Information Systems Quality and Faculty Certification Effectiveness: The Mediating Role of Technology Acceptance in Higher Education

Oki Mushlahuddin*, Bambang Yulianto, Syunu Trihantoyo, Sujarwanto, Tri Rijanto, Dwiarko Nugrohoseno, Mohamad Sulton Arifin, Mutia Yun Anika

Universitas Negeri Surabaya, Surabaya, Indonesia
*Corresponding author, email: 25072255006@mhs.unesa.ac.id

https://doi.org/10.17977/um065.v7.i5.2027.15

Article History
Submitted: 29 October 2026
Revised: 11 November 2026
Accepted: 13 November 2026
Published: 15 November 2026

Keywords
Faculty certification
Information systems quality
Perceived ease of use
Perceived usefulness
SISTER

Abstract
Digital information systems play a crucial role in supporting the faculty certification process at universities. The effectiveness of their implementation is determined not only by the quality of the system, but also by the quality of the information and user acceptance of the technology. This study aims to analyze the influence of system quality, information quality, and service quality on the effectiveness of faculty certification, with perceived ease of use and perceived usefulness as mediating variables in the implementation of the Integrated Resource Information System (SISTER) at a state university in Indonesia. This study employed a quantitative approach through a survey of 191 respondents. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS. The research results show that system quality has a significant effect on the perception of ease of use, while information quality has a significant effect on the perception of usefulness. The perceptions of ease of use and usefulness have a significant effect on the effectiveness of faculty certification. Information quality also has a significant direct effect on the effectiveness of certification. Furthermore, perceived ease of use was found to mediate the relationship between system quality and the effectiveness of lecturer certification. The effectiveness of digital-based faculty certification is linked to the quality of the information system and users' acceptance of the technology. Therefore, improving usability, information quality, and technical support must be prioritized in the development of academic administrative services.

1. Introduction

Digital transformation has driven higher education institutions to integrate information technology into the management of administration, human resources, and academic services (Mujahidin et al., 2026; Sukorini et al., 2024). In the context of higher education in Indonesia, the Integrated Resource Information System (SISTER) plays a role in supporting the management of faculty data and various processes related to academic career development, including faculty certification (Nashrullah et al., 2025). The use of information systems in the certification process is expected to improve administrative efficiency, the consistency of data management, information accessibility, and the smooth implementation of procedures (Bravo et al., 2025; Putri, 2024; Sunarjo et al., 2024). However, the existence of a digital system does not in itself guarantee the effectiveness of work processes. The success of system implementation also depends on the quality of the technology provided, the relevance of the information generated, the availability of support services, and users' perceptions of the system's ease of use and benefits (Ilieva et al., 2024). Therefore, evaluating the quality of SISTER's implementation is crucial for understanding how information systems can support the effectiveness of the faculty certification process at higher education institutions.

Theoretically, information system quality is one of the factors that explains the success of technology adoption in organizations (Sudrajat et al., 2024). DeLone and McLean's information system success model identifies system quality, information quality, and service quality as key dimensions in evaluating information system success (Alduaij et al., 2024). System quality relates to the reliability and ease of operation of the technology; information quality encompasses the accuracy, relevance, and completeness of information; while service quality relates to the support received by users (Abd Aziz et al., 2024; Salisu et al., 2025; K. Wang et al., 2024). These three dimensions are relevant in the context of faculty certification because this process requires

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

a reliable system, accurate information, and adequate assistance when users encounter administrative or technical obstacles. However, an evaluation based solely on the quality of the information system does not fully explain how the system's characteristics translate into benefits in the performance of tasks. User perceptions must be taken into account to understand whether the quality provided is truly perceived as helpful in completing the certification process.

The technology acceptance perspective provides an additional framework for explaining these mechanisms. The Technology Acceptance Model (TAM), developed by Davis (1989), identifies perceived ease of use and perceived usefulness as the primary constructs in explaining technology acceptance (Kong et al., 2024; Ortiz-López et al., 2024; Toros et al., 2024). Perceived ease of use indicates the extent to which users believe a system can be used without excessive effort (Hussain et al., 2025), while perceived usefulness indicates the extent to which the system is believed to enhance user performance (Al-Adwan et al., 2025). In the implementation of SISTER, a user-friendly system has the potential to reduce difficulties in accessing and managing information, while a system that provides tangible benefits can help users complete certification tasks more effectively. Integrating the information system quality perspective with the TAM allows research to not only assess system characteristics but also examine the role of user perceptions as a mechanism linking the quality of system implementation to the effectiveness of work processes. This approach is relevant for evaluating digital systems used in complex administrative processes within higher education settings.

Although the information systems success model and TAM have been widely used to examine the success of technology, these two perspectives have different analytical focuses. The DeLone and McLean model emphasizes the dimensions of information system quality and success (Saba et al., 2025; Winarno & Legowo, 2024), whereas TAM focuses on users' perceptions of the ease and usefulness of technology (Ishengoma, 2024; Lee et al., 2025). Integrating these two perspectives provides a conceptual framework for understanding the relationship between information system quality and the benefits perceived by users. However, the effectiveness of applying this framework needs to be tested based on the characteristics of the system's usage context. In higher education administrative services, the success of a system is not only related to users' decisions to adopt the technology but also to its contribution to the implementation of procedures, the efficiency of task completion, and the achievement of service objectives (Dhameria et al., 2025; Kabakus et al., 2025; Mukred et al., 2024). Thus, the effectiveness of the faculty certification process must be positioned as a key aspect in evaluating the implementation of information systems, rather than merely as an automatic consequence of technology use.

Based on this conceptual synthesis, there is a need to clarify how the dimensions of information system quality relate to the effectiveness of the lecturer certification process through user perceptions. Specifically, this study aims to examine whether system quality, information quality, and service quality are related to perceptions of ease of use and perceived usefulness, as well as how these two perceptions contribute to explaining the effectiveness of the certification process. The research gap to be addressed lies in the integrated testing of these relationships within the context of SISTER implementation at Indonesian universities. This focus is important because the system's characteristics, administrative needs, and user experiences in the faculty certification process may differ from the context of technology use for learning or other academic services. By integrating perspectives on information system quality and technology acceptance, this study aims to clarify the mechanisms linking the quality of system implementation to the effectiveness of administrative processes. The novelty of this research lies in the application and empirical testing of this integrative framework within the context of faculty certification, rather than in the claim that the two underlying theories are new.

Therefore, this study aims to analyze the influence of system quality, information quality, and service quality on the effectiveness of the lecturer certification process through perceptions of ease of use and perceived usefulness as mediating variables in the implementation of SISTER at Indonesian Higher Education Institutions. Specifically, this study examines the direct relationship between the dimensions of information system quality and the effectiveness of the certification process, the relationship between the dimensions of information system quality and the perception of technology acceptance, as well as the mediating role of the perception of ease of use and the perception of usefulness in these relationships in accordance with the established research model. This study employs a quantitative approach using a survey and Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. The results are expected to contribute to the development of research on the success of information systems and technology acceptance in higher education governance, while also providing empirical evidence that institutions can use to improve the quality of SISTER implementation and the effectiveness of the lecturer certification process.

2. Method

2.1. Research Design

This study employs a quantitative approach using an explanatory survey design to analyze the relationship between information system quality, technology acceptance, and the effectiveness of the lecturer certification

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

process in the implementation of the Integrated Resource Information System (SISTER) at This study was conducted at a public university in Indonesia. This approach was chosen because the study aims to test the relationships among variables formulated based on the Information System Success Model and the Technology Acceptance Model (TAM). Information system quality is operationalized through three dimensions: system quality, information quality, and service quality. Technology acceptance is represented by perceived ease of use and perceived usefulness, which are the main constructs in the TAM model (Pradana & Salamat, 2025), while the effectiveness of the lecturer certification process serves as the outcome variable in the research model.

The research model was developed by integrating the perspectives of information system quality and technology acceptance to explain the effectiveness of the lecturer certification process through the implementation of SISTER. System quality, information quality, and service quality are positioned as exogenous constructs, while perceived ease of use and perceived usefulness serve as mediating constructs. The effectiveness of the lecturer certification process is the primary endogenous construct. The relationships among these variables are formulated in the conceptual model of the study, as presented in Figure 1.

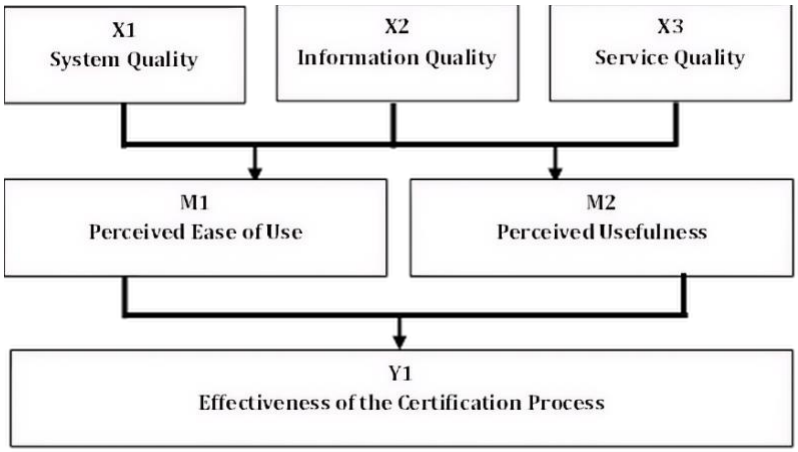


Figure 1. Conceptual Model of the Study

This conceptual model served as the basis for testing direct and indirect relationships among variables using PLS-SEM. The structural model was evaluated using path coefficients, the coefficient of determination (R^2), and the effect size (f^2), while the mediating effect was tested using a bootstrapping procedure for indirect effects (Hair Jr et al., 2026).

The analysis was conducted using PLS-SEM with the assistance of SmartPLS software. This method was used to estimate relationships between latent constructs, evaluate the quality of the measurement model, and test structural relationships, including direct and indirect effects through mediating variables. The choice of PLS-SEM was tailored to the research objectives, which focused on explaining relationships among constructs and evaluating predictive models (Khalufi et al., 2025).

2.2. Participants, Target Population, and Sampling Techniques

The target population of this study consists of faculty members at public university in Indonesia who are involved in the faculty certification process through the Integrated Human Resources Information System (SISTER). The study participants include prospective candidates for faculty certification and faculty members who have participated in or completed the 2025 faculty certification process. This group was selected because they possess relevant experience to evaluate the quality of the information system and the effectiveness of the faculty certification process.

This study employed purposive sampling, in which respondent selection is based on specific criteria relevant to the research objectives (Ahmad & Wilkins, 2025). This technique is a non-probability sampling approach that allows researchers to select participants based on their characteristics and relevance to the phenomenon under study (Mukti, 2025). Based on the data verification and cleaning process, a total of 191 respondent observations were deemed to meet the criteria for analysis.

Participant criteria included having relevant experience or involvement in the faculty certification process at the selected higher education institution, meeting the requirements for participation in the study, and providing questionnaire responses suitable for analysis. Data screening was conducted to identify responses that did not meet the eligibility criteria and duplicate responses. Data that met the criteria were subsequently used in statistical analysis. Throughout the study, the confidentiality of respondents' identities was maintained, and the data were used solely for research purposes.

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

2.3. Research Instrument

Data were collected using a structured questionnaire designed based on the constructs in the research model. The instrument was designed to measure respondents' perceptions of the quality of SISTER implementation, technology acceptance, and the effectiveness of the lecturer certification process. The development of the instrument drew upon DeLone and McLean's information system success concepts as well as Davis's Technology Acceptance Model (Scott et al., 2025), with the wording of the statements adapted to the context of SISTER's use at a public university in Indonesia.

The instrument for the main structural model includes six constructs: system quality, information quality, service quality, perceived ease of use, perceived usefulness, and the effectiveness of the lecturer certification process. Each construct is measured using ten indicators, resulting in a total of 60 indicators in the main model. The constructs, number of indicators, and related measurement dimensions are presented in Table 1.

Table 1. Research Constructs, Indicators, and Measurement Dimensions

Construct	Code	Number of indicators	Aspects measured
System Quality	X1	10	Reliability, ease of operation, and system functionality
Information Quality	X2	10	Accuracy, relevance, completeness, and timeliness of information
Service Quality	X3	10	Service support and technical assistance for users
Perceived Ease of Use	M1	10	Perceptions regarding the ease of learning and using SISTER
Perceived Usefulness	M2	10	Perceptions regarding the benefits of SISTER in supporting work
Effectiveness of the Certification Process	Y1	10	Achievement of objectives and efficiency of the faculty certification process

Each indicator is measured using a five-point Likert scale. Higher scores indicate a higher level of agreement with the statements presented. The scoring system and corresponding answer categories are presented in Table 2.

Table 2. Likert Scale and Response Categories

Score	Response Categories
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

The score for each indicator was entered into the dataset according to the construct code and indicator number. Prior to analysis, the data were checked to identify duplicate responses, missing values, coding errors, and values outside the scale range. Indicators were scored according to the direction of the statements in the instrument; if a statement was negative, the score was reversed before construct formation.

Construct validity and reliability were evaluated using a measurement model in PLS-SEM. Convergent validity was assessed through outer loading values and average variance extracted (AVE). Outer loading values of approximately 0.70 or higher and an AVE of at least 0.50 were used as evaluation guidelines, taking into account content validity and the indicators' contributions to the construct.

Internal reliability was evaluated using Cronbach's alpha and composite reliability (CR). Values of approximately 0.70 or higher are generally used as a benchmark for adequate reliability. Discriminant validity was evaluated using the heterotrait-monotrait ratio (HTMT) criterion, with values below 0.85 as a conservative criterion or below 0.90 as a more lenient threshold, depending on the construct's context and theoretical basis (Cheung et al., 2024; Diwayanti et al., 2026).

Based on the results of the preliminary SmartPLS analysis discussed above, the AVE values for all constructs were reported to be greater than 0.50, and the reliability coefficients exceeded 0.70. However, the HTMT value between information quality and the effectiveness of the certification process was reported to be 0.901. This value requires further evaluation because it exceeds the commonly used threshold of 0.90. Therefore, the discriminant validity of both constructs cannot be deemed fully satisfied based solely on these preliminary test results. A re-examination of the indicators, the conceptual definitions of the constructs, and the measurement results is necessary before the final results are reported in the article.

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

2.4. Research Procedures

The research was conducted in several stages, including instrument preparation, data collection, data verification, statistical analysis, and interpretation of results. These procedures were designed to ensure that the data used in model testing were consistent with the research objectives. The research process and the associated data analysis steps are illustrated in Figure 2.



Figure 2. Research Procedures and Data Analysis

Data collection took place in September 2026. Data analysis was conducted after the dataset had been cleaned and verified.

2.5. Data Analysis

Data analysis was conducted using SmartPLS 4 with the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. The analysis included descriptive statistics, measurement model evaluation, structural model testing, and mediation effect testing (Hair Jr et al., 2026).

2.5.1. Descriptive Statistics

Descriptive statistics are used to describe the characteristics of respondents and the distribution of responses to research indicators (Subhaktiyasa, 2024). Respondent characteristics were analyzed based on information available in the dataset, such as gender, functional position, certification status, and role in the faculty certification process. Categorical data are presented as frequencies and percentages, while research indicators are summarized using mean, standard deviation, minimum, and maximum values.

2.5.2. Measurement Model Evaluation

Measurement model evaluation is conducted to ensure that the indicators adequately represent the constructs under study. The testing included convergent validity via outer loading and average variance extracted (AVE), internal consistency reliability via Cronbach's alpha and composite reliability, and discriminant validity via the heterotrait-monotrait ratio (HTMT) (Amatan et al., 2025; Li & Lay, 2024). The HTMT is used to assess the extent to which different constructs can be empirically distinguished (Rosli et al., 2024).

2.5.3. Structural Model Evaluation

Structural model evaluation was conducted to assess the relationships among latent constructs and the model's ability to explain endogenous constructs. In this study, system quality, information quality, and service quality were positioned as exogenous constructs, while perceived ease of use and perceived usefulness served as both mediating and endogenous constructs. The effectiveness of the faculty certification process was positioned as the primary endogenous construct. The evaluation was conducted using path coefficients, the coefficient of determination R^2, and the effect size f^2.

Path coefficients are used to assess the direction and magnitude of relationships between constructs in accordance with the hypothesized structural model (Cheung et al., 2024). The significance of the relationships was evaluated through a bootstrapping procedure, taking into account the t-statistic, p-value, and confidence interval (Vishnoi et al., 2024). This analysis was used to determine whether the hypothesized relationships were supported by empirical evidence.

The coefficient of determination R^2 is used to measure the proportion of variance in the endogenous construct that can be collectively explained by its predictor constructs. In this study, the R^2 values were evaluated for the constructs of perceived ease, perceived usefulness, and the effectiveness of the faculty certification process. These values provide insight into the model's explanatory power, with interpretations that account for the model's complexity and the research context.

Furthermore, the effect size f^2 is used to evaluate the relative contribution of each predictor construct to the model's ability to explain the endogenous construct. This measure is determined by comparing the model's R^2 value when a predictor is included and when it is excluded. General guidelines, as outlined by (Cohen, 2013), namely, 0.02 for a small effect, 0.15 for a moderate effect, and 0.35 for a large effect were used as a reference for interpretation, while still taking the research context into account. These three measures were used complementarily to assess structural relationships, the model's explanatory power, and the relative contributions of the predictors.

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

2.5.4. Testing Direct and Mediating Effects

Direct effects were tested to determine the relationships between system quality, information quality, service quality, perceived ease of use, perceived usefulness, and the effectiveness of the lecturer certification process along the pathways specified in the research model. The tests were conducted by evaluating path coefficients and their significance through a bootstrapping procedure using SmartPLS (Sugiarto et al., 2025).

Mediation tests were conducted by evaluating specific indirect effects through a bootstrapping procedure (Sarstedt & Moisescu, 2024). The significance of indirect effects was assessed based on the t-statistic, p-value, and confidence interval generated by SmartPLS. An indirect effect was considered significant if the confidence interval did not include zero at the specified confidence level. The bootstrapping-based approach is the recommended method for testing indirect effects in mediation models (Zayed et al., 2026).

This analysis was used to determine whether perceptions of ease of use and perceived usefulness serve as mediating mechanisms in the relationship between information system quality and the effectiveness of the faculty certification process. Direct and indirect effects were interpreted simultaneously to understand the relationship patterns within the model. Determining the type of mediation requires consideration of the significance of the indirect effect as well as the direction and significance of the relevant direct effects.

2.5.5. Decision-Making Criteria

Hypothesis testing was conducted using a 5% significance level ($\alpha = 0.05$). A relationship was considered significant if the p-value was less than 0.05 or if the 95% confidence interval did not include zero. The t-statistic value is used as supporting information in decision-making based on bootstrapping results (Sirait & Kurniyaningrum, 2025).

The analysis results are presented in tables showing path coefficients, indirect effects, the coefficient of determination (R^2), and effect size (f^2). Interpretation is conducted by considering the direction of the relationship, statistical significance, the model's ability to explain the endogenous construct, and the relative contributions of the predictor constructs. Thus, decisions regarding hypotheses are based not only on the magnitude of the path coefficients but also on the results of significance tests and relevant model evaluation measures.

3. Results and Discussion

This section presents the results of an empirical analysis of the relationship between information system quality, technology acceptance, and the effectiveness of the faculty certification process in the implementation of the Integrated Resource Information System (SISTER) at a public university in Indonesia. The research findings are interpreted based on the research objectives, a conceptual framework that integrates the Information System Success Model and the Technology Acceptance Model (TAM), and their relevance to the management of administrative services in higher education. The analysis includes data characteristics and descriptive statistics, an evaluation of the measurement model, structural equation modeling, and direct and indirect effects mediated by perceptions of ease of use and perceived usefulness. The subsequent discussion relates the empirical findings to the theoretical framework and previous research to explain the study's contributions, practical implications for SISTER management, and limitations that should be considered when interpreting the results.

3.1. Results

3.1.1. Characteristics and Descriptive Statistics of the Variables

This study analyzed 191 responses that had undergone data validation. The main model dataset consists of 60 indicators measuring 6 constructs: system quality, information quality, service quality, perceived ease of use, perceived usefulness, and the effectiveness of the faculty certification process. Data validation revealed that all 191 responses had complete scores on the main model indicators using a Likert scale. The descriptive statistics are presented in Table 3.

Table 3. Descriptive Statistics of Research Constructs

Variables	N	Mean	SD	Minimum	Maximum
System Quality (X1)	191	4.404	0.566	2.8	5.0
Information Quality (X2)	191	4.586	0.478	2.8	5.0
Service Quality (X3)	191	4.713	0.379	3.8	5.0
Perceived Ease of Use (M1)	191	4.566	0.488	2.9	5.0
Perceived Usefulness (M2)	191	4.730	0.392	2.5	5.0
Effectiveness of Certification (Y1)	191	4.684	0.416	3.0	5.0

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

The descriptive statistics show that all constructs had mean scores above 4.40 on a five-point scale. Perceived usefulness had the highest mean, at 4.73, followed by service quality at 4.71 and the effectiveness of the certification process at 4.68. These descriptive findings indicate a tendency for respondents to rate the use of SISTER positively. However, high mean scores do not in and of themselves prove the existence of a significant relationship between variables.

3.1.2. Evaluation of Measurement Models

A measurement model evaluation was conducted to assess the convergent validity and reliability of the variables before analyzing the structural relationships. The evaluation included convergent validity, as measured by outer loadings and average variance extracted (AVE); internal reliability, as measured by Cronbach's alpha and composite reliability; and discriminant validity, as measured by the HTMT ratio. The model for measuring these indicators is shown in Figure 3.

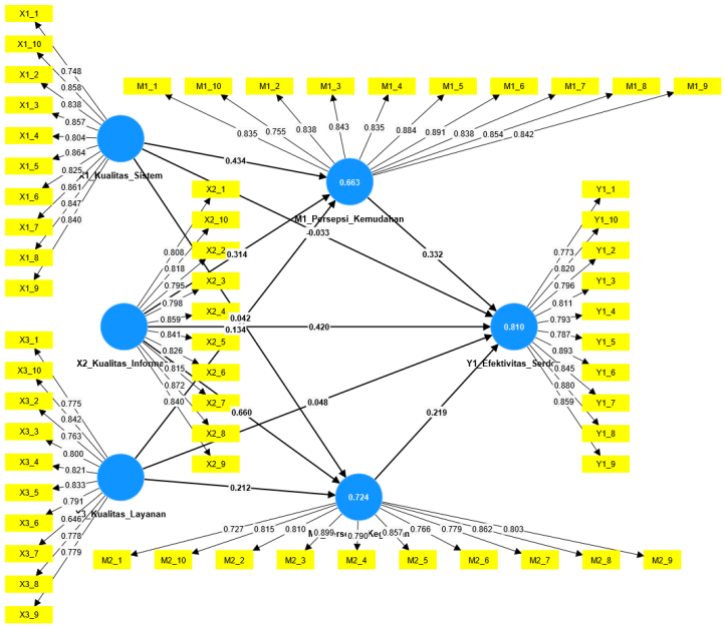


Figure 3. PLS-SEM Model with Outer Loadings

Figure 3 presents the results of the measurement model evaluation using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, which illustrates the relationship between each indicator and the latent construct being measured. The outer loading values indicate the strength of the relationship between an indicator and its construct, and can therefore be used to evaluate the indicators' ability to represent the research variables. In general, an outer loading value of 0.70 or higher indicates that an indicator makes an adequate contribution to measuring the construct. Indicators with values below this criterion require further evaluation, taking into account the AVE value (Li & Lay, 2024), construct reliability, and the theoretical relevance of the indicator before a decision to remove it is made. Based on Figure 3, the measurement model includes six constructs: system quality (X1), information quality (X2), service quality (X3), perceived ease of use (M1), perceived usefulness (M2), and certification effectiveness (Y1). The outer loading values in the figure provide an initial overview of each indicator's contribution to the measured constructs. However, because the figure contains many indicators and some numbers are difficult to read, the values of each indicator need to be rechecked using the outer loading table from the SmartPLS output so that the evaluation can be conducted accurately. The results of this evaluation are further supplemented by a convergent validity test using the average variance extracted (AVE) value, as well as an internal reliability test using Cronbach's alpha and composite reliability, as presented in Table 4.

Table 4. Convergent Validity and Reliability Results

Construct	AVE	Cronbach's alpha	Composite reliability (ρC)
System Quality (X1)	0.697	0.952	0.958
Information Quality (X2)	0.685	0.949	0.956
Service Quality (X3)	0.615	0.930	0.941
Perceived Ease of Use (M1)	0.709	0.954	0.961
Perceived Usefulness (M2)	0.660	0.942	0.951
Effectiveness of Certification (Y1)	0.683	0.948	0.956

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

The measurement results show that the average variance extracted (AVE) values for all variables are above 0.50. Internal reliability, as measured by Cronbach's alpha and composite reliability, was also above 0.90. Overall, these results support the convergent validity and internal consistency of the variables in the research model. Although these results support convergent validity and internal reliability, discriminant validity still needs to be examined. The HTMT value of 0.901 between information quality and certification effectiveness—as previously reported—is slightly above the commonly used threshold of 0.90. Therefore, these two constructs need to be further examined in terms of their conceptual differences and measurement indicators before the measurement model can be declared to fully meet all criteria.

Discriminant validity was then evaluated using the Heterotrait–Monotrait Ratio (HTMT) to assess whether the constructs in the model exhibited sufficient empirical differentiation. An HTMT value below 0.90 is generally used as the acceptance criterion, while a threshold of 0.85 may be applied under stricter criteria. Test results must be examined for all pairs of constructs before discriminant validity is deemed to have been met.

3.1.3. Evaluation of Structural Models

Structural models were evaluated to determine the predictors' ability to explain the endogenous construct and to test the relationships formulated in the hypotheses. The evaluation included the coefficient of determination (R^2), the effect size (f^2), as well as the path coefficients and their significance. The R^2 values indicate that the model explains 66.3% of the variation in perceived ease, 72.4% of the variation in perceived usefulness, and 81.0% of the variation in the effectiveness of the certification process. These values indicate relatively high explanatory power in the context of the research model, although their interpretation must still take into account the model's complexity and the characteristics of the data. The coefficient of determination is presented in Table 5.

Table 5. Coefficient of Determination

Endogen variable	R^2	Adjusted R^2
Perceived Ease (M1)	0.663	0.658
Perceived Usefulness (M2)	0.724	0.720
Effectiveness of Certification (Y1)	0.810	0.805

This value indicates that the predictors in the model explain a significant proportion of the variation in the endogenous construct. However, R^2 does not indicate that the model explains all factors influencing the effectiveness of faculty certification. Other factors not included in the model may still play a role.

3.1.4. Testing Direct and Indirect Effects

The results of the path coefficient tests indicate a positive and significant relationship along several paths in the research model. System quality is positively related to perceived ease of use, while information quality is positively related to perceived usefulness. Both of these user perceptions are also positively related to the effectiveness of the faculty certification process. The direct and indirect effects are presented in Table 6.

Table 6. Results of Direct and Indirect Effect Testing

Relationships Between Variables	Path Coefficient (β)	p-value	Decision
X1 → M1	0.434	< 0.001	Significant
X2 → M2	0.660	< 0.001	Significant
M1 → Y1	0.332	0.002	Significant
M2 → Y1	0.219	0.034	Significant
X2 → Y1	0.420	< 0.001	Significant
X1 → M1 → Y1	0.144	0.017	Significant indirect effect

The coefficient of determination (R^2) was assessed to determine the extent to which the predictor constructs explain the variance in the endogenous constructs. The analysis includes perceived ease of use (M1), perceived usefulness (M2), and the effectiveness of the faculty certification process (Y1). The R^2 and adjusted R^2 values for these endogenous constructs are presented in Table 7.

Table 7. Coefficient of Determination (r2)

Endogenous construct	(r2)	Adjusted (r2)
M1 – Perceived Ease	0.663	0.658
M2 – Perceived Usefulness	0.724	0.720
Y1 – Effectiveness of Certification	0.810	0.805

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

The R^2 value of 0.663 for perceived ease of use indicates that 66.3% of the variation in this construct can be explained by the predictors in the model. The R^2 value of 0.724 indicates that 72.4% of the variation in perceived usefulness can be explained by its predictors. Meanwhile, the R^2 value of 0.810 indicates that 81.0% of the variation in the effectiveness of certification can be explained collectively by the predictors associated with that construct. The remainder is explained by other factors outside the model. The adjusted R^2 value indicates the proportion of variation explained after adjusting for the number of predictors and sample size.

Effect sizes (f^2) were evaluated to determine the relative contribution of each predictor to the explained variance of the endogenous construct. This analysis complements the coefficient of determination by identifying the magnitude of each predictor's contribution. The f^2 values and corresponding effect size classifications are presented in Table 8.

Table 8. Effect Size (f2) Results

Relationships between variables	(f2)	Effect size
M1 → Y1	0.195	Medium
M2 → Y1	0.069	Small
X1 → M1	0.162	Medium
X1 → M2	0.002	Very Small
X1 → Y1	0.001	Very Small
X2 → M1	0.085	Small
X2 → M2	0.458	Large
X2 → Y1	0.176	Medium
X3 → M1	0.028	Small
X3 → M2	0.085	Small
X3 → Y1	0.006	Very Small

The results in Table 8 show that information quality has the largest effect size on perceived usefulness (f2 = 0.458), which falls into the "large" category. This indicates that information quality makes a relatively strong contribution to explaining the perceived usefulness of SISTER. The relationship between information quality and certification effectiveness (f2 = 0.176), the relationship between perceived ease of use and certification effectiveness (f2 = 0.195), and the relationship between system quality and perceived ease of use (f2 = 0.16) all showed moderate effects. Meanwhile, several other relationships had small or very small effects. These results indicate that the contribution of each predictor varies within the structural model; therefore, priorities for improving SISTER could focus on aspects of information quality and ease of use. However, effect sizes should be interpreted in conjunction with path coefficients and significance test results, as f2 does not indicate whether a relationship is statistically significant.

3.2. Discussion

3.2.1. Information System Quality and Technology Acceptance

The research results show that system quality has a positive and significant effect on the perceived ease of use of SISTER. These findings indicate that the technical quality of the system is related to the ease users experience when carrying out the faculty certification process. A system with reliable functions, consistent navigation, and a clear operational workflow can help users complete administrative steps without requiring excessive effort (Z. Wang et al., 2025). Theoretically, these findings align with the Technology Acceptance Model (TAM), which identifies perceived ease of use as a key factor in technology acceptance (Nazir & Khan, 2024). In the context of SISTER, ease of use is relevant because faculty members need to interact with the system to understand requirements, manage information, and complete the certification process. Thus, system quality must be understood not only in terms of technical capabilities but also as characteristics that shape the user experience when interacting with the technology.

Empirically, a study (Alduaij et al., 2024) that integrated TAM with DeLone and McLean's Information Systems Success Model in the context of higher education academic information systems showed that perceived ease of use and service quality are important aspects in system evaluation. The study also reported that the direct contribution of system quality to net benefits is relatively small. This finding offers a contrasting perspective: the technical quality of a system does not always contribute equally to all aspects of information system success. In this study, system quality showed a significant relationship with perceived ease of use, with a moderate effect size. These results reinforce the understanding that the contribution of system quality may be more prominent in the ease-of-use experience than in directly perceived benefits or effectiveness. Nevertheless, differences in context, outcome constructs, and user characteristics must be taken into account when comparing the two studies.

The contribution of system quality to the dimensions of technology acceptance and certification effectiveness also shows a different pattern. The effect sizes of system quality on the perceived usefulness and

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

effectiveness of certification are both very small. These results indicate that the relative contribution of system quality to these two constructs is limited after accounting for other predictors in the model. However, small effect sizes do not in and of themselves prove that these relationships are not statistically significant. Therefore, conclusions regarding the significance of these two pathways must still be based on the results of the bootstrapping test (Legate et al., 2024). Conceptually, this pattern suggests that a well-functioning system is not necessarily directly perceived as useful or deemed capable of enhancing the effectiveness of certification. Perceptions of usefulness may also be influenced by the relevance of available information, the alignment of features with job requirements, and the system's ability to support the completion of administrative tasks. In the faculty certification process, technical quality must go hand in hand with information support and procedures that align with user needs.

These findings can be further understood through DeLone and McLean's information system success model, which identifies system quality, information quality, and service quality as key dimensions in evaluating the success of information systems. These three dimensions represent different aspects, so their contributions to system acceptance and benefits need not be identical. This is also demonstrated in a study (Mamakou et al., 2024) on student information systems at universities. The study found that system quality, information quality, and service quality had a significant effect on system usage but did not show a significant effect on user satisfaction. These findings indicate that the relationship between information system quality and usage outcomes may vary depending on the construct being evaluated. In the context of this study, the differences in how system quality contributes to perceived ease of use, perceived usefulness, and certification effectiveness underscore the importance of evaluating each dimension based on its specific role within the research model.

The research findings also indicate that information quality has a positive and significant effect on perceived usefulness, with a large relative contribution within the model. These findings indicate that information quality is a crucial aspect in shaping users' assessments of SISTER's benefits. Accurate, relevant, complete, consistent, and easily understandable information can help faculty members identify certification requirements, prepare documents, and determine the necessary administrative actions (Osman et al., 2024). When the available information aligns with job requirements, users have a stronger basis for assessing that the system supports the completion of their tasks. Theoretically, these results are consistent with (DeLone & McLean, 2003) information system success model, which identifies information quality as a key dimension in evaluating system success. In the context of faculty certification services, information quality is crucial because users not only need access to the system but also require information they can use to understand and follow certification procedures correctly.

From an empirical perspective, previous research on academic information systems indicates that the relationship between the dimensions of information system quality and usage outcomes is not always consistent. (Widyaningrum et al., 2024) found that all three dimensions of information system quality influence system usage but do not have a significant effect on user satisfaction. Meanwhile, (Giang & Nga, 2024) highlighted the importance of considering perceptions of ease of use and service quality when evaluating academic information systems. Compared to that study, the results of this research place particular emphasis on the relationship between information quality and perceived usefulness in the context of faculty certification. This difference does not imply that information quality is always the most dominant factor in every information system; rather, it indicates that the contribution of each quality dimension must be understood based on task requirements and user characteristics within the context of its implementation.

Overall, the research findings show that integrating DeLone and McLean's information system success model with the Technology Acceptance Model (TAM) can help explain the relationship between information system quality and technology acceptance in the implementation of SISTER. System quality is related to perceptions of ease of use, while information quality shows a strong relationship with perceptions of usefulness. These differing patterns imply that improving the effectiveness of faculty certification services requires an approach that focuses not only on the technical reliability of the system but also on the quality of information that supports users' administrative needs. The contribution of this study lies in the application of these two perspectives within the context of faculty certification at universities, which have their own distinct task characteristics and information needs. Thus, an evaluation of the SISTER implementation must consider system quality and information quality as complementary dimensions in shaping users' technology acceptance.

3.2.2. User Perceptions, Certification Effectiveness, and Mediation

The results of the study indicate that the perception of ease of use has a positive and significant effect on the effectiveness of faculty certification, while the perception of usefulness also has a positive and significant effect on certification effectiveness. Although both constructs are related to effectiveness, the effect size for the perception of ease of use is moderate, while the effect size for the perception of usefulness is small. This difference indicates that the relative contributions of these two dimensions of technology acceptance in explaining the effectiveness of certification are not equal. In the context of SISTER implementation, ease of use can help faculty members understand system navigation, follow administrative workflows, and complete the certification stages more smoothly. Meanwhile, perceived usefulness relates to users' assessments of the extent

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

to which the system assists in performing certification tasks. Therefore, these two dimensions should be understood as complementary aspects in explaining user experience and the effectiveness of the administrative process.

Theoretically, the relationship between perceptions of ease of use and perceived usefulness can be explained through a technology acceptance perspective that emphasizes the interaction between system characteristics and user perceptions. These two constructs represent distinct yet complementary dimensions in assessing technology acceptance. Perceived ease of use relates to the level of effort perceived when using the system, while perceived usefulness refers to the belief that using the technology can improve job performance (Hussain et al., 2025). In the context of SISTER, this distinction is important because a system that is easy to operate is not necessarily automatically viewed as providing optimal benefits if the available information and features do not align with the needs of faculty certification. Conversely, a system deemed beneficial must also be designed to be easily used by faculty members with diverse levels of experience and digital proficiency. Thus, technology acceptance in academic administrative services must be understood through a balance between operational ease and the tangible benefits users experience in completing their tasks.

From an empirical perspective, a study (Osman et al., 2024) on faculty members' acceptance of online learning technology shows that perceived usefulness is a key indicator in explaining technology acceptance, whereas the additional contribution of perceived ease of use to acceptance becomes more limited once perceived usefulness is taken into account. These findings suggest that the relative roles of perceived ease of use and perceived usefulness may vary depending on the context and the outcome variables analyzed. In this study, perceived ease of use had a larger effect size on the effectiveness of certification than perceived usefulness. This difference does not imply that perceived ease of use is always more important than perceived usefulness across all technological contexts. Rather, these results suggest that task characteristics and the usage environment must be taken into account when interpreting the contribution of each dimension of technology acceptance. In the faculty certification process, the ease of operating the system can be a critical aspect because users must follow procedures and meet administrative requirements through a digital system.

From the perspective of information system success, information quality reflects the system's ability to provide information that supports users' needs and task execution. This view aligns with (Islam et al., 2026), who emphasize the importance of information quality in supporting the utilization of information systems. In the context of SISTER, information quality is a critical aspect because users require information they can rely on to complete the certification stages. Conversely, information that is unclear or does not meet user needs has the potential to lead to misunderstandings, redundant work, and difficulties in meeting certification requirements. Therefore, improving information quality must be an integral part of efforts to enhance the effectiveness of digital-based faculty certification services.

These findings can also be compared with a study (Rachmat et al., 2022) on the academic information system at Hasanuddin University. That study showed that information quality plays a role in explaining the success of academic information system use, although not all relationships in the tested model yielded significant results. These results provide empirical support for the importance of information quality in evaluating information systems at universities. However, this study broadens the scope of the discussion by focusing on the effectiveness of faculty certification as the outcome under investigation, rather than merely the success of academic information system usage in general. This contextual distinction is important because the effectiveness of certification relates to meeting requirements, document management, and the implementation of specific procedures. Thus, information quality must be evaluated based on its ability to support the administrative needs that are the purpose of the system's use.

The differences in the contribution of information quality to perceptions of usefulness and the effectiveness of certification also warrant attention. In this research model, the effect size of information quality on perceptions of usefulness was large, whereas the effect size on the effectiveness of certification was moderate. This pattern suggests that the relative contribution of information quality is stronger in explaining perceptions of usefulness than its direct influence on the effectiveness of certification. Conceptually, users may perceive the information in SISTER as useful because it helps them understand their work; however, the effectiveness of completing the certification process may also be influenced by other factors, such as the complexity of procedures, administrative coordination, document readiness, and institutional support. Therefore, information quality should be viewed as one of the key elements supporting effectiveness, rather than as the sole determinant of the success of faculty certification.

The results of the mediation analysis indicate that system quality has a positive and significant indirect effect on certification effectiveness through the perception of ease of use. These findings suggest that the relationship between system quality and certification effectiveness should be understood not only through direct channels but also through users' perceptions when interacting with the system. Theoretically, these results are consistent with the TAM perspective, which emphasizes the importance of user perceptions in explaining technology acceptance, as well as the DeLone and McLean model, which positions system quality as

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

a critical dimension in the success of information systems (Davis, 1989; Scott et al., 2025). In the implementation of SISTER, technical qualities such as functional reliability and navigational clarity can support perceptions of ease of use, which in turn are related to the effectiveness of certification task execution. Thus, perceptions of ease of use can be understood as one of the mechanisms linking system quality to the outcomes of administrative processes.

Empirically Mijač et al. (2024) demonstrated that the relationship between dimensions of information system quality and usage outcomes is not always consistent in the context of higher education information systems. The study found that system quality, information quality, and service quality significantly influence students' use of information systems but did not show a significant effect on user satisfaction. These findings reinforce the argument that the success of information systems needs to be analyzed through different mechanisms and outcome constructs, rather than through a single success indicator. In this study, testing for indirect effects showed that perceived ease of use is a relevant mechanism in the relationship between system quality and certification effectiveness. However, determining whether this mediation is partial or full still requires an examination of the direct effect of system quality on certification effectiveness and the confidence intervals for the indirect effect. Therefore, the conclusion that can be affirmed is the existence of a significant indirect effect through perceived ease of use, without specifying the type of mediation before all statistical evidence has been examined.

The model's explanatory power also provides context for understanding the relationships among variables. The coefficient of determination indicates that the model is able to explain most of the variation in perceived ease, perceived usefulness, and the effectiveness of certification in this study's sample. However, the R^2 value does not mean that all factors determining the effectiveness of certification have been included in the model. Other factors, such as digital competence, procedural complexity, institutional support, and inter-unit coordination, may still contribute to the user experience and the completion of certification. These factors could be the focus of future research to expand the understanding of information system effectiveness in higher education settings. Interpreting the relationship between information quality and certification effectiveness must also take into account the results of the measurement model evaluation. The HTMT values between the two constructs slightly exceed the 0.90 threshold, indicating that they are not yet fully empirically distinguishable. This result does not automatically prove that the two constructs are invalid but highlights the need for further examination of the conceptual definitions, indicator wording, and HTMT confidence intervals. Information quality and certification effectiveness are conceptually distinct constructs, but they may be closely related because the information used in administrative processes also shapes users' assessments of the smoothness and success of those processes. Therefore, the results of the structural relationship between the two constructs must be interpreted with caution until evidence of discriminant validity is further examined.

Overall, the results of this study indicate that the effectiveness of faculty certification through SISTER is related to the quality of information and users' acceptance of the technology. Perceived ease of use and perceived usefulness are positively associated with the effectiveness of certification; information quality has a significant direct effect; and perceived ease of use acts as a mediator in the relationship between system quality and the effectiveness of certification. Theoretically, these findings support the integrated use of the Technology Acceptance Model (TAM) and DeLone and McLean's information system success model to understand digital administrative services in higher education institutions. Practically, SISTER administrators need to pay attention to technical reliability, ease of navigation, clarity of information, and user support simultaneously. However, since this study used survey data, the statistical relationships found must be interpreted in accordance with the research design and do not, in and of themselves, prove a definitive cause-and-effect relationship.

3.2.3. The Mediating Role of Perceived Ease of Use

The results of the indirect effect test indicate that perceived ease of use mediates the relationship between system quality and the effectiveness of faculty certification, with an indirect effect coefficient of 0.144 and a p-value of 0.017. These findings suggest that the indirect effect is positive and significant at the 5% level. These results indicate that the relationship between the quality of the SISTER system and the effectiveness of certification is not only related to the system's technical characteristics but also to the ease users perceive when operating the system to complete administrative tasks. Thus, perceived ease of use is a relevant mechanism in explaining the relationship between system quality and the effectiveness of the faculty certification process.

Theoretically, the relationship between system quality and certification effectiveness can be understood through the technology acceptance perspective, which emphasizes the importance of user perceptions in evaluating the experience of using digital systems. Perceived ease of use is not only related to users' ability to operate the system but also to the extent to which interactions with the technology can occur without excessive barriers. This perspective aligns with the explanation Pirham et al. (2025) regarding the relationship between technology acceptance and system usage. In this study, system quality had a positive and significant effect on perceived ease of use, while perceived ease of use also had a positive and significant effect on the effectiveness of the faculty certification process. This pattern of relationships indicates that the system's technical characteristics are linked to the effectiveness of the process through the lecturers' perceived user experience.

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

In the implementation of SISTER, clear navigation, consistent functions, and an easy-to-understand workflow have the potential to help users access features and complete administrative steps in a more focused manner. Nevertheless, the relationships identified still need to be interpreted based on empirical evidence within the research model and cannot be considered proof of absolute causality.

These findings can be explained by integrating the perspectives of information system quality and technology acceptance. The technical quality of a system is one aspect that supports the successful implementation of technology, while technology acceptance relates to how users evaluate and interact with the system they use. Diana et al. (2024) can also be used as a supporting reference to explain the relationship between these two perspectives. In the context of lecturer certification through SISTER, good technical quality must be accompanied by a user experience that makes it easy for lecturers to understand the system's functions, access the necessary features, and complete administrative procedures. A reliable system does not necessarily provide an optimal user experience if the navigation flow is difficult to understand or the available features do not meet user needs. Therefore, the perception of ease of use can be understood as a crucial aspect that bridges the system's technical characteristics with the user's experience in carrying out the certification process.

Empirically, Hussain et al. (2025) demonstrate that the perception of ease of use and the perception of usefulness are related to technology acceptance. The study also indicates that perceived ease of use can serve as a precursor to perceived usefulness. Although Davis's research focused on technology acceptance rather than the effectiveness of faculty certification, its findings provide an empirical basis for the importance of considering user perceptions when evaluating the implementation of information systems. This study expands the application of this perspective by treating the effectiveness of faculty certification as an outcome construct and testing the indirect effect of system quality through perceived ease of use. Thus, the contribution of this study lies in the application of the technology acceptance mechanism within the context of faculty certification administrative services at universities.

The effect sizes in the model further clarify the relevance of these relationships. The f^2 value for system quality on perceived ease of use and the f^2 value for perceived ease of use on the effectiveness of certification each fall into the moderate category based on Cohen's guidelines (Cohen, 2013). Meanwhile, the R^2 value for perceived ease of use indicates that the model explains most of the variation in that construct through the predictors included in the model. These results provide insight into the relative contribution of system quality in explaining perceived ease of use and the contribution of perceived ease of use in explaining the effectiveness of certification. However, effect sizes and the coefficient of determination cannot be used as substitutes for testing the significance of indirect effects; conclusions regarding mediation are still based on the results of testing indirect effects through the bootstrapping procedure.

From a practical standpoint, the research findings indicate that improving the quality of SISTER requires attention to the user experience in addition to the reliability of technical functions. System administrators and higher education institutions may consider simplifying navigation, ensuring interface consistency, providing clear user instructions, and offering technical support when users encounter difficulties. These improvements can be aimed at reducing operational barriers and helping faculty members understand the certification process more easily. Furthermore, system evaluations should incorporate user feedback to ensure that improvements align with actual needs in the certification process. However, the effectiveness of any improvement efforts must be assessed through follow-up evaluations and cannot be assumed solely based on the statistical correlations found in this study.

Overall, this study shows that the perception of ease of use is a significant mediating mechanism in the relationship between system quality and the effectiveness of faculty certification. These findings underscore the importance of considering the user experience when evaluating the success of information system implementation in higher education institutions. The technical quality of the system must be accompanied by operational ease so that users can make optimal use of the system in completing administrative tasks. From the perspective of technology acceptance, these results reinforce the relevance of perceived ease of use in explaining the relationship between system characteristics and the effectiveness of the certification process. Nevertheless, determining whether the mediation is partial or full requires an examination of the significance of the direct effect of system quality on certification effectiveness as well as the confidence interval of the indirect effect. Therefore, the main contribution of this study lies in explaining the role of perceived ease of use in the relationship between system quality and the effectiveness of faculty certification through the implementation of SISTER.

3.3. Implications

This study has theoretical and practical implications for the development of higher education information systems, particularly in supporting the effectiveness of the lecturer certification process through the Integrated Resource Information System (SISTER). The research findings confirm that the successful implementation of an information system depends not only on the availability of technology but also on system quality, information

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

quality, and user acceptance of the technology used. Therefore, the development of information systems must consider the integration of technical aspects and user needs so that the system can optimally support academic administrative processes.

Theoretically, this study contributes to the study of information system quality and technology acceptance in the context of higher education. The integration of the information system quality perspective with the Technology Acceptance Model (TAM) helps explain the importance of perceived ease of use and perceived usefulness in understanding the utilization of information systems to support the faculty certification process. This study also emphasizes that user perceptions must be considered a crucial component in evaluating the implementation of information systems. Thus, evaluating a system's success requires more than just focusing on technical aspects; it must also account for how users understand, accept, and utilize the system to complete their administrative tasks.

In practical terms, the results of this study provide several recommendations for SISTER administrators and higher education institutions. First, efforts to improve the system's quality should focus on ease of navigation, consistency in the user interface, clarity of the user flow, and simplification of administrative steps. A user-friendly system can help faculty members complete the certification process more comfortably and reduce the potential for operational errors. Second, the quality of information needs to be improved by presenting information that is accurate, relevant, complete, consistent, and easy to understand. High-quality information helps faculty members understand certification requirements, verify the completeness of documents, and follow applicable procedures correctly. Third, user support services need to be strengthened by providing clear user guides, promoting awareness of system features, and offering responsive technical support. This support is essential to help users overcome obstacles during the faculty certification process. Fourth, the implementation of SISTER must be evaluated on an ongoing basis, taking into account user experiences and needs. The evaluation should focus not only on the smooth operation of the system but also on its ease of use, perceived benefits, and the system's ability to support the completion of the faculty certification process.

The findings of this study can provide a basis for the selected higher education institution to formulate strategies for improving digital-based academic administrative services. System improvements must be implemented in an integrated manner through the development of user-oriented features, improvements in the quality of information, and the strengthening of technical support. Furthermore, the involvement of faculty members and administrative staff in the evaluation process can help identify usage barriers and determine system development priorities based on on-the-ground needs. Overall, this study highlights the importance of a user-centered approach in developing information systems to support the effectiveness of faculty certification. Synergy between system quality, information quality, perceived ease of use, perceived usefulness, and service support must be a priority in managing SISTER. These implications are expected to serve as a foundation for the development of higher education information systems that are easier to use, more useful, and capable of supporting academic administrative processes in a sustainable manner.

3.4. Limitations and Future Research Directions

Despite its theoretical and practical contributions, this study has several limitations that should be taken into account when interpreting its findings. First, this study was conducted at a single selected institution of higher education, with a specific focus on the implementation of the Integrated Resource Information System (SISTER) to support the faculty certification process. Therefore, these findings may not fully represent the experiences of faculty members at other higher education institutions, particularly those with different institutional characteristics, administrative procedures, and information system implementation policies. Second, data were collected via a questionnaire, meaning that the findings primarily reflect the respondents' self-reported perceptions and experiences. Although this approach provides valuable insights into users' acceptance and evaluation of the system, it may not fully capture actual system usage behavior or the operational challenges encountered during the certification process. Future research could combine questionnaire surveys with interviews, observations, or system usage data to gain a more comprehensive understanding of information system implementation. Third, this study focuses on specific dimensions of information system quality—namely, system quality, information quality, and service quality—as well as dimensions of technology acceptance, particularly perceived ease of use and perceived usefulness. Other factors that may influence the effectiveness of the faculty certification process, such as organizational support, digital literacy, user experience, and institutional readiness, were not included in the research model. Future research could expand the proposed model by incorporating these additional variables to provide a broader understanding of the factors influencing the effectiveness of information systems.

Given these limitations, future research is encouraged to involve various higher education institutions to test whether the relationships identified in this study remain consistent across different institutional contexts. Further research could also employ a longitudinal or mixed-methods approach to investigate changes in user perceptions and system effectiveness over time. Additionally, incorporating objective indicators of system performance and the efficiency of the certification process could provide stronger evidence regarding the contribution of information systems to the effectiveness of academic administration.

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

4. Conclusion

This study concludes that the quality of information system implementation and technology acceptance are important aspects in supporting the effectiveness of the lecturer certification process through the Integrated Resource Information System (SISTER). System quality plays a role in shaping perceptions of ease of use, while information quality contributes to perceptions of the system's usefulness. Both of these perceptions are crucial in explaining how users accept and utilize the information system to support the completion of the lecturer certification process. This study also emphasizes that perceptions of ease of use and perceived usefulness must be prioritized in the development of information systems within higher education institutions. A system that is easy to use, supported by high-quality information, and accompanied by adequate support services has the potential to provide a better user experience. Therefore, the development of SISTER should be directed not only toward improving technical aspects but also toward ensuring the system's functions align with the needs of faculty members and administrative staff in carrying out the certification process. Theoretically, this study enriches the literature on information system quality and technology acceptance in the context of higher education by integrating the perspectives of information system quality and the Technology Acceptance Model (TAM). Practically, the research findings can serve as a basis for system administrators and higher education institutions to improve usability, information quality, and service support for users. However, this study has limitations because it focuses on the context of SISTER at selected higher education institution. Therefore, applying the results to other institutions requires consideration of differences in user characteristics and applicable policies. Future research is recommended to involve more universities, consider organizational and technical support factors, and use a longitudinal approach or mixed-methods design to gain a deeper understanding of the relationship between information system quality, technology acceptance, and the effectiveness of faculty certification.

Author Contributions

All authors contributed equally to this paper. All authors have read and approved the final manuscript.

Funding

No funding support was received.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors declare that no artificial intelligence (AI) or AI-assisted tools were used in the preparation of this manuscript

References

Abd Aziz, A., Nor, R. N. H., Jusoh, Y. Y., Rahman, W. N. W. A., & Ali, N. M. (2024). Factors influencing information quality of information systems: A systematic literature review. *JOIV: International Journal on Informatics Visualization, 8*(3-2), 1923–1931. https://doi.org/10.62527/joiv.8.3-2.3483

Ahmad, M., & Wilkins, S. (2025). Purposive sampling in qualitative research: A framework for the entire journey. *Quality & Quantity, 59*(2), 1461–1479. https://doi.org/10.1007/s11135-024-02022-5

Al-Adwan, A. S., Meet, R. K., Anand, S., Shukla, G. P., Alsharif, R., & Dabbaghia, M. (2025). Understanding continuous use intention of technology among higher education teachers in emerging economy: Evidence from integrated TAM, TPACK, and UTAUT model. *Studies in Higher Education, 50*(3), 505–524. https://doi.org/10.1080/03075079.2024.2343955

Alduaij, M. Y., Alterkait, M. A., & Alainati, S. (2024). Using the DeLone and McLean success model to evaluate Moodle's information system success. *Engineering, Technology & Applied Science Research, 14*(4), 15008–15015. https://doi.org/10.48084/etasr.7300

Amatan, M. A. B., Han, C. G. K., & Pang, V. (2025). PLS-SEM approach: Validity and reliability of a questionnaire on context, input, process and acceptance of STEM implementation in Malaysia. *Journal of Applied Science, Engineering, Technology, and Education, 7*(2), 231–241. https://doi.org/10.35877/454RI.asci3885

Bravo, J., Valdivia, C., Alarcón, R., Germán, N., Serquén, O., Aquino, J., Arbulú Ballesteros, M. A., & Guevara, L. (2025). Transforming document management for environmental sustainability: The mediating effect of pro-environmental culture and service satisfaction in higher education institutions. *Frontiers in Sustainability, 5*, Article 1479927. https://doi.org/10.3389/frsus.2024.1479927

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C. (2024). Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. *Asia Pacific Journal of Management, 41*(2), 745–783. https://doi.org/10.1007/s10490-023-09871-y

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. https://doi.org/10.4324/9780203771587

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Dhameria, V., Muazeib, A. I. M., Blhaj, K. M. S., Sugiyarsih, S., & Rosadah, R. A. (2025). The impact of digital transformation in higher education management: Integrating online learning and educational applications for efficiency and accessibility. *International Journal of Educational Qualitative Quantitative Research, 4*(1), 15–24. https://doi.org/10.58418/ijeqqr.v4i1.135

Diana, R., Paputungan, I. V., & Luthfi, A. (2024). Integration of TAM and DeLone and McLean models to evaluate the quality of NAMPAH applications. *Jurnal Teknologi dan Sistem Informasi Bisnis, 6*(4), 723–731. https://doi.org/10.47233/jteksis.v6i4.1583

Diwayanti, N. V., Widayat, W., & Robbie, I. (2026). Assessing the role of service quality, customer experience and perceived value as mediator on customer loyalty: Evidence in Indonesian pharmacies. *International Journal of Pharmaceutical and Healthcare Marketing, 20*(1), 45–63. https://doi.org/10.1108/IJPHM-01-2025-0002

Giang, N. T. T., & Nga, P. T. H. (2024). The influence of information systems on student satisfaction: A study of perceived ease of use and perceived usefulness. *Tạp chí Nghiên cứu Tài chính-Marketing, 15*(2), 62–72. https://doi.org/10.52932/jfm.vi2.479

Hair, J. F., Jr., Sabol, M., Islam, M. S., & Murshed, F. (2026). Conditional mediation (CoMe) models with PLS-SEM: An update, review, and best-practice recommendations. *Australasian Marketing Journal, 34*(2), 178–191. https://doi.org/10.1177/14413582261420459

Hussain, A., Zhiqiang, M., Li, M., Jameel, A., Kanwel, S., Ahmad, S., & Ge, B. (2025). The mediating effects of perceived usefulness and perceived ease of use on nurses' intentions to adopt advanced technology. *BMC Nursing, 24*, Article 33. https://doi.org/10.1186/s12912-024-02648-8

Ilieva, G., Yankova, T., Ruseva, M., Dzhabarova, Y., Zhekova, V., Klisarova-Belcheva, S., Mollova, T., & Dimitrov, A. (2024). Factors influencing user perception and adoption of e-government services. *Administrative Sciences, 14*(3), Article 54. https://doi.org/10.3390/admsci14030054

Ishengoma, F. (2024). Revisiting the TAM: Adapting the model to advanced technologies and evolving user behaviours. *The Electronic Library, 42*(6), 1055–1073. https://doi.org/10.1108/EL-06-2024-0166

Islam, M. M., Bhuiyan, M. R. I., Islam, S. H., Tabassum, M. N., & Billah, M. (2026). Unlocking the mediating and moderating role of information security in information systems: A combined TAM, ISM, and HBM model. *Human Behavior and Emerging Technologies, 2026*(1), Article 5593002. https://doi.org/10.1155/hbe2/5593002

Kabakus, A. K., Bahcekapili, E., & Ayaz, A. (2025). The effect of digital literacy on technology acceptance: An evaluation on administrative staff in higher education. *Journal of Information Science, 51*(4), 930–941. https://doi.org/10.1177/01655515231160028

Khalufi, N. A. M., Sheikh, R. A., Khan, S. M. F. A., & Onn, C. W. (2025). Evaluating the impact of sustainability practices on customer relationship quality: An SEM-PLS approach to align with SDG. *Sustainability, 17*(2), Article 798. https://doi.org/10.3390/su17020798

Kong, S. C., Yang, Y., & Hou, C. (2024). Examining teachers' behavioural intention of using generative artificial intelligence tools for teaching and learning based on the extended technology acceptance model. *Computers and Education: Artificial Intelligence, 7*, Article 100328. https://doi.org/10.1016/j.caeai.2024.100328

Lee, A. T., Ramasamy, R. K., & Subbarao, A. (2025). Understanding psychosocial barriers to healthcare technology adoption: A review of TAM technology acceptance model and unified theory of acceptance and use of technology and UTAUT frameworks. *Healthcare, 13*(3), Article 250. https://doi.org/10.3390/healthcare13030250

Legate, A. E., Ringle, C. M., & Hair, J. F., Jr. (2024). PLS-SEM: A method demonstration in the R statistical environment. *Human Resource Development Quarterly, 35*(4), 501–529. https://doi.org/10.1002/hrdq.21517

Li, W., & Lay, Y. F. (2024). Examining the reliability and validity of measuring scales related to informatization instructional leadership using PLS-SEM approach. *Dinamika Jurnal Ilmiah Pendidikan Dasar, 16*(1), 12–32. https://doi.org/10.30595/dinamika.v16i1.19768

Mamakou, X. J., Zaharias, P., & Milesi, M. (2024). Measuring customer satisfaction in electronic commerce: The impact of e-service quality and user experience. *International Journal of Quality & Reliability Management, 41*(3), 915–943. https://doi.org/10.1108/IJQRM-07-2021-0215

Mijač, T., Jadrić, M., & Ćukušić, M. (2024). Measuring the success of information systems in higher education—A systematic review. *Education and Information Technologies, 29*(14), 18323–18360. https://doi.org/10.1007/s10639-024-12564-8

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

Mujahidin, A., Zuhad, Z., & Irawanto, B. (2026). Digital transformation model for higher education governance: An integration of business processes, human resources, and technology. *Priviet Social Sciences Journal, 6*(4), 151–163. https://doi.org/10.55942/pssj.v6i4.1129

Mukred, M., Mokhtar, U. A., Hawash, B., AlSalman, H., & Zohaib, M. (2024). The adoption and use of learning analytics tools to improve decision making in higher learning institutions: An extension of technology acceptance model. *Heliyon, 10*(4), Article e26315. https://doi.org/10.1016/j.heliyon.2024.e26315

Mukti, B. H. (2025). Methods in health research: Probability and non-probability sampling. *Health Sciences International Journal, 3*(2), 220–234. https://doi.org/10.71357/hsij.v3i2.64

Nashrullah, M., Nursalim, M., & Lestari, G. D. (2025). Innovation in strategies for faculty development and career advancement: Inovasi strategi pembinaan dan pengembangan karir dosen. *Indonesian Journal of Innovation Studies, 26*(1). https://doi.org/10.21070/ijins.v26i1.1319

Nazir, M. A., & Khan, M. R. (2024). Identification of roles and factors influencing the adoption of ICTs in the SMEs of Pakistan by using an extended technology acceptance model (TAM). *Innovation and Development, 14*(1), 189–215. https://doi.org/10.1080/2157930X.2022.2116785

Ortiz-López, A., Sánchez-Prieto, J. C., & Olmos-Migueláñez, S. (2024). Perceived usefulness of mobile devices in assessment: A comparative study of three technology acceptance models using PLS-SEM. *Journal of New Approaches in Educational Research, 13*, Article 2. https://doi.org/10.1007/s44322-023-00001-6

Osman, M. A., Omar, A. M., & Mohamed, M. J. (2024). Lecturers' adoption of e-learning from the TAM perspective: Transitioning from lecture halls to virtual classrooms. *FWU Journal of Social Sciences, 18*(1), 56–72. https://doi.org/10.51709/19951272/Spring2024/5

Pirham, S., Khaddapi, M., & Rahmawati, R. (2025). Association of perceived benefits and ease of use on quality of Palopo City government information system through user satisfaction. *Studi Ilmu Manajemen dan Organisasi, 6*(1), 21–38. https://doi.org/10.35912/simo.v6i1.3422

Pradana, H. A., & Salamat, M. A. B. (2025). Analysis of public acceptance of e-government services using the TAM model (technology acceptance model). *MSJ: Majority Science Journal, 3*(4), 105–115. https://doi.org/10.61942/msj.v3i4.468

Putri, R. A. (2024). Development of digital registration information system in kelurahan to improve administration efficiency and transparency. *Information Technology and Systems, 1*(2), 92–99. https://doi.org/10.58777/its.v1i2.198

Rachmat, A., Hamzah, B., & Niswar, M. (2022). Evaluation of academic information system using DeLone and McLean success model: A case study of academic information system Hasanuddin University. *Jurnal Sistem Informasi, 18*(1), 62–75. https://doi.org/10.21609/jsi.v18i1.1114

Rosli, M. S., Awalludin, M. F. N., Han, C. T., Saleh, N. S., & Noor, H. M. (2024). Unlocking insights: A comprehensive dataset analysis on the acceptance of computational thinking skills among undergraduate university students through the lens of extended technology acceptance model, HTMT, covariance-based SEM, and SmartPLS. *Data in Brief, 54*, Article 110463. https://doi.org/10.1016/j.dib.2024.110463

Saba, P., DeLone, W., Ul-Ain, N., Harfouche, A., Ben Nasr, I., Biot-Paquerot, G., & Mallek, S. (2025). The DeLone and McLean information systems success model: What is the future evolution for its foundations, components, and applications? *Communications of the Association for Information Systems, 57*, 878–898. https://doi.org/10.17705/1CAIS.05738

Salisu, I., Sappri, M. M., Omar, M. F., Nasir, A., Ejaz, S., & Hossain, M. B. (2025). Social media applications through the lens of DeLone and McLean's information system success model: Does perceived privacy matter? *Humanities and Social Sciences Communications, 12*, Article 1028. https://doi.org/10.1057/s41599-025-05010-8

Sarstedt, M., & Moisescu, O.-I. (2024). Quantifying uncertainty in PLS-SEM-based mediation analyses. *Journal of Marketing Analytics, 12*(1), 87–96. https://doi.org/10.1057/s41270-023-00231-9

Scott, M., DeLone, W., & McLean, E. (2025). Measuring the success of social information systems: An assessment of past contributions and a guide for future research. *European Journal of Information Systems, 34*(2), 346–366. https://doi.org/10.1080/0960085X.2025.2452900

Sirait, G., & Kurniyaningrum, E. (2025). Evaluation of the influence of communication aspects and leadership competence in decision making to improve performance in housing developers. *Eduvest: Journal of Universal Studies, 5*(12), 14848–14863. https://doi.org/10.59188/eduvest.v5i12.51905

Subhaktiyasa, P. G. (2024). PLS-SEM for multivariate analysis: A practical guide to educational research using SmartPLS. *EduLine: Journal of Education and Learning Innovation, 4*(3), 353–365. https://doi.org/10.35877/454RI.eduline2861

Sudrajat, J., Mayasari, A., & Arifudin, O. (2024). Enhancing the quality of learning through an e-learning-based academic management information system at Madrasah Aliyah Negeri. *EDUKASIA: Jurnal Pendidikan dan Pembelajaran, 5*(2), 621–632. https://doi.org/10.62775/edukasia.v5i2.1724

Sugiarto, M., Cahyo, D. N., Prasetyo, & Safitri, L. (2025). The role of group dynamics elements in farmer groups sustainability: An empirical study employing SMART PLS on sheep farmer groups in the Banjarnegara Regency Highlands. *IOP Conference Series: Earth and Environmental Science, 1502*(1), Article 012045. https://doi.org/10.1088/1755-1315/1502/1/012045

Sukorini, R. S., Marini, A., & Aulia, R. N. (2024). New era in higher education: Digital transformation and information system management. *Improvement: Jurnal Ilmiah untuk Peningkatan Mutu Manajemen Pendidikan, 11*(2), 154–166. https://doi.org/10.21009/improvement.v11i2.49441

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174

Sunarjo, R. A., Chakim, M. H. R., Maulana, S., & Fitriani, G. (2024). Management of educational institutions through information systems for enhanced efficiency and decision-making. *International Transactions on Education Technology (ITEE), 3*(1), 47–61. https://doi.org/10.33050/itee.v3i1.670

Toros, E., Asiksoy, G., & Sürücü, L. (2024). Refreshment students' perceived usefulness and attitudes towards using technology: A moderated mediation model. *Humanities and Social Sciences Communications, 11*, Article 333. https://doi.org/10.1057/s41599-024-02839-3

Vishnoi, S. K., Mathur, S., Bagga, T., Singhal, A., Rawal, P., Sharma, S., & Yadav, R. (2024). Construct modelling, statistical analysis and empirical validation using PLS-SEM: A step-by-step guide of the analysis procedure. *International Journal of Data Analysis Techniques and Strategies, 16*(2), 162–180. https://doi.org/10.1504/IJDATS.2024.137877

Wang, K., Shen, C., Li, M., & Li, J. (2024). Research on users' willingness to use the urban subway wayfinding signage system based on the DeLone & McLean model theory: A case study of Wuxi subway. *Systems, 12*(12), Article 529. https://doi.org/10.3390/systems12120529

Wang, Z., Wang, Y., Zeng, Y., Su, J., & Li, Z. (2025). An investigation into the acceptance of intelligent care systems: An extended technology acceptance model (TAM). *Scientific Reports, 15*, Article 17912. https://doi.org/10.1038/s41598-025-02746-w

Widyaningrum, T., Sholihah, Q., & Haryono, B. S. (2024). The DeLone and McLean information system success model: Investigating user satisfaction in learning management system. *Journal of Education Technology, 8*(1), 86–94. https://doi.org/10.23887/jet.v8i1.71080

Winarno, H. R., & Legowo, N. (2024). Analysis of success factor of the e-learning system using DeLone and McLean models. *International Journal of Pedagogy and Teacher Education, 8*(2), 142–158. https://doi.org/10.20961/ijpte.v8i2.95795

Zayed, A. M. A., Alshammari, S. A. A., & Suleiman, S. M. (2026). Self-efficacy, personal autonomy, life arrangements, and health priorities/preferences in psychological distress: A predictive, variance-based PLS-SEM structural model. *Scientific Reports, 16*, Article 22155. https://doi.org/10.1038/s41598-026-49279-4

© 2026 The Author(s)
This is an Open Access article under the Creative Commons Attribution-ShareAlike 4.0 International License
ISSN: 2797-3174