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Perceived Usefulness and Ease of Use as Determinants of User Satisfaction: A Study on the Sayang Warga Application in Tambaksari District, Surabaya

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ABSTRACT

This study aims to analyze user acceptance of the Sayang Warga application in the Tambaksari District, Surabaya City, using a quantitative approach based on the Technology Acceptance Model (TAM). The model focuses on two main variables—Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)—and includes user satisfaction as an indicator of system success. Data were collected through a structured questionnaire distributed to active users of the application and analyzed using descriptive quantitative methods. The results indicate that users have a positive perception of the application in terms of both usability and perceived benefits. The reliability dimension within PEOU received the highest mean score, while the assurance dimension under PU recorded the lowest. These findings affirm that technology acceptance is directly influenced by users' perceptions of usefulness and ease of use, which ultimately affect their satisfaction levels. This study contributes theoretically to the development of public service information systems and offers practical insights for policymakers and application developers in designing inclusive, responsive, and sustainable digital systems.

INTRODUCTION

The advancement of information and communication technology (ICT) has significantly transformed the landscape of public service delivery, particularly through the adoption of e-Government systems. Governments around the world, including in Indonesia, are increasingly utilizing digital platforms to improve administrative efficiency, transparency, and citizen engagement. One notable initiative in this regard is the development of the *Sayang Warga* application by the Surabaya City Government. This application was designed to support public health surveillance by enabling neighborhood-level monitoring through community health workers (*kader*), local leaders (RT/RW), and healthcare personnel. It serves not only as a data collection tool but also as an interactive interface to facilitate immediate response to health-related issues in densely populated communities.

Despite its promising functionality, the implementation of the *Sayang Warga* application in Tambaksari District—an area characterized by high population density—faces several challenges. Preliminary findings from field data show a disparity between the intended utility of the application and users' actual experiences. Although 95% of users have been engaging with the application for over a year, issues such as unstable internet connectivity, lack of intuitive interface design, and limited technical training remain persistent barriers. These limitations hinder the effectiveness of the application as a tool to support administrative functions and health monitoring, ultimately affecting user satisfaction and sustainable use.

Given this context, it becomes imperative to conduct research that evaluates user acceptance not only in terms of technical performance but also through the lens of user experience and behavioral intention. The need is particularly urgent in Tambaksari District, where high population density and varying levels of digital literacy compound the challenges of implementing digital health tools. This study is important because it provides an evidence-based understanding of how users perceive the usefulness and ease of use of the *Sayang Warga* application—two key factors that directly influence satisfaction and continued usage.

By applying the Technology Acceptance Model (TAM), this research offers both theoretical and practical value. It helps identify specific strengths and weaknesses in the system from the user perspective, thus guiding future development and policy interventions. The insights drawn from the Tambaksari context may also serve as a reference for similar urban settings facing challenges in e-Government adoption, ensuring that digital transformation efforts are inclusive, user-centered, and sustainable.

LITERATURE REVIEW

Information Systems (IS) Success Model

The Information Systems (IS) Success Model developed by DeLone and McLean (1992; updated in 2003) provides a multidimensional framework to assess the effectiveness of information systems. It posits that system quality, information quality, and service quality are the primary determinants of user satisfaction and intention to use. These dimensions are interrelated and influence the perceived success of a system in achieving its intended goals. In the context of public service applications like Sayang Warga, these qualities are critical in ensuring that users—such as neighborhood leaders and health cadres—can operate the system effectively for real-time reporting and citizen monitoring.

System quality refers to the technical functionality, reliability, and usability of the application, while information quality emphasizes the accuracy, relevance, and timeliness of the data provided (DeLone & McLean, 2003). Service quality, on the other hand, includes user support, technical assistance, and overall responsiveness of the system administrators. These three dimensions work in tandem to shape users' attitudes and their ultimate satisfaction with the digital solution. DeLone and McLean argue that ease of use plays a pivotal role across all three domains, influencing how users perceive the overall effectiveness of an information system (DeLone & McLean, 2003).

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), formulated by Davis (1989), is widely recognized in information systems literature for its robust explanatory power regarding individual technology adoption behavior. TAM highlights two fundamental beliefs: Perceived Usefulness (PU), which refers to the degree to which a person believes that using a technology will improve their performance, and Perceived Ease of Use (PEOU), defined as the degree to which a person believes that using the system will be free from effort. These variables directly influence users' attitudes toward using a system, which then shape their behavioral intention and actual system usage.

In public sector innovations like the Sayang Warga application, TAM provides a useful lens to evaluate why users may embrace or resist technology. PU may relate to enhanced efficiency in reporting health data or streamlined coordination with health departments, while PEOU concerns how intuitive the interface is for non-technical users. When both PU and PEOU are perceived positively, users are more likely to develop a favorable attitude and demonstrate continued use of the application (Venkatesh & Davis, 2000).

SERVQUAL Dimensions and Their Relationship to PU and PEOU

The SERVQUAL model, developed by Parasuraman et al. (1988), evaluates service quality through five core dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions influence how users perceive both the usefulness and ease of use of a digital service. For example, tangibles—such as the user interface design and navigation structure—can enhance PEOU by reducing cognitive load, while reliability—consistency in system performance—builds user trust, reinforcing PU.

Moreover, responsiveness and assurance directly impact user confidence in the application, further strengthening perceptions of usability and functional benefits. Meanwhile, empathy, reflected through personalized services or adaptive content, supports user satisfaction and system relevance. Integrating SERVQUAL dimensions into TAM constructs allows researchers and developers to better understand which service elements most strongly drive technology adoption in public service contexts (Zeithaml et al., 2018; Parasuraman et al., 1988).

Technology Acceptance Model (TAM)

Customer satisfaction, or in this context, user satisfaction, refers to an individual's cognitive and affective response arising from the comparison between expected and perceived performance of a product or service. According to Kotler and Keller (2016), satisfaction occurs when perceived performance meets or exceeds expectations, while dissatisfaction arises when the performance falls short. In digital public service systems such as the Sayang Warga application, user satisfaction is a key indicator of the system's success and long-term sustainability.

Satisfaction in information systems is typically influenced by multiple dimensions, including service quality, system reliability, user interface design (tangibles), responsiveness of the service provider, and empathy or user-centeredness. When an application is perceived as responsive, easy to use, and functionally beneficial, users are more likely to have a positive experience, which fosters repeat use and technology acceptance (Zeithaml et al., 2018). Therefore, measuring satisfaction requires both subjective (perception-based) and objective (system function) assessments.

Several previous studies have confirmed the relationship between perceived ease of use (PEOU), perceived usefulness (PU), and user satisfaction. A study by Surawan Setyo Budi (2021) found that users of an information system based on TAM principles at STIE SBI Yogyakarta expressed high satisfaction due to positive perceptions of usefulness and ease of use. Similarly, Suci Mulya and Yofina Mulyati (2022), in their study of the Gojek application, discovered that perceived usefulness significantly affected behavioral intention, with attitude toward using serving as a mediating variable, thereby reinforcing user satisfaction.

Further, research by Mohammad Restu Johansyah et al. (2022) on a history literacy game application found that both PU and PEOU significantly influenced not only satisfaction but also actual usage, even in informal, non-institutional settings. These findings reinforce the notion that user satisfaction is shaped not only by technical system performance but also by users' psychological perceptions of the system's benefits and ease of operation.

Taken together, the empirical literature and theoretical frameworks suggest that user satisfaction is a result of the complex interplay between system characteristics, individual perceptions, and actual usage experiences. In the case of Sayang Warga, understanding user satisfaction is essential for enhancing technology adoption, incorporating user feedback for system improvement, and fostering trust in digital government services at the community level.

METHOD

This study employs a quantitative descriptive approach, as outlined by Sugiyono (2017), aiming to systematically describe user perceptions based on measurable data. The research focuses on evaluating the influence of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) on user satisfaction with the Sayang Warga application in the Tambaksari District, Surabaya. Data collection was conducted through a structured online questionnaire using Google Forms, distributed to 565 respondents, including RT/RW officials, community health cadres, and relevant government staff actively engaged with the application.

The questionnaire was designed using a five-point Likert scale to assess each variable, ranging from "Strongly Disagree" to "Strongly Agree." Respondents were selected through purposive sampling based on their active roles in data entry and health monitoring via the application. Descriptive statistical techniques—specifically mean and mode—were used to identify general response trends. Microsoft Excel was employed to calculate central tendencies and standard deviations for each indicator.

To ensure instrument validity and reliability, the questionnaire was developed based on constructs from the Technology Acceptance Model (TAM) proposed by Davis (1989), and the SERVQUAL dimensions

introduced by Parasuraman et al. (1988), both of which have been widely adopted in prior empirical research on digital service adoption. This methodological approach offers an empirical foundation to understand how digital applications are perceived and utilized in local government operations, especially in the context of community health administration.

RESULT

This study aims to analyze user acceptance of the Sayang Warga application in Tambaksari District, Surabaya City, using a quantitative approach based on the Technology Acceptance Model (TAM). The evaluation is conducted using the SERVQUAL framework, which encompasses five core dimensions of service quality: reliability, responsiveness, assurance, empathy, and tangibles. The research findings are presented in the following subsections.

Respondent Characteristics

Table 1 *Respondent Characteristics*

Respondent Characteristics	Indicator	Freq	%
Gender	Female	563	99.65%
	Male	2	0.35%
Age	20 - 25 years	375	66.37%
	26 - 30 years	145	25.66%
	31 - 35 years	25	4.42%
	36 - 45 years	11	1.95%
	> 45 years	9	1.59%
Education	Junior High School (SMP)	0	0%
	Senior High School (SMA)	356	63%
	Diploma (D3)	128	23%
	Bachelor's Degree (S1)	58	10%
	Master's Degree (S2)	23	4%
Duration of Use	> 1 year	537	95%
	1-6 Months	22	4%
	6-12 Months	3	1%
	< 1 Month	3	1%

A total of 565 respondents participated in this study. The majority of respondents were female (99.65%) and aged between 20 and 25 years (66, 37%), indicating that active users of the Sayang Warga application are predominantly young women. In terms of educational background, most respondents had completed senior high school (63%), and 95% of them had been using the application for more than one year, reflecting a high level of user engagement.

Interpretation of Each Dimension

Table 2 *Interpretation of Each Dimension*

Variable	Dimension	Item	Response Scores					Mean	Mean Dimension
			1	2	3	4	5		
Perceived Ease of Use (PEOU)	Reliability	x1.1.1	3	0	0	242	320	4.55	4.48
		x1.1.2	5	4	0	291	265	4.43	
		x1.1.3	4	2	1	277	281	4.47	
	Responsiveness	x1.2.1	6	2	0	299	258	4.42	4.40
		x1.2.2	4	9	8	320	224	4.33	
		x1.2.3	3	1	0	291	270	4.46	
		x1.2.4	4	7	4	299	251	4.39	
		x1.2.5	5	6	6	299	249	4.38	
	Empathy	x1.3.1	4	7	3	277	274	4.43	4.43
		x1.3.2	3	3	1	302	256	4.42	
Perceived Usefulness (PU)	Tangibles	x2.1.1	3	8	12	367	175	4.24	4.28
		x2.1.2	2	5	10	372	176	4.27	
		x2.1.3	3	2	6	346	208	4.33	
		x2.1.4	3	3	8	359	192	4.30	
		x2.1.5	3	2	19	375	166	4.24	
		x2.1.6	3	0	11	345	206	4.33	
	Responsiveness	x2.2.1	3	17	39	345	161	4.14	4.21
		x2.2.2	4	8	16	338	199	4.27	
	Assurance	x2.3.1	5	54	43	324	139	3.95	3.95
	Reliability	x2.4.1	10	32	53	330	140	3.99	3.99
User Satisfaction	Assurance	y1.1.1	3	17	18	357	170	4.19	4.22
		y1.1.2	2	23	24	360	156	4.14	
		y1.1.3	2	1	9	353	200	4.32	
	Reliability	y1.2.1	3	17	21	340	184	4.21	4.21
		y1.2.2	2	5	13	355	190	4.28	
		y1.2.3	2	20	26	366	151	4.14	
	Empathy	y1.3.1	2	6	15	365	177	4.25	4.27
		y1.3.2	2	3	7	370	183	4.29	
	Tangibles	y1.4.1	2	3	14	371	175	4.26	4.26
	Responsiveness	y1.5.1	2	7	14	355	187	4.27	4.27

Based on the summarized mean scores of each item and dimension in the table, it can be concluded that all assessed variables—namely Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Customer Satisfaction—achieved relatively high average scores. The highest dimension mean was found in Reliability under the PEOU variable, with a mean score of 4.48. The overall highest-scoring item was x1.1.1, which corresponds to monitoring mosquito larvae for dengue fever prevention, recording a mean of 4.55. This indicates a strong perception among users that the Sayang Warga application is highly reliable in

assisting with administrative and public health-related tasks.

Conversely, the lowest dimension mean appeared in Assurance under the PU variable, with a mean score of 3.95. The lowest individual item score was x2.3.1, related to users' confidence in the accuracy and security of the information provided by the application. This relatively lower score suggests that assurance and trust remain weak points in user perceptions and require further improvement in future application development. Additionally, the Reliability dimension in PU also showed a comparably low score of 3.99, further highlighting the need to strengthen users' trust in system performance and information accuracy.

In the Customer Satisfaction variable, the highest individual item mean was 4.32 on item y1.1.3 (Assurance), while the highest overall dimension mean was recorded under Empathy, at 4.27. These results reinforce the finding that despite some weaknesses in assurance within PU, users generally express satisfaction with the digital services delivered through the application. This indicates that the Sayang Warga application is considered effective, easy to use, and beneficial by its users. Nonetheless, improvements in information credibility and system trustworthiness are essential to ensure the long-term adoption and effectiveness of this digital public service platform.

DISCUSSION

The results of this study demonstrate that user acceptance of the Sayang Warga application in the Tambaksari District is generally high, as indicated by the overall mean scores across the three main variables: Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Customer Satisfaction. Among these, the PEOU variable shows the strongest performance, particularly in the Reliability dimension, which recorded the highest average score of 4.48. This dimension includes indicators such as the ease and accuracy in accessing administrative data and monitoring public health status. The highest-scoring item in the entire dataset, x1.1.1 with a mean of 4.55, reflects the perceived value of the application's mosquito larvae monitoring feature. These results confirm that users consider the application highly efficient and dependable in facilitating routine community health and administrative services.

In contrast, the Assurance dimension within the PU variable received the lowest average score, at 3.95. This indicates that while users appreciate the application's utility, they still express some hesitation about the system's ability to guarantee information accuracy and security. The lowest-scoring item, x2.3.1, reflects concerns about trust in digital systems—an issue common in the implementation of e-government platforms, especially among first-time or non-tech-savvy users. This finding aligns with prior literature that emphasizes the importance of perceived trustworthiness and system quality in shaping technology acceptance beyond mere usefulness and usability.

The Customer Satisfaction variable, which measures users' overall experience and contentment, also shows encouraging results. The Empathy and Responsiveness dimensions reached relatively high scores, both averaging above 4.25, which suggests that users feel the application is responsive to their needs and designed with their well-being in mind. The highest individual score within this variable, found in item y1.1.3 (Assurance, mean = 4.32), indicates that users do find some level of assurance in the platform when specific elements are functioning well. These findings reinforce the idea that ease of use and perceived benefit directly contribute to positive user experience and satisfaction, as posited by the Technology Acceptance Model (Davis, 1989).

Taken together, these results support the TAM framework, in which Perceived Usefulness and Perceived Ease of Use significantly influence user attitudes and behavioral intentions. The Sayang Warga application has proven to be both functionally beneficial and user-friendly, thus promoting satisfaction and continued usage. However, to ensure long-term adoption and trust, system developers and policymakers must address lingering concerns related to information credibility and system assurance. These areas remain critical for enhancing public trust in digital services, particularly in sectors like health and administration where accuracy and reliability are non-negotiable. Therefore, continuous refinement of features, user feedback integration, and improvement in system security protocols are essential for strengthening the overall effectiveness and acceptance of digital public service applications.

CONCLUSION

This study found that user acceptance and satisfaction toward the Sayang Warga application in the Tambaksari District are generally high, particularly in terms of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). The application is perceived as effective in facilitating administrative functions and public health monitoring, with reliability emerging as the most prominent dimension. However, the assurance dimension received comparatively lower scores, indicating persistent concerns regarding the accuracy and security of information provided by the system.

The findings imply that enhancing user trust—particularly in terms of information credibility and system security—should be a key focus for developers and policymakers in future system improvements. Further research is recommended to adopt longitudinal designs to examine shifts in user perception over time, and to explore external influencing factors such as digital literacy, organizational support, and socio-cultural context. Expanding the study to other regions and employing qualitative methods may also provide deeper insights into user behavior and the broader challenges of digital public service implementation.

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