

Evaluating the Implementation of the Rural Financial System (SISKEUDES) in Wonogiri Regency, Indonesia: Success or Failure?

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— Review of —
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ABSTRACT

This study aims to evaluate the implementation of the Rural Financial System (*Sistem Keuangan Desa/SISKEUDES*) in Wonogiri Regency, Indonesia. It also seeks to identify the factors that may affect the implementation success or failure of the system. The evaluation is conducted by using the information systems (IS) success model developed by DeLone and McLean. Based on the theory of cognitive dissonance, this IS success model is utilised to explain the user expectation, which is considered as the key success factor of an information system. A total sample of 110 villages in Wonogiri Regency were surveyed. The results of this study suggest that SISKEUDES, as a financial management system, has been successfully implemented by the local government of Wonogiri Regency.

Keywords: Rural Financial System (SISKEUDES); rural government; system success; cognitive dissonance theory

1. INTRODUCTION

Public accountability is considered as a critical element of the management of the Rural Local Government Budget (*Anggaran Pendapatan Belanja Pemerintah Desa/APBDes*) in Indonesia. Nevertheless, one of the challenges facing rural local governments, as the lowest level of government in the country, in managing APBDes to achieve public accountability is the lack of human resources and infrastructure. Therefore, in order to overcome this problem, the central government has developed an application called the Rural Financial System (*Sistem Keuangan Desa/SISKEUDES*). SISKEUDES is an internet-based system created by the Financial and Development Oversight Board (*Badan Pengawasan Keuangan dan Pembangunan/BPKP*) with the purpose of improving rural financial management. It was first launched in 2015 and would be implemented gradually by all rural local governments in Indonesia (Badan Pengawasan Keuangan dan Pembangunan, 2019). The local government of Wonogiri Regency, in particular, has targeted that this system will be implemented in all villages in the regency by the end of 2019 (Sendang Wonogiri, 2019). It is hoped that by using this new system, APBDes can be administered by rural local governments more efficiently and effectively to ensure good governance.

Previous studies have shown the impact of technology implementation on organisational performance. A study by Ali and Green (2007), for example, indicates that technology implementation may enable public sector organisations to achieve their objectives more efficiently and effectively. The implementation of information

technology (IT) system by public sector organisations is seen as an effort to improve their public service quality. This service quality improvement tends to enhance the levels of public participation and trust (Marche & McNiven, 2003; Tolbert & Mossberger, 2006). Furthermore, Marche and McNiven (2003) describe technology implementation in public sector organisations (for example, e-governance) as a mediation tool for governments and their citizens. This technological mediation helps local governments to improve transparency and accountability (Tolbert & Mossberger, 2006). This, consequently, strengthens the relationship between the government and its citizens (Wang & Liao, 2008).

Despite its potential to improve local governments' financial management, SISKEUDES is a complex computerized system and previous research has found a number of IT implementation failures in public sector organisations. For example, a study by Goldfinch (2007) found that 38% of government IT projects were successful, 59% were in trouble, and 3% were unsuccessful or aborted. The study also identified several factors that were associated with IT implementation failures, namely incompatible technology, lack of knowledge and training, lack of management skills, unintegrated processes, cultural conflict, organisational conflict, uncoordinated system, politics and environment. These factors can be classified into three broad categories, namely project failure, system failure, and user failure. Based on this classification, the three main areas in which the problems of implementing new systems could arise are technical aspects, user responses, and user-system interaction. Evaluating IT implementation in the public sector may reduce the risk of failure due to these problems (Wanyama & Zheng, 2011).

User response, as suggested by Goldfinch (2007), is one of the most important factors in the implementation of new technology. This can be explained by cognitive dissonance theory. The theory of cognitive dissonance proposes that individuals tend to seek consistency among their cognitions (i.e., beliefs, opinions) and, therefore, a discrepancy (dissonance) between, for example, one's expectations and reality might result in negative perceptions and lower job performance (Festinger, 1957). In the same way, a system that meets user expectations may result in positive user responses and user satisfaction. This is evidenced by the findings of a study conducted by DeLone and McLean (2003). They find that achieving user satisfaction is an important means of reaching the goals and objectives of IT implementation. They further explain that information systems user satisfaction is determined by system quality, information quality, and service quality. The findings also suggest that, in most cases of technology implementation, system usage is an appropriate measure of success.

The present study seeks to evaluate the implementation of SISKEUDES in Wonogiri Regency by using the DeLone and McLean model of information systems success. It is hoped that the results of this study will help the central government, in general, and the local government of Wonogiri Regency, in particular, in developing their strategies and policies to improve rural financial management and to reduce the risk of failure in implementing SISKEUDES.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Information Systems Success

Many researchers in the field of information systems have carried out studies on the factors influencing the implementation of information systems. Among these studies, the information systems success model developed by DeLone and McLean

(2003) has often been used for measuring information systems success (e.g., Petter et al., 2008; Bokhari, 2005). This model was first published in 1992 and originally consisted of six variables which may affect information systems success, namely system quality, information quality, use, user satisfaction, individual impact, and organisation impact.

In a more recent study, DeLone and McLean (2003) have updated the model and recommended minor refinements to the original model. The updated model now uses system quality, information quality, service quality, system use, user satisfaction, and net benefits for measuring system success (Figure 1). With this enhancement, now the DeLone and McLean model can be applied to different levels of individual or organisational analysis and produce more relevant results (Petter et al., 2008).

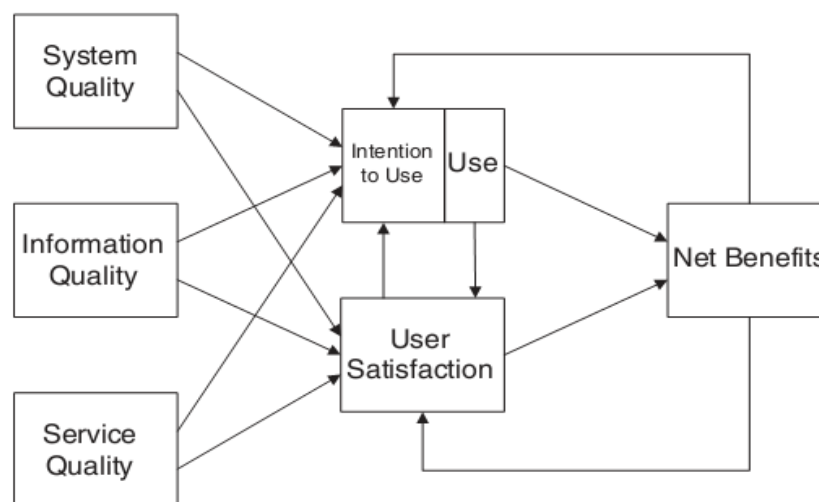


Figure 1: DeLone and McLean's Information Systems Success Model (2003)

As shown in Figure 1, DeLone and McLean (2003) propose that user satisfaction serves as a mediating variable that bridges the gap between an information system and its success. The importance of user satisfaction can be explained using expectation confirmation theory developed by Oliver (1980) which seeks to explain and predict customer satisfaction and repurchase intention. This theory suggests that a consumer's repurchase intention is determined primarily by their satisfaction with previous purchases. The consumer tends to expect that they would get the same or a higher level of satisfaction and, as proposed by the theory, it will be achieved when the reality matches the expectations. Conversely, dissatisfaction occurs when expectations do not match reality. In studies of information systems, expectation confirmation theory is used to explain or predict the behaviour of information systems (IS) users when interacting with the system. User satisfaction that occurs when expectations match reality will encourage users to get more involved with system usage and, in turn, lead to successful system implementation.

The importance of user satisfaction is also supported by cognitive dissonance theory introduced by Festinger (1957). The theory of cognitive dissonance proposes that individuals tend to seek consistency among their cognitions (i.e., beliefs, opinions) and, therefore, when people experience inconsistency (dissonance) between expectations and reality they become psychologically uncomfortable. This unpleasant

state will motivate them to reduce the cognitive dissonance by changing one or more cognitions to restore consistency (consonance).

In the studies of information systems, this theory is often employed to examine and explain the behaviour of users when using information systems. A successful system implementation is achieved when reality matches expectations, that is, when users gain optimum net benefits from system usage. On the contrary, a system implementation failure may occur when there are negative attitudes of users towards the adoption of information systems. When this occurs, as the theory predicts, the performance of the user will decrease, or the user will adjust the system to suit their needs.

2.2. The Impact of Information Quality on SISKEUDES User Satisfaction

Technology acceptance model (TAM), developed by Davis (1989), proposes that one of the factors influencing a user to accept and use a technology is because the person believes that the system will enhance his or her performance. This means that when people believe that an information technology is useful, they are more willing to adopt it. People use information systems, among other things, to produce information. The quality of this information is usually determined by its accuracy, timeliness, completeness, relevance, and consistency (DeLone & McLean, 2003). The availability of good quality information may enhance the performance of users, thereby improving their satisfaction with the system implementation.

User satisfaction is the user's perception that an information system satisfies their needs and expectations (DeLone & McLean, 2003). The evidence of the relationship between information quality and user satisfaction at the individual level has been found by a number of studies (Bairi et al., 2011; Rai et al., 2002; Almutairi & Subramanian, 2005). Therefore, the information quality of SISKEUDES is expected to fulfill its users' need for good quality information and enhance their performance, and eventually improve their satisfaction with the system. In this case, the first hypothesis would be formulated as follows:

***H1:** SISKEUDES information quality positively affects SISKEUDES user satisfaction.*

2.3. The Impact of System Quality on SISKEUDES User Satisfaction

Davis (1989) suggests that, besides the benefits of information system, the usability of an information technology will encourage people to use the technology. This is because one of the important measures of system quality is system usability, which is the ease with which information system users achieve their goals. This means that users should be able to use the information system without encountering difficulties. The same argument is also made by Ives and Olson (1984) who explain that system quality does not only measure the perception of users but also reflects the user acceptance of the system. The quality of an information system also indicates its performance, meaning that a high quality system produces less user complaints or problems. System quality, therefore, affects user satisfaction.

DeLone and McLean (2003) argue that system quality has a positive impact on user satisfaction. This argument is supported by the findings of other studies which

show that there is a significant relationship between system quality and user satisfaction, both at the individual and organisational levels (Iivari, 2005; Gelderman, 2002; Kulkarni et al., 2006; Kim et al., 2002). This gives rise to the second hypothesis:

H2: SISKEUDES system quality positively affects SISKEUDES user satisfaction.

2.4. The Impact of Service Quality on SISKEUDES User Satisfaction

The purpose of user service is to serve the needs of information system users. Support services offered to users will help them to better understand the information system and improve their information technology skills, especially when technical problems arise. These enhanced knowledge and skills will make users to become more familiar with the system, and, eventually, improve their satisfaction. When these users are satisfied with the service quality of the information system, they will be able to work more efficiently and effectively. For this reason, fulfilling the needs of users is considered a key element in achieving user satisfaction with the information system (Ives & Olson, 1983).

Besides DeLone and McLean (2003), the research on the relationship between service quality and user satisfaction has also been carried out by Coombs et al. (2001). The results of their study show that the quality of training and the support services provided by information system staff positively influence the attitudes of users towards the adoption of information systems. The role that the Information System Department plays in delivering quality customer service may also have a huge impact on user satisfaction (Leclercq, 2007). In public sector organisations, particularly, there is a significant relationship between service quality and user satisfaction, suggesting that the use of service quality variable is also relevant to the public sector (Sørum et al., 2011; Wanyama & Zheng, 2011; Wang & Liao, 2008). The third hypothesis, therefore, is formulated as follows:

H3: SISKEUDES service quality positively affects SISKEUDES user satisfaction.

2.5. The Impact of SISKEUDES User Satisfaction on the Performance of the Local Government of Wonogiri

The purpose of SISKEUDES implementation is to yield net benefits for its users, namely, the improvement of the efficiency, effectiveness, transparency, accountability, and auditability of rural financial management. When the users are satisfied with the system quality, information quality, and service quality of SISKEUDES (reality matches expectations), the net benefits of the system implementation may be realised (see, for example, McGill et al., 2005; Rai et al., 2002; Vlahos et al., 2004). Therefore, the Hypothesis 4 can be formulated as follows:

H4: SISKEUDES user satisfaction positively affects the performance of the local government of Wonogiri.

3. METHODS

3.1. Sampling Method

The research subjects of the current study are the rural local governments in Wonogiri Regency. From a population of 251 rural local governments, a sample of 110 local governments that had used SISKEUDES for at least 2 years was selected by using convenience sampling.

3.2. Variables and Measurement

The independent variables in this study are system quality, information quality, and service quality. These variables are measured based on a study conducted by DeLone and McLean (2003). System quality is measured in terms of “usability, availability, reliability, adaptability, and response time” (DeLone & McLean, 2003, p.24). Information quality captures the completeness, relevance, understandability, accuracy, and security of the information produced by the system. Service quality measures the overall support delivered by the service provider, such as responsiveness, competence, training program, and customer service quality.

The mediating variable in this study is user satisfaction, measuring “the extent to which users believe the information systems available to them meets their information requirements” (Ives et al., 1983, p. 785). The dependent variable is net benefits which capture the balance of positive (or negative) impacts of SISKEUDES implementation on the users, such as efficiency (or inefficiency) at work, regulatory effectiveness (or ineffectiveness), improvement (or decline) in budget accountability.

3.3. Data Collection and Analysis Methods

The data were collected from questionnaires containing five-point Likert scale questions (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree). These questionnaires were completed and returned by the rural local governments in Wonogiri Regency, Central Java, Indonesia. The data were then analysed by using WarpPLS 6.0.

The reliability of the research instrument was measured by Cronbach’s alpha and composite reliability, where it would be considered reliable if it had a value of more than 0.6. Meanwhile, the validity of the research instrument was measured by using loading factor and average variance extracted (AVE). It would be considered valid if it had a loading factor value of greater than 0.6 and an AVE value of greater than 0.5. The goodness of fit test was conducted by using average path coefficient (APC) and average R-squared (ARS), with a value of less than 0.05 (<0.05) indicating a good model, as well as average variance inflation factor (AVIF) and variance inflation factor (VIF), with a value of less than 3.3 (<3.3) suggesting a good model (Solihin & Ratmono, 2013). Finally, hypothesis testing was carried out by using a significance level of 5%, meaning that each hypothesis would be accepted if its P value was less than 0.05 (P<0.05).

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

The research subjects of the current study were the rural local governments in Wonogiri Regency. From a population of 251 rural local governments, a sample of 110

local governments that already had computers with internet access was selected by using convenience sampling. The descriptive statistics of the educational background of the SISKEUDES system operators showed that 55 respondents (50 percent) had a high school diploma, 21 (19.1 percent) possessed an undergraduate degree, while the rest of them held an associate degree or a junior high school diploma. The descriptive statistics of all the variables used in this study (i.e., information quality, system quality, service quality, user satisfaction, and net benefit) are presented in Table 1.

Table 1. Descriptive Statistics

	Mean	STDEV	SDT.ER
IQ	4.092	0.538	0.020
SQ	3.478	1.062	0.041
ServQ	3.781	0.702	0.033
US	3.992	0.517	0.020
NB	4.261	0.541	0.025

Note: IQ = Information Quality; SQ = System Quality; ServQ = Service Quality; US = User Satisfaction; NB = Net Benefit

As shown in Table 1, the mean scores of all five variables ranged from 3.48 to 4.26, suggesting that the respondents, on average, gave positive responses to the implementation of SISKEUDES.

4.2. Reliability and Validity

In the present study, the reliability of variables was measured by using both composite reliability and Cronbach's alpha values. The calculation results summarised in Table 2 showed that each of the five variables used in this study (i.e., information quality, system quality, service quality, user satisfaction, and net benefit) had composite reliability and Cronbach's alpha values of more than 0.6, indicating that all these variables were reliable.

Table 2. Reliability

Variable	Composite Reliability	Cronbach's Alpha
IQ	0.887	0.846
SQ	0.688	0.634
ServQ	0.850	0.760
US	0.880	0.835
NB	0.960	0.945

The validity of the indicators used in the questionnaires was measured by using loading factor. As shown in Table 3, each of all the indicators in the questionnaires had a loading factor value of more than 0.6 and, therefore, was considered valid.

Table 3. Loading Factor

	IQ	ServQ	US	NB	SQ	P Value
KI_02	0.732	0.311	-0.000	0.112	-0.051	<0.001
KI_03	0.856	-0.017	-0.003	0.105	-0.010	<0.001
KI_04	0.655	-0.108	0.000	-0.131	-0.185	<0.001
KI_05	0.819	-0.141	-0.107	0.099	0.034	<0.001
KI_06	0.629	0.215	0.162	-0.157	-0.089	<0.001
KI_07	0.811	-0.199	-0.015	-0.084	0.241	<0.001
KL_01	-0.342	0.852	0.088	-0.038	0.289	<0.001
KL_02	-0.379	0.684	-0.513	0.358	0.621	<0.001
KL_03	0.220	0.855	0.035	-0.181	-0.240	<0.001
KL_04	0.551	0.657	0.374	-0.089	-0.709	<0.001
KP_03	-0.266	0.100	0.835	0.063	0.191	<0.001
KP_04	-0.159	0.160	0.812	0.056	-0.138	<0.001
KP_05	0.151	-0.045	0.712	-0.031	0.027	<0.001
KP_06	-0.030	0.374	0.824	-0.002	-0.233	<0.001
KP_01	0.375	-0.308	0.621	-0.081	-0.191	<0.001
KP_02	0.054	-0.475	0.628	-0.038	0.389	<0.001
NB_01	0.117	-0.071	0.145	0.924	-0.056	<0.001
NB_02	-0.139	-0.021	-0.148	0.937	0.105	<0.001
NB_03	-0.069	-0.083	-0.086	0.949	0.085	<0.001
NB_04	0.098	0.183	0.097	0.895	-0.142	<0.001
KS_01	0.191	0.538	-0.018	-0.138	0.702	<0.001
KS_02	-0.267	0.088	0.004	-0.091	0.735	<0.001
KS_03	0.078	-0.198	0.023	0.307	0.761	<0.001
KS_04	0.004	-0.355	-0.010	-0.085	0.822	<0.001

Source (Table 3): WarpPLS 6.0-processed data

Note: These results were obtained after eliminating two indicators – KS_5 and KS_6 – because they had loading factor values of less than 0.6.

In addition to loading factor, validity was also measured by using average variances extracted (AVE). The results of AVE calculation summarised in Table 4 showed that each of all the five variables used in this study had an AVE value of more than 0.5, and therefore was considered valid.

Table 4. Average Variances Extracted (AVE)

	AVE	Square root of AVE
IQ	0.570	0.755
SQ	0.572	0.756
ServQ	0.589	0.767
US	0.554	0.744
NB	0.858	0.926

4.3. Hypothesis Testing

The hypothesis testing was conducted by using a significance level of 5%, meaning that each hypothesis would be accepted if its P value was less than 0.05 ($P < 0.05$). The results of hypothesis testing are presented in Table 5.

Table 5. Hypothesis Testing

	Path Coefficient	P Value	Conclusion
IQ-US	0.245	0.004	H1 accepted
SQ-US	0.401	<0.001	H2 accepted
ServQ-US	0.229	0.006	H3 accepted
US-NB	0.652	<0.001	H4 accepted

As shown in Table 5, the results of hypothesis testing indicated that all four hypotheses were accepted as each one of them had a P value of less than 0.05.

4.4. Goodness of Fit Test

The goodness of fit test was used to see how well the research model fitted into a set of observations by examining whether it was free from multicollinearity effects. The results of the goodness of fit test are presented in Table 6.

Table 6. Goodness of Fit Test

Indicators	Calculation Result	Ideal
APC	<0.001	< 0.05
ARS	<0.001	< 0.05
VIF	1.716	< 3.3
AVIF	2.257	< 3.3

From all the indicators shown in Table 6, it can be seen that the research model used in the present study had met all the given conditions, and, therefore, all the variables used were considered appropriate. The results of research model testing are summarised in Figure 2.

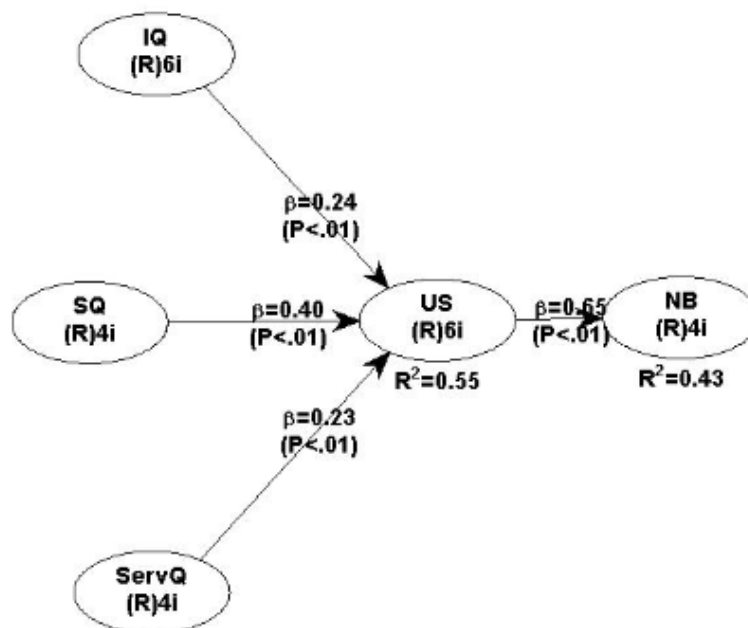


Figure 2. Research Model Testing

4.5. DISCUSSION

The results of the present study showed that all hypotheses were confirmed. This suggests that the main factor affecting the implementation success of SISKEUDES in Wonogiri Regency is user satisfaction. The value of R^2 of this variable was 0.55 (55 percent), indicating that users are satisfied with the information quality, system quality,

and service quality of SISKEUDES. This means that the system design of SISKEUDES has accommodated its user needs and has provided the users with an easy-to-use system. This is consistent with the findings of prior studies which have found that the level of usability of a system may affect the system use in the long run (Davis, 1989; Wanyama & Zheng, 2011). The results of this study also suggest that the information design and the customer service and support provided by SISKEUDES have accommodated the user needs. This is in agreement with DeLone and McLean (2003), who argue for the important role that information system quality plays in designing information systems.

The research model used in this study contains user satisfaction as the sole mediating variable. The reason for this is that the use of SISKEUDES is mandatory, while system use and intention to use variables are more suitable for voluntary systems implementation. This has been proven by, for example, Iivari (2005) who shows that the influence of system use variable on individual impact is not significant in the case of a mandatory information system.

The present study utilises user satisfaction as a mediating variable to explain the influence of information quality, system quality, and service quality on the net benefits of SISKEUDES implementation in Wonogiri Regency. The findings showed that approximately 0.43 (43 percent) of the net benefits of SISKEUDES implementation could be explained by user satisfaction variable, while the other 57 percent could be explained by other variables. These results are consistent with the theory of cognitive dissonance proposed by Festinger (1957), that is, the consistency between the information system implemented and user expectations may reduce the gap between expectations and reality. This consistency, in turn, may improve the efficiency and effectiveness of system implementation and minimise the risk of system implementation failure due to user rejection (DeLone dan McLean, 2003; McGill et al., 2005). In the midst of human resource shortages and inadequate infrastructure, the right system design may help rural local governments to successfully implement SISKEUDES. The match between the system and user needs may help the users of SISKEUDES to manage rural finances more accountably and efficiently. In addition to this, the research model used in the present study shows that user support plays an important role in improving user satisfaction.

5. CONCLUSIONS AND RECOMMENDATIONS

The present study aims to evaluate the implementation of SISKEUDES in Wonogiri Regency, Indonesia, and identify the factors that may affect its success or failure. SISKEUDES is a system that was developed by the Financial and Development Oversight Board (*Badan Pengawasan Keuangan dan Pembangunan/BPKP*) with the purpose of improving rural financial management so that Indonesian local rural governments would be able to manage their finances more effectively and accountably. The results of this study showed that all hypotheses were confirmed. This means that SISKEUDES has been successfully implemented by the local government of Wonogiri Regency. The findings also suggest that the match between user expectations and information quality, system quality, and service quality is the main factor affecting the implementation success of the system.

The conclusion of this study is twofold. First, in order to successfully implement an information system, its design must satisfy the needs of its users. Second, system usability and benefits should be clearly defined when designing an information system, so that it can be implemented to accomplish the objectives and goals of the system implementation. However, the major limitation of this study is that it does not measure user experience when interacting with the system. Therefore, it is recommended that future research uses focus group discussions to examine and describe user experience. Future studies may also examine the interaction between the user and the system environment to gain a more comprehensive picture of the factors affecting user satisfaction.

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