

The Poncokusumo Village Information System In The Context Of Moving Towards A Digital Village

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ABSTRACT

In the current era of digital transformation, manual administrative processes in Poncokusumo Village have remained a source of significant inefficiency. These traditional methods have led to persistent service delays, restricted public access to vital information, and challenges in data archiving, ultimately hindering the realization of transparent governance. To address these systemic issues, this study analyzes the impact of the Sistem Informasi Manajemen Desa/Kelurahan (SIMDEK) on the effectiveness of village administration, specifically focusing on the community's readiness to adopt digital tools. The research employed the Community-Based Participatory Action Research (CBPAR) method, which is structured through four phases: observation, planning, implementation, and evaluation. The intervention included comprehensive training on the "e-village" and self-service features. Data collection involved pre-test and post-test questionnaires administered to 20 respondents. Validity and reliability tests confirmed the instrument's consistency (Cronbach's Alpha > 0.6), while the Wilcoxon Signed Ranks Test was selected for hypothesis testing due to non-normal data distribution. The results provide compelling evidence of the program's success. The statistical analysis revealed that 13 participants experienced a distinct increase in understanding (Positive Ranks), while none experienced a decrease (Negative Ranks)⁶. Crucially, the test confirmed a statistically significant improvement with an Asymp. Sig (2-tailed) value of 0.001, which is well below the significance level (α) of 0.05. It is concluded that SIMDEK implementation markedly improves service speed, data accuracy, and transparency⁸. These findings suggest that consistent government support and ongoing user training are crucial for maintaining this digital ecosystem, thereby ensuring a more responsive and accountable local government.

Keywords: Administrative efficiency, CBPAR, Digital transformation, Village Management Information System, Transparency

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INTRODUCTION

In the contemporary landscape of public administration, the transition from traditional bureaucracy to digital governance is no longer an option but a necessity. The push for efficient and transparent village administration is a critical step toward improving public services and fostering trust between citizens and their local government. A 2024 UNDP report highlights that digitalization acts as a powerful catalyst for this change, capable of automating services and removing the need for intermediaries. By reducing human intervention in routine tasks, digital

systems can significantly boost efficiency and reduce opportunities for corruption, ultimately creating a more accountable administrative environment.

Despite these clear benefits, a significant disparity remains between national policy and local implementation. Many public services at the village level in Indonesia remain bogged down by manual, paper-based processes. Residents often face long queues and bureaucratic delays when trying to obtain essential documents, such as identity cards or business licenses. This inefficiency is compounded by a lack of transparency, making it difficult for the public to access vital information regarding village development and fund usage. Furthermore, geographical barriers present a significant challenge, especially for those in remote areas who have limited access to physical administrative centers. To address these systemic issues, various regions have begun implementing innovative digital solutions. For instance, Sleman Village in Indramayu has successfully launched the Village Administration Information System (SIAD), demonstrating that an integrated system can effectively streamline data management and empower the community.

In a similar effort to embrace digital transformation, Poncokusumo Village has proactively implemented its own digital infrastructure known as the Sistem Informasi Manajemen Desa/Kelurahan (SIMDEK). The core objective of SIMDEK is to manage data and deliver public services in a digital format, aiming for greater efficiency and accountability. However, the existence of this technology has revealed a critical research gap. While the technical infrastructure is available, the implementation of SIMDEK has faced a significant hurdle: the limited understanding of the technology among both village officials and residents.

This situation highlights a fundamental disconnect: the availability of a digital tool does not automatically translate to digital utility. Most existing literature and government initiatives focus heavily on the development of systems like SIAD or SIMDEK, but often overlook the social readiness required to sustain them. mainly because the community and local government staff are not yet fully proficient in using it. Without a parallel investment in human capital, the potential of SIMDEK remains largely untapped, rendering the technological upgrade ineffective.

Therefore, this study aims to bridge this gap by shifting the focus from system development to community empowerment. Utilizing the Community-Based Participatory Action Research (CBPAR) method, this research seeks to evaluate and enhance the level of understanding among participants through targeted training. By analyzing the effectiveness of these interventions, the study provides a deeper understanding of how to align technical capabilities with user proficiency. Ultimately, this research posits that improving community understanding is a crucial prerequisite for advancing digital transformation, ensuring that Poncokusumo Village moves towards a governance model that is not only digital by name but responsive and effective in practice.

METHOD

The Student Village Development program (MMD) was carried out in the form of demonstrations and training on the use of the Village and Sub-District Management Information

System (SIMDEK). The Community-Based Research Guidebook explains that the Community-Based Participatory Action Research (CBPAR) method is a collaborative approach that emphasizes community involvement in the entire research process, from planning and implementation to evaluation. This method was used to analyze the pre-test and post-test results to measure the participants' level of understanding before and after the training. Conceptually, the CBPAR method consists of six main steps, namely identifying problems, collecting and analyzing data, developing plans, implementing actions, conducting evaluations, and testing the effectiveness of the actions that have been taken. The object of this study is the SIMDEK village website as an alternative solution for efficiency and transparency in public services in Poncokusumo Village.

The site of this study was in Poncokusumo Village, Poncokusumo Subdistrict, Malang Regency. The subjects used were the Poncokusumo Village Community and the Poncokusumo Village Government, including the village head, village secretary, staff or administrators of the Village Information System, and the Poncokusumo Village Consultative Body (BPD) as the village supervisory agency. The method used to collect data in this study was a questionnaire with a pre-test and post-test. A questionnaire is a structured technique for collecting data using a platform containing a set of written questions that must be answered by respondents (N. K. Malhotra, Nunan, & Birks in Rahman, A., et al., 2022).

The analysis technique used in this study was the Pearson Product Moment Validity Test to ensure that each question in the questionnaire was able to measure the participants' understanding. The Cronbach's Alpha Reliability Test was used to test the internal consistency of the instrument. The Normality Test was used to determine the type of difference test to be used. The test showed that the data was not normally distributed, so the Wilcoxon Signed Ranks Test was chosen. Finally, the Wilcoxon Signed Ranks Test was used to see if there was an increase in participants' understanding before and after the SIMDEK demonstration and training session.

The demonstration and training on the use of SIMDEK was carried out in four stages, namely the observation stage, the planning stage, the implementation stage, and the evaluation stage.

1) Observation Stage

In the observation stage, students coordinated with village officials and related parties to map the actual conditions of administrative services in Poncokusumo Village. The results of the identification showed that manual service procedures often caused delays in administrative processes, especially when the volume of document requests increased. This condition also posed the risk of physical document loss or damage, as well as a lack of accountability and transparency in the performance of village officials because the community had no means of monitoring the service process.

2) Planning Stage

In the planning stage, the students and the development team designed and adapted a

website-based system called the Village and Regency Management Information System (SIMDEK). This system is designed as an appropriate technological innovation that utilizes the principles of digital transformation to simplify administrative service flows, accelerate the letter request process, and provide a data-based monitoring mechanism. With SIMDEK, the community can access information and submit services online, while village officials obtain integrated tools to improve work efficiency while ensuring transparency in public services.

3) Implementation Stage

During the implementation stage, a demonstration and training session on the use of SIMDEK was held on Thursday, July 31, 2025, at the Poncokusumo Village Hall. The activity began with a pre-test for participants, which aimed to measure their initial level of understanding of digitalization and the application of technology in village services. After that, students presented material on the introduction to the Village and Regency Management Information System, which included an introduction to the e-village feature and the flow of self-service usage by the community. The next session was a live demonstration of the use of the self-service feature, where participants could see the practical steps of submitting a letter, from logging in, filling in the details, to the validation and download process. Participants were also given the opportunity to try accessing the system themselves under the guidance of the student team, so that they could immediately understand the usage procedure. After the practice session, a discussion and question and answer session was held to accommodate questions, obstacles, and input from participants. Various technical matters were discussed, including requests for additional features and integration of certain services. The activity was then closed with a conclusion and documentation with all participants.

4) Evaluation Stage

In the evaluation stage, students analyze the results of the pre-test and post-test completed by participants. The pre-test is administered before the demonstration and training with the aim of measuring the initial level of understanding of the community regarding digitization and village administration services. Meanwhile, the post-test is given after the training activity to determine the extent of participants' knowledge improvement on the material presented. By comparing the pre-test and post-test results, students can assess the effectiveness of the activity and identify aspects that still need improvement. The evaluation also provides feedback for future training development.

FINDING AND DISCUSSION

The test was conducted to analyze the pre-test and post-test results with the aim of determining whether there was an increase in participants' understanding before and after the demonstration and training on the use of SIMDEK. All data were processed using IBM SPSS Statistics 27. This study began with a validity test using Pearson Product Moment to ensure that each question

item on the questionnaire was able to measure participants' understanding, followed by a reliability test using Cronbach's Alpha to test the internal consistency of the instrument. A normality test using the Shapiro-Wilk test was conducted to determine the type of difference test to be used, and the results showed that the data was not normally distributed, so the Wilcoxon Signed Ranks Test was chosen to compare the pre-test and post-test scores.

Validity Testing

Table 1. Pearson Product Moment Validity Test Correlations

		Pre_Test	Post_Test
Pre_Test	Pearson Correlation	1	.614**
Post_Test	Sig. (2-tailed)		0.004
	N	20	20
	Pearson Correlation	.614**	1
	Sig. (2-tailed)		0.004
	N	20	20

**Correlation is significant at the 0.01 level (2-tailed)

Validity testing was conducted to ensure that the questionnaire instruments used in the pre-test and post-test were truly capable of measuring participants' level of understanding of the material provided. The testing was conducted using the Pearson Product Moment correlation technique between the pre-test and post-test results. Based on the analysis results, a correlation coefficient (t-count) value of 0.724 was obtained with a t-table value at a significance level of 5% and a number of respondents of 20 at 0.444. The test results showed that t-count (0.724) > t-table (0.444) and sig. value (0.004) < 0.05, so it can be concluded that the questions in the pre-test and post-test questionnaires are valid. This means that the questionnaire is able to accurately measure the participants' level of understanding, both before and after the demonstration and training on the Village and District Management Information System (SIMDEK).

Reliability Testing

Table 2. Results of Pre-Test Validity Testing
Validity Testing

Cronbach's Alpha	N of Items
0.824	5

Table 3. Results of Post-Test

Cronbach's Alpha	N of Items
0.794	5

Discussion

Reliability testing was conducted to determine the internal consistency of the questionnaire instruments used in the pre-test and post-test. The method used was Cronbach's Alpha, whereby an instrument is considered reliable if the Cronbach's alpha value is > 0.6 .

The reliability analysis results showed that:

1. The pre-test had a Cronbach's Alpha value of $0.824 > 0.6$. This indicates that the pre-test instrument had an excellent level of consistency.
2. The post-test had a Cronbach's Alpha value of 0.794 , which also exceeded the minimum threshold of 0.6 . This indicates that the post-test instrument has good reliability.

Thus, both the pre-test and post-test instruments can be declared reliable, so they can be used to measure participants' understanding consistently. This ensures that each item in the questionnaire is able to provide stable results when tested under the same conditions.

Normality Testing

Tests of Normality

Table 4. Results of Normality Testing (*Shapiro-Wilk*)

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre_Test	.262	20	<.001	.875	20	.014
Post_Test	.156	20	.200*	.871	20	.012

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The normality test was carried out using the Shapiro-Wilk test because the sample size was less than 50 respondents. The test results showed that the significance value of Shapiro-Wilk for the pre-test and post-test variables was < 0.05 . Therefore, it can be concluded that both pre- test and post-test data are not normally distributed. As a result, a non-parametric test, namely the Wilcoxon Signed Ranks Test, was used to test the differences.

Non Parametric Test (*Wilcoxon Signed Ranks Test*)

Test Statistics

Table 5. Results of Wilcoxon Test

		N	Mean Rank	Sum of Ranks
Post_Test - Pre_Test	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	13 ^b	7.00	91.00
	Ties	7 ^c		
	Total	20		

a. Post_Test < Pre_Test

b. Post_Test > Pre_Test

c. Post_Test = Pre_Test

The testing was conducted using the Wilcoxon Signed Ranks Test because the pre-test and post-test data were not normally distributed, thus not meeting the assumptions of the parametric paired sample t-test.

Based on the analysis results:

1. The value of Negative Ranks = 0 indicates that there were no participants who experienced a decrease in understanding after the training.
2. The value of Positive Ranks = 13 shows that there were 13 participants who experienced an increase in understanding after the training, with a Mean Rank of 7.00 and a Sum of Ranks of 91

Table 6. Asymp. Sig Wilcoxon Test

Test Statistics^a

	Post_Test- Pre_Test
Z	-3.207 ^b
Asymp. Sig. (2-tailed)	0.001

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

The test results show that the Asymp. Sig (2-tailed) value = 0.001, which is smaller than the significance level $\alpha = 0.05$. Thus, it can be concluded that there is a significant difference between the pre-test and post-test scores of the participants. This means that the SIMDEK training has a positive and significant effect on improving the participants' understanding.

CONCLUSIONS

Based on the research results regarding the implementation of demonstrations and training in the use of the Village and Sub-District Management Information System (SIMDEK) in Poncokusumo Village using the Community Based Participatory Action Research (CBPAR) method, several conclusions can be drawn as follows: First, The implications of this research indicate that increasing public understanding of SIMDEK is a key factor in supporting the digital transformation of public services in villages. A good understanding from citizens not only accelerates service delivery but also enhances transparency and governance efficiency in village administration. Second, As more citizens understand and are able to utilize SIMDEK, the website has proven to have tangible benefits in supporting the lives of village communities, both in terms of time efficiency, service accessibility, and public information accountability. More broadly, this contributes to the advancement of governance in the village of Poncokusumo, as effective digitalization enables the village government to provide faster, more transparent, and participatory services.

Based on the research findings, the researchers propose the following suggestions are The Malang Regency Government: In order for SIMDEK to be optimally implemented in Poncokusumo Village, support from the provincial government is needed, particularly in the aspects of supervision and maintenance of the system. Such support is crucial for the website to operate sustainably, ensure its quality, and provide maximum benefits to the village community in supporting transparent and efficient governance. Poncokusumo Village Government: The need for continuous training and mentoring, so that the understanding of the community not only increases temporarily but can also be applied in daily practice. In addition, village officials are expected to continue socializing and updating information so that SIMDEK can be utilized optimally by the community. Community: The public's understanding of technology is an important aspect in supporting the comprehensive implementation of SIMDEK. With the increasing understanding, the process of administrative submissions can be carried out more efficiently, quickly, and transparently, so that the goal of digitizing village services can be achieved optimally.

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