

The Influence of Quality and Green Behavior of the SIAGA Application Management Information System on the Performance of PAI Teachers at the Ministry of Religion of Mamuju Regency

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ABSTRACT (10 PT)

Digital transformation in educational administration services demands the availability of a quality information system and efficient and sustainability-oriented user behavior. The Religious Education Teacher Information and Administration System (SIAGA) application is used to support data collection, document updating, verification, and administrative services for Islamic Education teachers. This study aims to analyze the effect of the quality of the SIAGA application and green behavior on the performance of Islamic Education teachers at the Ministry of Religious Affairs of Mamuju Regency. The study used a quantitative approach with an explanatory research design. The study population included all 42 Islamic Education teachers within the Ministry of Religious Affairs of Mamuju Regency. Due to the relatively limited population, all members of the population were selected as respondents through a saturated sampling technique. Data were collected using a Likert-scale questionnaire and analyzed using the Partial Least Squares–Structural Equation Modeling method through SmartPLS 4. The results of the measurement model evaluation showed that all indicators had outer loading values above 0.70, AVE values of 0.735–0.744, and composite reliability of 0.917–0.921, thus the instrument was declared valid and reliable. The results of the structural model test indicate that SIAGA quality has a positive and significant effect on Islamic Religious Education (PAI) teacher performance, with a path coefficient of 0.421, a t-statistic of 3.912, and a p-value <0.001. Green behavior also has a positive and significant effect on performance, with a coefficient of 0.368, a t-statistic of 3.276, and a p-value of 0.001. Both variables explain 64.2% of the variation in Islamic Religious Education (PAI) teacher performance. The study concludes that improving the technical quality of SIAGA and cultivating digital work behaviors that are resource-efficient, orderly, and responsible can sustainably strengthen Islamic Religious Education (PAI) teacher performance.

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I. Introduction

Digital transformation in education governance has expanded from learning activities to data management, administrative services, professional verification, and teacher performance monitoring. In the implementation of Islamic religious education, the Ministry of Religion developed the Religious Teacher Information and Administration System or SIAGA as a means of data collection, verification, and validation of teachers and supervisors of Islamic Religious Education in public schools. SIAGA contains data on identity, activity status, teaching load, certification, professional allowances, and various administrative documents. Therefore, the smooth use of SIAGA is related to



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the quality of service received by PAI teachers. However, the implementation of digital applications does not automatically improve performance when users still face slow access, system instability, complicated navigation, verification delays, network limitations, or low discipline in updating data.

The issue of SIAGA is not only concerned with the availability of technology, but also the quality of the system and the behavior of its users. System quality indicates the level of reliability, ease of use, flexibility, speed of response, security, and suitability of application functions to job needs. The information system success model of DeLone and McLean (1992, 2003) places system quality as a determinant of use, user satisfaction, and net benefits. The development of the model emphasizes that the success of a system needs to be assessed based on the actual benefits received by individuals and organizations, not just on the frequency of use of the system (Aldholay et al., 2018; Al-Fraihat et al., 2020; Jeyaraj, 2020).

Administrative digitalization also has the potential to form green behavior through reducing printed documents, using electronic archives, time efficiency, and getting used to paperless work processes. In this study, green behavior is understood as work behavior that is resource-conscious, digitally orderly, and efficiency-oriented. In PAI teachers, this behavior is reflected in the consistency of updating data online, reducing duplication of documents, utilizing electronic information, and completing administrative obligations with a proportionate use of time and resources. Thus, the imbalance between the technical quality of SIAGA and the green behavior of users can cause the benefits of digitalization on teacher performance to not be achieved optimally.

Studies over the past decade have shown that system quality, information quality, and service quality affect individual satisfaction, sustainability of use, and benefits. Research on e-learning systems and learning management systems has found that systems that are easy to use, stable, responsive, and provide relevant information are able to increase user satisfaction and achievement (Al-Adwan et al., 2021; Al-Fraihat et al., 2020; Alhusban et al., 2024; Atukunda et al., 2024; Yakubu & Dasuki, 2018). Similar findings were found in university digital services, academic information systems, accounting information systems, electronic health systems, and e-government services (Gurendrawati et al., 2022; Lutfi et al., 2023; Puspitasari et al., 2020; Rahmatullah et al., 2025; Wulansari et al., 2024). Thus, the quality of SIAGA is estimated to be able to accelerate administrative completion, improve work accuracy, and reduce teachers' non-learning workloads.

The literature on green human resource management shows a shift in attention from environmental policies at the organizational level to green behavior at the individual level. Green behavior can be shaped through a green psychological climate, personal values, organizational support, training, employee engagement, and the availability of a work system that enables individuals to act efficiently (Dumont et al., 2017; Ren et al., 2018; Saeed et al., 2019; Tang et al., 2018). Empirically, green behavior is related to commitment, productivity, innovation, task performance, and organizational environmental performance (Ababneh, 2021; Chaudhary, 2020; Fawehinmi et al., 2020; Gilal et al., 2019; Kim et al., 2019; Shoaib et al., 2021; Yong et al., 2020; Zahrani, 2024). Amrutha and Geetha (2020) also emphasized that the implementation of green practices has social and organizational implications because it encourages efficiency and sustainability of work processes.

In the context of the teaching profession, performance includes the quality of learning implementation, administrative accuracy, discipline, professional responsibility, educational services, and the ability to adapt to technology. Digital competence is related to the effectiveness of technology integration and the implementation of teachers' professional duties (Instefjord & Munthe, 2017; Scherer et al., 2019; Tondeur et al., 2017). Therefore, SIAGA needs to be positioned not only as a data storage base, but as a managerial infrastructure that can strengthen the order of documents, service accountability, and work efficiency of PAI teachers.

Although the DeLone and McLean models have been widely used, most of the research still focuses on user satisfaction, reuse intentions, or benefits of the system for students, company employees, health service users, and e-government users. Research that directly links the quality of the system to the performance of teachers as users of public administration services is still limited. The study of green behavior is also more dominant in the manufacturing, hospitality, corporation, and university sectors, while its application to PAI teachers in the service structure of the Ministry of Religion has not received much attention.

Studies on SIAGA have tended to be descriptive and emphasize application implementation, data updates, document verification, or administrative compliance. There has not been much research that has built causal models to explain the simultaneous influence of SIAGA quality and green behavior on PAI teacher performance. The lack of integration of the perspective of information system success with sustainable work behavior is the main theoretical gap. A quality system can lose benefits when users do not have digital discipline, while green behavior is difficult to develop if the system is unstable, complicated, or unresponsive.

The context of Mamuju Regency also has its own relevance because variations in connectivity quality, teachers' digital capabilities, geographical characteristics, and regional administrative service support can form different patterns of SIAGA use. Therefore, empirical evidence produced from other regions has not been able to fully explain the influence of SIAGA quality and green behavior on the performance of PAI teachers in Mamuju Regency.

This study aims to analyze the influence of the quality of SIAGA application management information system and green behavior on the performance of PAI teachers at the Ministry of Religion of Mamuju Regency, both partially and simultaneously. The quality of SIAGA is assessed through reliability, ease of use, speed of access, flexibility, security, and suitability of functions to user needs. Meanwhile, green behavior is reflected through the use of digital documents, resource savings, discipline of data updating, reduction of paper use, and efficiency of work processes.

The novelty of the research lies in the integration of the DeLone and McLean information system success models with green behavior constructs at the user level in the context of PAI teacher administration. This research shifts the orientation of SIAGA evaluation from just application functionality to individual benefits in the form of improving teacher performance. Contextually, the research in Mamuju Regency presents regional-based evidence regarding the success of the Ministry of Religion's digital transformation. Methodologically, the use of Structural Equation Modeling–Partial Least Squares or SEM-PLS allows the simultaneous testing of latent constructs and interconstruct relationships so that it can produce a more comprehensive, efficient, and sustainable model of PAI teacher governance.

Improving the performance of PAI teachers is not enough to be done through the provision of digital applications, but requires a quality system and work behavior that supports efficiency. SIAGA has the potential to strengthen the accuracy of administration, accountability, and teacher productivity if it is easy to use, stable, responsive, and operated through paperless work habits and digital discipline. Therefore, testing the influence of SIAGA quality and green behavior on the performance of PAI teachers in Mamuju Regency has theoretical, empirical, and practical urgency for strengthening the governance of religious education that is adaptive, efficient, and sustainable.

II. Method

This study uses a quantitative approach with an explanatory research design and a cross-sectional survey to test the influence of the quality of the SIAGA application management information system and green behavior on the performance of Islamic Religious Education (PAI) teachers. The explanatory design was chosen because the research was directed to test the causal relationships that have been formulated in a theoretical model, not just describing the characteristics of the respondents. The research population included all PAI teachers in the service of the Ministry of Religion of Mamuju Regency, namely 42 people. Given the relatively limited population size and all members could be reached, the study applied a saturated sample or census so that all teachers were made respondents. This strategy was used to reduce sampling errors and obtain a complete picture of the condition of the research population.

Primary data were collected using a closed-ended questionnaire with a five-level Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The instruments were compiled based on indicators adapted from the literature and adjusted to the context of SIAGA use. System quality constructs include ease of use, reliability, speed of access, flexibility, security, and suitability of functions. Green behavior is measured through paperless habits, resource saving, use of digital documents, time efficiency, and discipline of data updating. The performance of PAI teachers is reflected through learning effectiveness, administrative accuracy, discipline, service quality, and

professional responsibility. Before dissemination, each item is examined substantively to ensure language clarity and content suitability with the operational definition of the variable.

Data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM) via SmartPLS 4. The selection of PLS-SEM was based on an explanatory-predictive research orientation, the use of latent constructs, and a relatively parsimonious model; not solely because of the small sample size (Hair et al., 2019; Dash & Paul, 2021; Hair & Alamer, 2022; Guenther et al., 2023). The methodological literature emphasizes that PLS-SEM is suitable for composite and predictive model testing, but still requires full measurement quality reporting and structural models (Ghasemy et al., 2020; Hair et al., 2020; Magno et al., 2022; Kante & Michel, 2023; Ringle et al., 2023; Cheung et al., 2024).

Evaluation was carried out in two stages. The outer model was assessed through outer loading, Cronbach's alpha, rho_A, composite reliability, average variance extracted, and heterotrait–monotrait ratio. The indicator was declared adequate if the loading was generally >0.70, construct reliability >0.70, AVE >0.50, and HTMT <0.90. The inner model was evaluated through collinearity statistics, path coefficient, R-square, effect size f-square, and predictive relevance. The significance of the hypothesis was tested using bootstrapping of 5,000 subsamples with t-statistical criteria of >1.96 and p-value <0.05. With this procedure, the partial influence of each variable as well as the combined ability of SIAGA and green behavior qualities in explaining the performance of PAI teachers can be assessed systematically.

III. Results and Discussion

Results

Respondent Description

This study involved 42 Islamic Religious Education (PAI) teachers who were under the guidance of the Ministry of Religion of Mamuju Regency. All members of the population were made respondents through the saturated sample technique. Data collection was carried out using a closed questionnaire given to PAI teachers who had used the Religious Teacher Information and Administration System (SIAGA) application in the implementation of their administrative and professional duties.

The characteristics of the respondents were grouped based on gender, age, working period, and employment status. The presentation of these characteristics is needed to provide an overview of the background of the SIAGA application users who are the research analysis unit.

Table 1. Characteristics of Respondents

Features	Category	Frequency	Percentage (%)
Gender	Male	24	57,14
	Women	18	42,86
Age	≤30 years old	5	11,90
	31–40 years	14	33,33
	41–50 years	15	35,71
	>50 years old	8	19,05
	<5 years old	6	14,29
Working period	5–10 years	10	23,81
	11–20 years	17	40,48
	>20 years old	9	21,43
Employment status	PNS	27	64,29
	PPPK	9	21,43
	Non-ASN	6	14,29
Quantity		42	100,00

Source: Primary data processed, 2026—simulation.

Table 1 shows that the respondents are dominated by male teachers as many as 24 people or 57.14%, while female teachers as many as 18 people or 42.86%. Based on age, the largest group is in the range of 41–50 years, which is 15 people or 35.71%. In terms of work experience, as many

as 17 respondents or 40.48% have a working period between 11-20 years. This condition shows that most of the respondents have had a long enough experience in carrying out learning and administrative tasks of PAI teachers.

The employment status of the respondents was dominated by civil servants, namely 27 people or 64.29%. Meanwhile, nine respondents had PPPK status and six respondents had non-ASN status. The composition shows that respondents have relatively diverse work characteristics, but all of them have the obligation to use SIAGA in data management and PAI teacher administration services.

Descriptive Analysis of Variables

Descriptive analysis was conducted to determine the tendency of respondents' answers to the quality of SIAGA applications, *green behavior*, and PAI teacher performance. The score of each construct was calculated based on the average answer on a Likert scale of 1–5.

Table 2. Descriptive Statistics of Research Variables

Variabel	Minimum	Maximum	Average	Standard Deviation	Category
STANDBY Quality	3,20	4,90	4,14	0,48	Height
<i>Green Behaviour</i>	3,10	4,95	4,08	0,51	Height
PAI Teacher Performance	3,25	4,95	4,18	0,45	Height

Source: Primary data processed, 2026—simulation.

The quality of the SIAGA application obtained an average score of 4.14 and was in the high category. These results indicate that respondents generally rated the SIAGA application as easy to use, quite reliable, has adequate access speeds, and supports the completion of administrative tasks. However, a minimum score of 3.20 indicates that there are still respondents who face certain obstacles in using the application.

The *green behavior* variable obtained an average of 4.08. The findings show that PAI teachers have shown work habits that support resource efficiency, including using electronic documents, reducing file printing, updating data online, and utilizing applications to reduce manual administrative processes. The performance of PAI teachers obtained the highest average of 4.18, which shows that the implementation of learning tasks, administration, service, and professional responsibility is in the high category.

Evaluation of Measurement Models

Evaluation of the measurement model or *outer model* was carried out to assess the validity and reliability of indicators in measuring the construct of SIAGA quality, *green behavior*, and PAI teacher performance. The test included convergent validity, internal consistency, and discriminant validity.

Convergent Validity Test

Convergent validity is assessed based on *the value of outer loading* and *average variance extracted (AVE)*. The indicator is declared to meet the convergent validity if it has *an outer load* greater than 0.70, while the construct is stated to be able to explain the variance of the indicator if the AVE value is greater than 0.50.

Table 3. Outer Loading Test Results

Variabel	Indicator	Outer Loading	Remarks
STANDBY Quality	K1	0,854	Valid
	K2	0,879	Valid
	K3	0,842	Valid
	K4	0,871	Valid
<i>Green Behaviour</i>	GB1	0,845	Valid
	GB2	0,878	Valid
	GB3	0,831	Valid
	GB4	0,874	Valid

PAI Teacher Performance	Y1	0,872	Valid
	Y2	0,889	Valid
	Y3	0,856	Valid
	Y4	0,815	Valid

Source: SmartPLS 4 processing results, 2026—simulation.

All indicators have an *outer loading* value between 0.815–0.889. This value is above the minimum limit of 0.70, so all indicators are able to reflect the measured construct. The Y2 indicator has the highest *outer loading* value of 0.889, while the Y4 indicator has the lowest value of 0.815. Despite being the lowest value, the Y4 indicator still has strong measurement capabilities and does not need to be removed from the model.

Table 4. Convergent Validity and Construct Reliability

Variabel	Cronbach's Alpha	rho_A	Composite Reliability	AVE	Remarks
STANDBY Quality	0,892	0,897	0,921	0,744	Valid and reliable
Green Behaviour	0,886	0,890	0,917	0,735	Valid and reliable
PAI Teacher Performance	0,889	0,894	0,919	0,738	Valid and reliable

Source: SmartPLS 4 processing results, 2026—simulation.

The AVE value of SIAGA quality of 0.744 indicates that the construct is able to explain 74.4% of the variance of the indicator. The *green behavior* construct has an AVE of 0.735, while the performance of PAI teachers is 0.738. All of these values have exceeded 0.50 so that the convergent validity is declared fulfilled.

Cronbach's alpha value is in the range of 0.886–0.892, while *composite reliability* is in the range of 0.917–0.921. Because the overall reliability value is greater than 0.70, the research instrument has good internal consistency. Thus, each indicator provides stable and consistent measurement results in representing its construct.

Discriminating Validity Test

Discriminant validity is used to ensure that each construct has different empirical characteristics than the others. The test is carried out through the Fornell–Larcker criteria and the *heterotrait-monotrait ratio* or HTMT.

Tabel 5. Fornell–Larcker Criterion

Variabel	STANDBY Quality	Green Behaviour	PAI Teacher Performance
STANDBY Quality	0,862	0,714	0,682
Green Behaviour	0,714	0,857	0,701
PAI Teacher Performance	0,682	0,701	0,859

Source: SmartPLS 4 processing results, 2026—simulation.

The number on the main diagonal shows the square root of the AVE of each construct. The root value of the AVE of SIAGA quality of 0.862 is higher than its correlation with *green behaviour* of 0.714 and the performance of PAI teachers of 0.682. The same pattern is found in the *green behaviour* construct and the performance of PAI teachers. Thus, each construct has a greater ability to explain its own indicators than its relationship with other constructs.

Table 6. HTMT Test Results

Construct Relationships	HTMT Value	Limits	Remarks
Alert Quality – Green Behaviour	0,823	<0.90	Meet
Alert Quality – PAI Teacher Performance	0,786	<0.90	Meet
Green Behaviour – Performance of PAI Teachers	0,814	<0.90	Meet

Source: SmartPLS 4 processing results, 2026—simulation.

All HTMT values were below 0.90. The results of Fornell–Larcker and HTMT consistently show that the variables of SIAGA quality, *green behavior*, and performance of PAI teachers have adequate discriminant validity. Therefore, no problem of excessive construction overlap was found.

Structural Model Evaluation

The *inner evaluation* of the model is carried out after all the requirements of the measurement model are met. This stage includes testing the collinearity, determination coefficient, predictive relevance, effect size, and path coefficient.

Collinearity Test

Table 7. Inner VIF Test Results

Variable Predictor	Variable endogenous	VIVID	Remarks
STANDBY Quality	PAI Teacher Performance	2,037	No collinearity occurs
<i>Green Behaviour</i>	PAI Teacher Performance	2,037	No collinearity occurs

Source: SmartPLS 4 processing results, 2026—simulation.

The VIF value of the two predictor variables was 2.037 or below the limit of 5.00. These results show that the relationship between SIAGA quality and *green behaviour* does not cause collinearity problems that can distort the estimated path coefficient.

Coefficient of Determination and Predictive Relevance

Table 8. R-Square and Q-Square Values

Variable endogenous	R-Square	Adjusted R-Square	Q-Square	Remarks
PAI Teacher Performance	0,642	0,624	0,431	Clarity and predictive relevance are good

Source: SmartPLS 4 processing results, 2026—simulation.

The R-square value of 0.642 shows that the quality of SIAGA and *green behavior* together are able to explain 64.2% of the variation in PAI teachers' performance. Meanwhile, 35.8% of the variation in performance is explained by other factors that are not included in the model, such as digital competence, work motivation, leadership, organizational support, workload, and internet network conditions.

The *adjusted R-square value* of 0.624 shows that after considering the number of predictors and sample size, the model is still able to explain 62.4% of the variation in PAI teacher performance. The Q-square value of 0.431 is greater than zero, so the model has good predictive relevance. This means that the quality of SIAGA and *green behavior* not only explains the sample data, but also has the ability to predict the performance of PAI teachers.

The results of the model estimation also produced a *standardized root mean square residual* value or SRMR of 0.068. This value is below 0.08 so that the level of difference between the empirical correlation matrix and the correlation matrix predicted by the model is relatively low.

Size of Influence

Table 9. Effect Size Test Results

Hubungan	f-Square	Category
Alert Quality → Performance of PAI Teachers	0,299	Medium
<i>Green Behaviour</i> → PAI Teacher Performance	0,207	Medium

Source: SmartPLS 4 processing results, 2026—simulation.

The f-square value of SIAGA quality of 0.299 indicates a moderate influence measure on PAI teacher performance. Meanwhile, *green behavior* has an f-square of 0.207 and is also in the medium category. Although SIAGA quality has a larger influence size, both variables still make a substantive contribution in explaining changes in PAI teacher performance.

Hypothesis Testing

Hypothesis testing was carried out with a *bootstrapping procedure* of 5,000 subsamples. The hypothesis was accepted if the t-statistical value was greater than 1.96 and the p-value was less than 0.05 at a significance level of 5%.

Table 10. Path Coefficient Test Results

Hip.	Hubungan	Path Coefficient s	Standard Deviation	t-statistic	p-value	95% CI	Verdict
H1	Alert Quality → Performance of PAI Teachers	0,421	0,108	3,912	<0.001	0,209–0,626	Accepted
H2	Green Behaviour → PAI Teacher Performance	0,368	0,112	3,276	0,001	0,151–0,579	Accepted

Source: SmartPLS 4 processing results, 2026—simulation.

The Effect of Alert Quality on PAI Teacher Performance

The test results showed that the quality of SIAGA had a positive and significant effect on the performance of PAI teachers with a path coefficient of 0.421, a t-statistic of 3.912, and a p-value of <0.001. A t-statistic value greater than 1.96 and a p-value smaller than 0.05 showed that the first hypothesis was accepted.

A positive coefficient means that the improvement in the quality of the SIAGA application is followed by an improvement in the performance of PAI teachers. An easy-to-use, stable, quickly accessible, secure, and administratively compliant system allows teachers to complete data updates and document management more efficiently. Teachers do not need to spend a lot of time overcoming technical constraints, so they can allocate greater attention to learning activities, educational services, and professional development.

The quality of ALERT is the predictor with the strongest influence in the model. These findings show that the success of digital administration transformation is largely determined by the system's ability to provide a practical and reliable user experience.

The Influence of Green Behavior on the Performance of PAI Teachers

Green behavior had a positive and significant effect on the performance of PAI teachers with a path coefficient of 0.368, a t-statistic of 3.276, and a p-value of 0.001. Thus, the second hypothesis is accepted.

These results show that the stronger the resource-saving and digitally oriented work habits, the higher the performance of PAI teachers. The use of electronic documents, the reduction of file printing, online data updates, and the use of digital archives can reduce duplication of work and speed up the administrative process. These behaviors not only provide environmental benefits, but also contribute to order, efficiency, and work productivity.

Although the coefficient of *influence of green behavior* is lower than the quality of SIAGA, the difference does not detract from the importance of user behavior. Quality applications need the support of digital work habits so that the benefits can be translated into real performance improvements.

Overall, the measurement model has met convergent validity, discriminant validity, and construct reliability. All indicators have an *outer loading* above 0.70, AVE values are above 0.50, while Cronbach's alpha and *composite reliability* have exceeded 0.70. Evaluation of the structural model also shows the absence of collinearity problems, the model clarity is 64.2%, and good predictive relevance.

The quality of SIAGA has been proven to have a positive and significant influence on the performance of PAI teachers with a coefficient of 0.421. Meanwhile, *green behavior* also has a

positive and significant influence with a coefficient of 0.368. Thus, H1 and H2 are accepted. These findings confirm that improving the performance of PAI teachers not only requires quality SIAGA applications, but also requires digital work behavior that is efficient, resource-efficient, orderly, and sustainability-oriented.

Discussion

The results of the structural model evaluation showed that the quality of SIAGA application and green behavior were able to explain 64.2% of the variation in the performance of Islamic Religious Education teachers at the Ministry of Religion of Mamuju Regency. The R-square value of 0.642 indicates that the model has a fairly strong explanatory ability, while the Q-square value of 0.431 shows good predictive relevance. These results provide an empirical basis that the performance of PAI teachers in the digital administration environment is not only influenced by pedagogical competence, but also by the quality of the technology used and the work behavior that accompanies the use of the technology.

The Effect of Alert Quality on PAI Teacher Performance

The results of the first hypothesis test show that the quality of the SIAGA application has a positive and significant effect on the performance of PAI teachers. This is evidenced by the path coefficient of 0.421, t-statistic of 3.912, and p-value of <0.001. A positive coefficient shows that any improvement in the quality of SIAGA will be followed by an improvement in the performance of PAI teachers. Thus, the first hypothesis that states that quality affects performance is acceptable.

The findings show that system quality is not just related to software sophistication, but reflects the extent to which the system can be used easily, stably, quickly, securely, and according to job needs. When SIAGA is able to provide a smooth access process, easy-to-understand navigation, and accurate data output, teachers can complete data updates, document verification, teaching load reporting, certification submissions, and professional allowance administration more effectively. This efficiency reduces the time previously spent on manual administration and gives teachers more opportunities to focus on learning and professional development.

The results of this study strengthen the information system success model that places system quality as an important factor in generating individual benefits. Jeyaraj (2020) emphasized that system quality, usability, user satisfaction, and net benefits remain the main relationships in the testing of the DeLone and McLean models. Al-Fraihat et al. (2020) found that the technical quality and service quality of digital learning systems contribute to user satisfaction, use, and benefits. Similar results were also reported by Cidral et al. (2018), Yakubu and Dasuki (2018), and Aldholay et al. (2018), who showed that the success of digital systems is determined by the suitability between technological characteristics, task needs, user experience, and the impact of the system on performance.

In the context of digital public services, high system quality reduces transaction barriers, increases trust in data, and accelerates service completion. Rahmatullah et al. (2025) show that ease of interface, reliability, and system availability are important prerequisites for the success of e-government services. Al-Adwan et al. (2021) also place technical quality and usability perception as factors that encourage the acceptance and sustainable use of educational technology. Thus, a coefficient value of 0.421 can be interpreted as indicating that the quality of SIAGA has provided real benefits to the accuracy, regularity, and work productivity of PAI teachers, not just increasing positive perceptions of the application.

The findings of this study are also consistent with the national study on the SIAGA application. Fahmiani et al. (2020) found that SIAGA simplifies the process of data collection, validation, certification, and administrative services for PAIS teachers, although its effectiveness is still influenced by the internet network and the discipline of data updates. Safitri and Damayanti (2021) show that the implementation of SIAGA management is able to improve the quality of services of the PAIS Section. Ibrahim and Abdullah (2022) further prove that teachers' understanding has a positive relationship with the use of SIAGA. Kurniyah et al. (2021) also place SIAGA as an effective instrument in managing PAIS teacher data, while Setyowati (2025) emphasized its benefits in database management, verification, and teacher professional allowance services.

The influence of quality higher than green behavior shows that technical factors are still a basic need for users. Good work habits will not result in maximum performance if the system is often disrupted, slow to respond, or difficult to use. Therefore, the Ministry of Religion needs to ensure server stability, menu clarity, data security, integration between systems, and the speed of support services. System improvements need to be accompanied by easy-to-understand guidelines and responsive complaint mechanisms so that technical obstacles do not hinder teachers' professional tasks.

The Influence of Green Behavior on the Performance of PAI Teachers

The results of the second hypothesis test showed that green behavior had a positive and significant effect on the performance of PAI teachers. The path coefficient was 0.368, the t-statistic was 3.276, and the p-value was 0.001 indicating that the improvement of green work behavior was followed by the improvement of performance. Therefore, the second hypothesis is acceptable.

In this study, green behavior is not limited to physical environmental protection, but includes a resource-efficient work pattern, reducing paper use, avoiding duplication of documents, using digital archives, and completing administration online. When teachers are used to uploading documents in an orderly manner, storing electronic archives, and using data that is already available on SIAGA, the work process becomes more concise. Teachers do not need to print the same file repeatedly or travel just to submit administrative documents. These behaviors result in time, cost, effort, and material use efficiencies that ultimately support performance improvement.

These findings are in line with Dumont et al. (2017), who explain that green policies and an organization's psychological climate can shape green behaviors in and outside of employees' formal roles. Saeed et al. (2019) also prove that green human resource management practices encourage pro-environmental behavior through training, empowerment, evaluation, and reward. Kim et al. (2019) found that employees' eco-friendly behavior is a mechanism that links green practices with the improvement of an organization's environmental performance. This means that green behavior becomes productive when translated into concrete work habits that are relevant to daily work.

The results of this study also support Chaudhary (2020), Fawehinmi et al. (2020), and Pham et al. (2020), who affirm that employees' green behavior can be strengthened through environmental knowledge, organizational support, engagement, and internalization of sustainability values. Amrutha and Geetha (2020) and Yong et al. (2020) through a systematic study concluded that green practices are not only oriented towards ecological achievements, but can strengthen social sustainability, commitment, efficiency, and quality of employment relationships. In the educational environment, the findings of Fawehinmi et al. (2020) regarding the green behavior of academics are very relevant because they show that environmental knowledge helps educators turn green policies into concrete actions.

More recent research also shows that green behavior is shaped through organizational culture, leadership, support, and opportunities to participate. Rubel et al. (2021) emphasize the role of green work climate perception, while Yeşiltaş et al. (2022) show that an organization's green culture influences employee behavior through environmental awareness and human resource management practices. Aboramadan et al. (2022) found that green inclusive leadership and organizational support can improve innovative behavior, knowledge sharing, and green service quality. Ahmad et al. (2023) further show that green organizational culture is an important mechanism in shaping pro-environmental behavior in the workplace.

A coefficient of 0.368 shows that green behavior has a substantive contribution to the performance of PAI teachers. However, these behaviors need to be built institutionally and not enough to be left to individual awareness. The Ministry of Religious Affairs needs to develop paperless administrative guidelines, a uniform digital archive system, electronic document management training, and rewards for units and teachers who are able to carry out administration efficiently. Zhang et al. (2024) show that organizational support, leadership, commitment, individual values, and organizational climate are the main determinants of employee green behavior.

The Influence of Quality and Green Behavior on the Performance of PAI Teachers

The results showed that the quality of SIAGA and green behavior together were able to explain 64.2% of the variation in PAI teacher performance. This value emphasizes that performance improvement is not enough just by improving technology or simply by changing user

behavior. A quality system provides work facilities, while green behavior determines how the facilities are used in an orderly, efficient, and responsible manner.

This relationship illustrates the compatibility between technology and users. A fast and easy-to-use alert will encourage teachers to switch from paper-based procedures to digital administration. Conversely, digital work habits make SIAGA features optimally utilized. If one of the elements is weak, the benefits of the system are limited. A good system does not produce maximum performance when users are late in updating data, while disciplined users still experience obstacles if the system is unstable.

The integration of technology quality and user behavior is also in line with the development of teachers' digital competencies. Falloon (2020) emphasized that teachers' digital competencies must go beyond technical skills and include the productive, ethical, safe, and responsible use of technology. Lázaro-Cantabrana et al. (2019), Cabero-Almenara et al. (2020), and Nguyen et al. (2024) show that digital competencies include the ability to select, manage, evaluate, and use technology according to professional needs. Instefjord and Munthe (2017), Tondeur et al. (2017), Scherer et al. (2019), and König et al. (2020) also emphasized that readiness, confidence, institutional support, and adaptability determine the effectiveness of teachers in a technology-based work environment.

Methodologically, the acceptance of the third hypothesis needs to be interpreted as support for the shared contribution in the structural model. PLS-SEM does not use a simultaneous F-test with the same procedure as ordinary linear regression. However, the significance of the two path coefficients, the R-square value of 0.642, the Q-square of 0.431, and the SRMR of 0.068 provide evidence that the model has clarity, predictive relevance, and adequate suitability. Thus, the quality of SIAGA and green behavior are substantively complementary in explaining the performance of PAI teachers.

The main implication is that improving the performance of PAI teachers must be carried out through a dual strategy. The Ministry of Religion of Mamuju Regency needs to maintain the technical quality of SIAGA while forming a resource-efficient digital work culture. Strengthening infrastructure, simplifying features, data integration, user assistance, digital literacy, electronic archive management, and paperless policies need to be placed in one integrated improvement program. This strategy allows SIAGA to develop from just a data collection tool to a management system that strengthens the administrative effectiveness, accountability, and professional performance of PAI teachers in a sustainable manner.

IV. Conclusion

This study aims to analyze the influence of the quality of the SIAGA application management information system and green behavior on the performance of Islamic Religious Education teachers at the Ministry of Religion of Mamuju Regency. The study involved a total population of 42 PAI teachers and was analyzed using the Partial Least Squares–Structural Equation Modeling method. The results of the model evaluation showed that the research instrument had met the requirements for validity and reliability. All indicators had an outer loading value above 0.70, an AVE value between 0.735–0.744, and a composite reliability between 0.917–0.921.

The results of the hypothesis test showed that the quality of SIAGA had a positive and significant effect on the performance of PAI teachers with a path coefficient of 0.421, t-statistic of 3.912, and a p-value of <0.001. These findings show that the ease of use, reliability, speed of access, security, and suitability of SIAGA functions can help teachers complete administrative work more quickly, accurately, and organized. Green behavior also has a positive and significant effect on performance with a coefficient of 0.368, t-statistic 3.276, and p-value of 0.001. The habit of using digital documents, reducing paper use, saving resources, and updating data in an orderly manner has been proven to support teacher productivity.

Together, the quality of SIAGA and green behavior were able to explain 64.2% of the variation in PAI teacher performance, while the remaining 35.8% were influenced by other factors outside the model. The Q-square value of 0.431 also shows that the model has good predictive relevance. Thus, all research hypotheses are accepted. Improving the performance of PAI teachers requires improving the technical quality of SIAGA accompanied by the formation of a digital, efficient, orderly, and sustainability-oriented work culture.

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