. **Digital Competency Improvement:** There was an average increase in participant understanding of 40.5% , with the highest spike in the border region (West Kalimantan), which shows the enthusiasm and great need of remote communities for access to curated global information.
2. **Learning Effectiveness:** The use of Smart TV as an instructional medium in rural schools can overcome the limitations of physical teaching aids through access to digital educational platforms, thereby creating educational quality standards that are more equal to those in urban areas.
3. **Strengthening Communication Quality:** This technology has successfully facilitated high-quality visual communication for villagers through teleconferencing features, which is useful for remote health consultation services as well as strengthening promotional narratives for tourism villages.
4. **Security Awareness:** The socialization of parental control features has equipped the public with content filtering capabilities, which are crucial in maintaining the moral and social resilience of families amidst the massive flow of internet information.

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