Ceddi Journal of Education
Vol. 5 No. 1 June (2026)
https://doi.org/10.56134/cje.v5i1.178

ISSN:2830-0017 (print)
ISSN:2830-0025 (online)

Development and Evaluation of an Integrated Web-Based Admissions System to Support School Administrative Services

Muh. Riyaldi Pratama[1*], Xiangjun[2], Bobur Sobirov[3]

[1]*Informatics, Universitas Teknologi Akba Makassar, Makassar, Indonesia*
[2]*Computer Science and Technology, Shandong Jianzhu University, Jinan, China*
[3]*Economics, Samarkand branch of Tashkent State University of Economics, Samarkand, Uzbekistan*

Abstract

This study developed and evaluated an integrated web-based admissions system to support administrative services at SMK Persatuan Indonesia Maros. The system connects registration, digital payments, notifications, and administrative reporting. The study used a research and development approach based on Rapid Application Development. The team identified requirements through observations and interviews and implemented the application using Laravel and MySQL, with Midtrans and WhatsApp integration. Evaluation comprised black-box testing, a questionnaire involving 20 participants, and controlled service tasks involving five school personnel. All eight functional test scenarios passed, and the questionnaire yielded an overall score of 88.63% of the maximum possible score. Across 10 matched task pairs, mean active verification time was 18.00 minutes for the manual procedure and 10.00 minutes for the integrated system, a reduction of 44.44%. Among 30 records per procedure, six manual records and two system records required correction, corresponding to 20.00% and 6.67%, respectively. The findings indicate positive participant assessments, shorter verification time, and fewer records requiring correction under controlled conditions. These results provide task-specific evidence supporting technology-assisted admissions administration in vocational education. Further evaluation across operational admissions cycles is needed to establish broader service benefits.

Keywords: Digital Payments; School Administrative Services; Student Admissions; User Acceptance; Web Based Information Systems

Received: 12 February 2026 Revised: 6 April 2026 Accepted: 19 June 2026

Introduction

Digital transformation in education encompasses both institutional administration and teaching and learning. Schools use information systems to organize records, coordinate responsibilities, and maintain communication with students and families. These applications become educationally relevant when they address institutional problems and support identifiable service outcomes. (Fernández et al., 2023; Mohamed Hashim et al., 2022) discuss digital transformation as an institutional process, providing a foundation for examining technology alongside organizational change. Similarly, (Timotheou et al., 2023) identified conditions that shape schools' digital capacity. These perspectives suggest that evaluating school technology requires attention to users, workflows, and institutional context rather than the availability of software functions alone.

Student admissions is an important administrative service because it establishes the relationship between prospective students and a school before enrollment. Applicants need understandable requirements, accessible registration procedures, and clear information about application status. Administrative personnel need records they can check and update, while financial personnel must link payments to the appropriate applicants. School management also requires summaries for monitoring admissions activity. Although these responsibilities differ, they depend on connected information. Incomplete coordination can force users to consult separate records or repeatedly seek clarification. Admissions technology should therefore be examined in relation to these shared service requirements.

A web-based admissions system can bring registration, document submission, payment information, notifications, and reporting into a common environment. Such integration creates opportunities to organize information by user responsibilities and reduce fragmentation in administrative tasks. However, these opportunities should not be interpreted as demonstrated benefits before evaluation. A functioning payment interface does not automatically lead to faster verification, and an accessible dashboard does not automatically lead to better management decisions. Likewise, favorable usability assessments alone cannot demonstrate fewer recording errors. Evaluating educational administrative technology requires indicators that directly correspond to the service problems and outcomes the study addresses.

Previous research provides a solid foundation for developing educational registration systems. Payment services (Ahmed et al., 2022; Widyasari et al., 2025) developed a web-based system connecting registration, examination-related activities, institutional approval, and payment functions. (Iskandar et al., 2024) addressed new student registration in

*Corresponding author.
E-mail address: muhriyaldipratama9@gmail.com (Muh. Riyaldi Pratama)

© [2026] The Author(s). This article is licensed under a
Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

vocational high schools, while (Oleti, 2025; Pratama & Aji, 2026; Salunkhe et al., 2025; Widiyatmoko et al., 2024) examined registration system development using Rapid Application Development. These studies indicate that registration platforms and integrated administrative functions are existing research areas. Consequently, the present study does not claim novelty solely from combining registration and payment functions. Its contribution lies in examining the relationship between the educational context, identified requirements, and evidence generated by evaluation.

Building on this research, the present study connects system development with the assessment of defined admissions tasks. Different evaluation components answer different questions. Functional testing examines conformity with expected outputs, participant assessment captures perceptions of system characteristics, and administrative task evaluation examines outcomes such as processing time and records requiring correction. Combining these components provides a structured account of technical operation, user experience, and task performance. This approach lets the study assess the system's practical relevance without treating positive perceptions or successful technical tests as sufficient evidence of improved administrative services.

At SMK Persatuan Indonesia Maros, the initial admissions process involved applicants visiting the school, completing registration forms, and submitting supporting documents. The school handled registration, payment verification, and reporting through separate activities. School records documented 110 applicants in 2023, 125 in 2024, and 115 in 2025. These figures describe the scale of admissions activity but do not demonstrate continuous growth or quantify administrative inefficiency. The development need focused on coordinating the existing workflow. The system needed to connect applicant information, payment evidence, and verification status and make them available according to school personnel responsibilities.

The requirements analysis examined how admissions staff recorded, checked, and used these information sources during admissions administration. The resulting system links applicant registration, document submission, digital payment information, notifications, and reports. Applicant interfaces provide registration and status information, while personnel interfaces support verification and monitoring activities. The team integrated Midtrans for payment functions and incorporated WhatsApp notifications into the configured workflow. We treated these technical choices as support for administrative activities rather than as independent educational contributions. We examined their value through the implemented functions and evaluated service tasks, without assuming integration alone would yield broader benefits.

The study selected Rapid Application Development to organize requirements planning, user design, construction, and cutover. Researchers have previously applied this approach to educational information system development activities (Anaking et al., 2023; Santoso & Amanullah, 2022; Widiyatmoko et al., 2024). In the present study, the model structured the translation of stakeholder requirements into interfaces and functions. Prototype review supported revisions to registration fields, status labels, payment information, and report layout. Nevertheless, using a development model does not establish effectiveness. We therefore conducted a separate evaluation to examine functional conformity, participant assessments, and administrative task performance under clearly defined conditions.

The service evaluation compared active verification time and records requiring correction between manual and system procedures. Active time covered checking application completeness, matching payment evidence, and recording verification status, excluding time spent waiting for applicant payments. Recording accuracy focused on discrepancies against reference information rather than all dimensions of institutional data quality. Controlled tasks let us examine these indicators under specified conditions, though they did not cover an entire admissions cycle. This distinction supports appropriately bounded interpretation: task performance provides evidence relevant to administrative services, while accessibility, communication quality, fairness, and long-term operational outcomes require further investigation.

Accordingly, this study aimed to develop an integrated web-based admissions system and evaluate its functional conformity, user acceptance, and performance in selected administrative tasks at SMK Persatuan Indonesia Maros. Three research questions guided the evaluation: (1) Does the system produce the expected outcomes in the specified functional test scenarios? (2) How do participating users assess its usability, functionality, interface, and perceived performance? (3) How do active verification time and the proportion of records requiring correction differ between the manual procedure and the integrated system? By combining functional testing, participant assessment, and task-based service evaluation, the study examines how system implementation affects admissions administration. It aims to provide context-specific evidence to guide the development and evaluation of technology-supported administrative services in vocational education.

Method

Research Design and Setting

This study adopted a research and development approach to develop and evaluate an integrated web-based admissions system at SMK Persatuan Indonesia Maros, South Sulawesi, Indonesia. The team developed the system from November 2025 to January 2026, and evaluated the admissions service from 12 to 16 January 2026. The system integrated applicant registration, document submission, digital payment information, transaction-status monitoring, notifications, and administrative reporting. The study focused on technology-supported school administrative services. The evaluation included functional testing, participant assessment, and a comparison of selected administrative tasks between the manual procedure and the integrated system. The service comparison used controlled cases based on the school's admissions requirements. This arrangement allowed the team to examine defined tasks under comparable conditions. The evaluation did not represent monitoring of an entire operational admissions cycle.

Requirements Identification

We identified requirements through observations, semi-structured interviews, review of registration documents, and relevant literature. Two observation sessions, each lasting approximately 60 minutes, examined registration, payment verification, record management, and report preparation. Interviews involved five school personnel: one principal, two admissions committee members, one treasurer, and one administrative staff member. Each interview lasted approximately 30 minutes and was documented through written notes. Questions covered administrative responsibilities, information needs, coordination challenges, and the functions required to support admissions activities.

We organized observation and interview notes into workflow activities, information requirements, and coordination constraints. We compared the findings with available registration documents to clarify system requirements. This process identified the need to link applicant and payment records, display verification status, provide role-based access, and consolidate administrative reports. The literature review provided a methodological and technical context for development. It examined research concerning registration systems, payment integration, notifications, and software development approaches. The literature findings were distinguished from observations about the study site's conditions.

System Development

The study used Rapid Application Development (RAD) to organize requirements planning, user design, construction, and cutover. This approach provided a structured development process with stakeholder feedback and prototype revisions. Previous research has applied RAD to information system development in other organizational settings (Singgalen et al., 2024). More broadly, researchers can evaluate software development approaches against explicit selection criteria rather than treating them as universally suitable for every project (Al-Tahat et al., 2026).

Requirements planning identified the system functions and access arrangements needed by applicants and school personnel. User design translated these requirements into interfaces, process models, and database structures. Unified Modeling Language diagrams represented system interactions and processes, while an entity-relationship diagram represented the database structure. The team built the application using Laravel 11, PHP 8.2, and MySQL. The development environment included Windows 11, Visual Studio Code, XAMPP, and Google Chrome. Development equipment comprised a computer with an Intel Core i5 processor, 8 GB of RAM, and internet connectivity.

Midtrans integration provided payment functions, while the configured WhatsApp integration provided notifications associated with registration and payment status. Cutover covered implementation preparation, user familiarization, testing, and revisions based on evaluation. Development included two prototype-review cycles. The first addressed registration-field organization and application-status labels. The second addressed payment-status presentation and administrative report layout. These revisions connected stakeholder feedback to interface organization. Figure 1 presents the development stages.

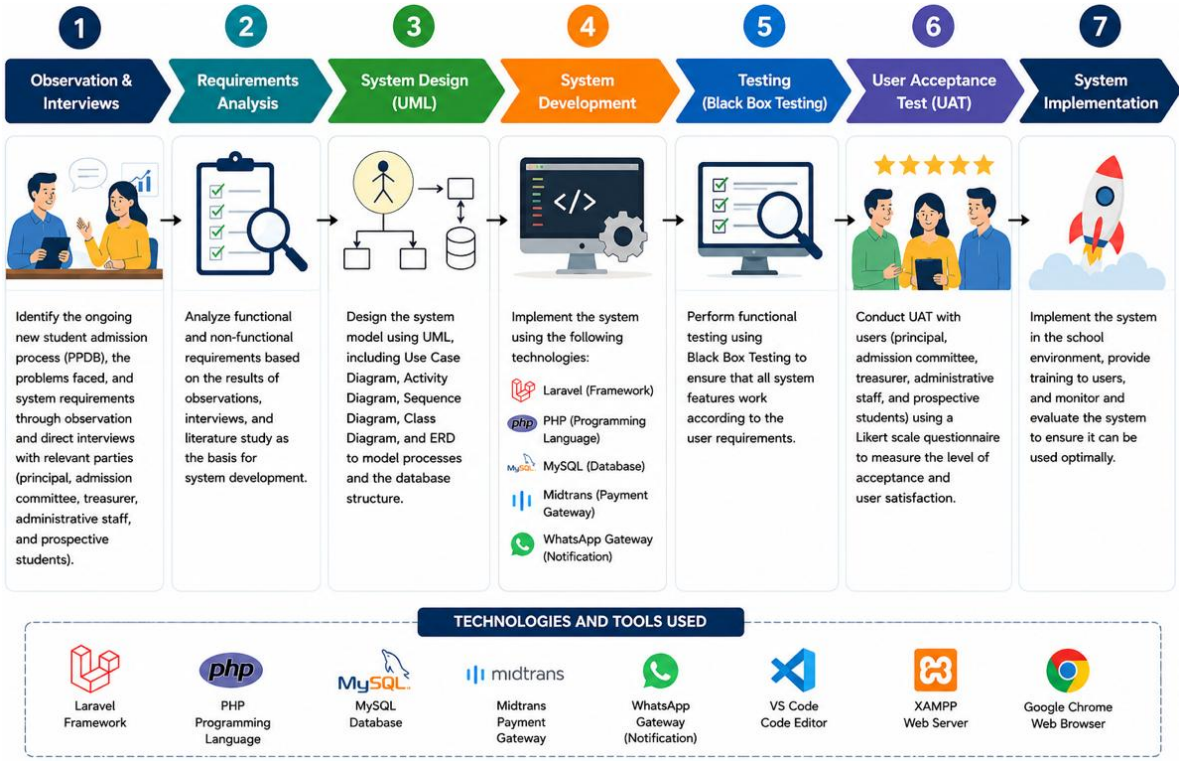


Figure 1. System development stages.

Participants and User Assessment

User acceptance assessment complemented functional testing by examining participants' responses after system use. Previous information system research has also combined black-box testing with user acceptance testing (Wahyudi et al., 2023). The questionnaire involved 20 participants: one principal, two admissions committee members, one treasurer, one administrative staff member, and 15 prospective students. We selected participants through purposive sampling based on their admissions responsibilities or intended use of applicant functions. Before assessment, participants received a 30-minute orientation and completed tasks appropriate to their roles. Applicants used registration, document submission, and status-viewing functions. School personnel used verification, record management, and reporting functions.

The questionnaire included 16 items, with four items for each assessment aspect: usability, functionality, user interface, and perceived performance. Participants responded on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). Participants completed the questionnaire through Google Forms after completing the assigned activities. The assessment focused on participants' experiences with the functions they used. Questionnaire scores reflected perceptions of system characteristics rather than direct measures of administrative efficiency, recording accuracy, or objective system response time.

Instrument Quality

Two experts in information systems and educational technology reviewed the questionnaire before administration. The review addressed item relevance, clarity, and alignment with the four assessment aspects. Their feedback informed revisions to wording and instructions. We examined internal consistency using Cronbach's alpha. The coefficient indicated consistency among questionnaire responses, not evidence that the instrument established service effectiveness. We therefore analyzed questionnaire assessment and objective administrative task measures separately.

Functional Testing

Black-box testing examined whether selected system operations produced their expected outputs without evaluating the internal source code. This approach focuses on observable functional behavior (Ichsanudin et al., 2022). We evaluated eight scenarios: valid login, invalid login, registration submission, document upload, payment processing, report generation, WhatsApp notification delivery, and logout. A scenario passed when the observed outcome matched the expected outcome. Payment testing used the Midtrans sandbox environment. Notifications were directed to designated test numbers, and controlled cases used fictitious identifying information. These arrangements avoided using actual

financial transactions and identifiable applicant records during controlled testing. Functional conclusions were restricted to the evaluated scenarios. Passing outcomes were not interpreted as evidence that the system was free from defects or secure under all possible operating conditions.

Admissions Service Evaluation

The service evaluation involved the five school personnel included in the participant group. Each completed two matched task pairs, producing 10 paired observations and 20 task executions. Task executions were units of observation and were not counted as additional respondents. We defined active processing time as the staff time required to check application completeness, match payment evidence, and record verification status. Timing began when staff opened case materials and ended when they recorded verification status. Applicant payment waiting time was excluded. Each staff member completed one manual-first pair and one system-first pair. Separate cases within each pair had equivalent document requirements and verification complexity. A trained observer recorded time in minutes using a stopwatch. We excluded measurements interrupted by activities unrelated to the task and used equivalent replacement cases.

Recording accuracy was examined separately using 30 equivalent case pairs. Each staff member processed six cases through each procedure, resulting in 30 manual records and 30 system records. Reference materials comprised applicant forms, supporting-document checklists, and payment evidence prepared for the assessment. A reviewer who had not processed the records checked applicant information, payment information, and verification status against the reference materials. The reviewer classified a record as requiring correction when at least one discrepancy was identified. We counted each affected record once, regardless of how many discrepancies it contained. The researcher resolved unclear discrepancies by rechecking the reference materials.

Data Analysis

The team summarized observations and interview information descriptively to identify requirements and inform development decisions. Questionnaire responses were analyzed using weighted scores. Each aspect had a maximum score of 20 participants × 4 items × 5, equivalent to 400. The overall maximum was 20 participants × 16 items × 5, equivalent to 1,600. We calculated the questionnaire score percentage using Equation (1).

$$P = (S_obtained \,/\, S_maximum) \times 100\%. \quad (1)$$

Here, P represents the percentage of the maximum possible questionnaire score, S_obtained is the weighted score obtained, and S_maximum is the maximum possible score. This percentage does not represent the proportion of participants accepting the system. Processing times were summarized using means and sample standard deviations. For each matched pair, the difference was calculated as manual time minus system time. Relative reduction in mean processing time was calculated using Equation (2).

$$R_T = [(T_manual - T_system) \,/\, T_manual] \times 100\% \quad (2)$$

Here, R_T is the relative reduction in mean active processing time, and $\bar{T}$_manual and $\bar{T}$_system are the mean times for the manual and system procedures. A negative value would indicate that the system procedure required more time. For recording accuracy, the percentage of records requiring correction was calculated separately for each procedure using Equation (3):

$$P_C = (n_correction \,/\, n_examined) \times 100\%. \quad (3)$$

Here, P_C is the percentage requiring correction, n_correction is the number of affected records, and n_examined is the number of records examined. We expressed differences between the two percentages in percentage points. Relative reduction, when reported, used the manual proportion as the reference. All service comparisons were descriptive. We distinguished repeated observations from the same staff members from independent participants. The analysis did not claim statistical significance or establish the integrated system as the sole cause of the observed differences.

Results and Discussion

Result

The developed system integrates applicant registration, document submission, digital payment information, notifications, and administrative reporting. User access is organized according to the responsibilities of applicants, admissions personnel, administrators, the treasurer, and the principal. The functions implemented are described below, followed by findings from functional testing, participant assessment, and controlled administrative tasks. The login interface requires registered credentials before providing access to the relevant dashboard. Figure 2 presents the login

interface. Following successful authentication, applicants can access registration, document submission, payment information, and application-status functions through the dashboard shown in Figure 3.

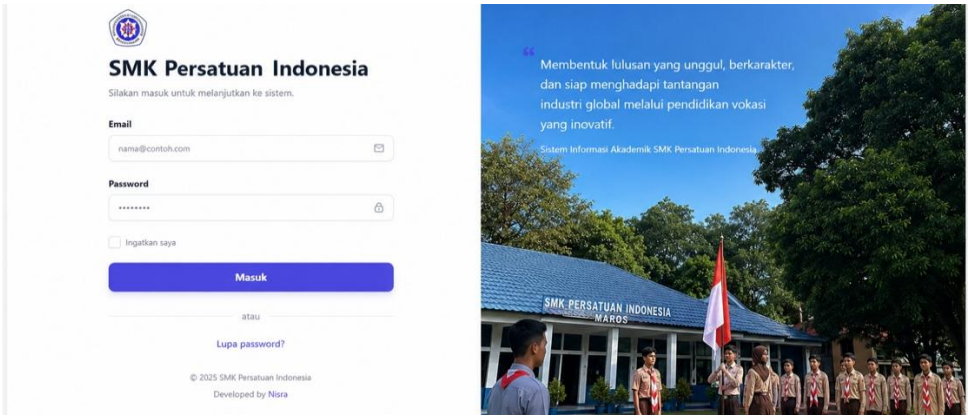


Figure 2. Login page interface

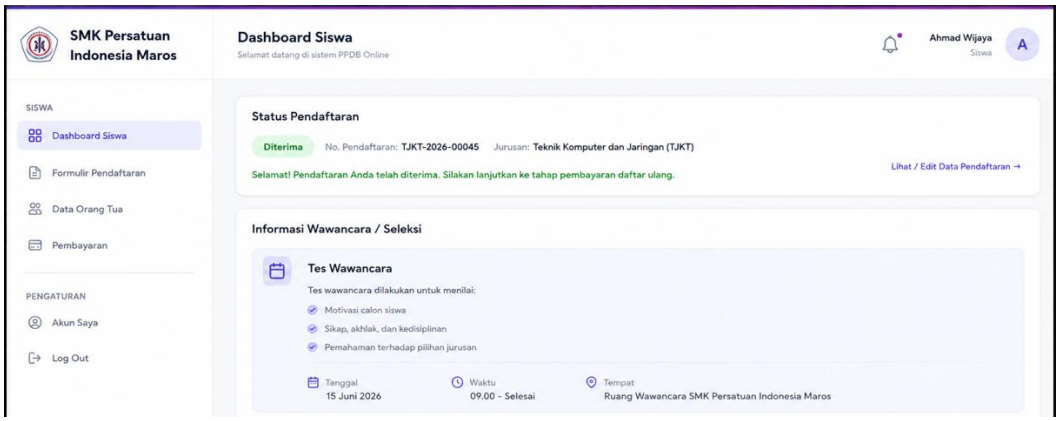


Figure 3. Applicant dashboard

The registration form collects applicant information and supporting documents. The system applies input validation before saving records, making submitted information available for administrative verification. Figure 4 presents the registration form.

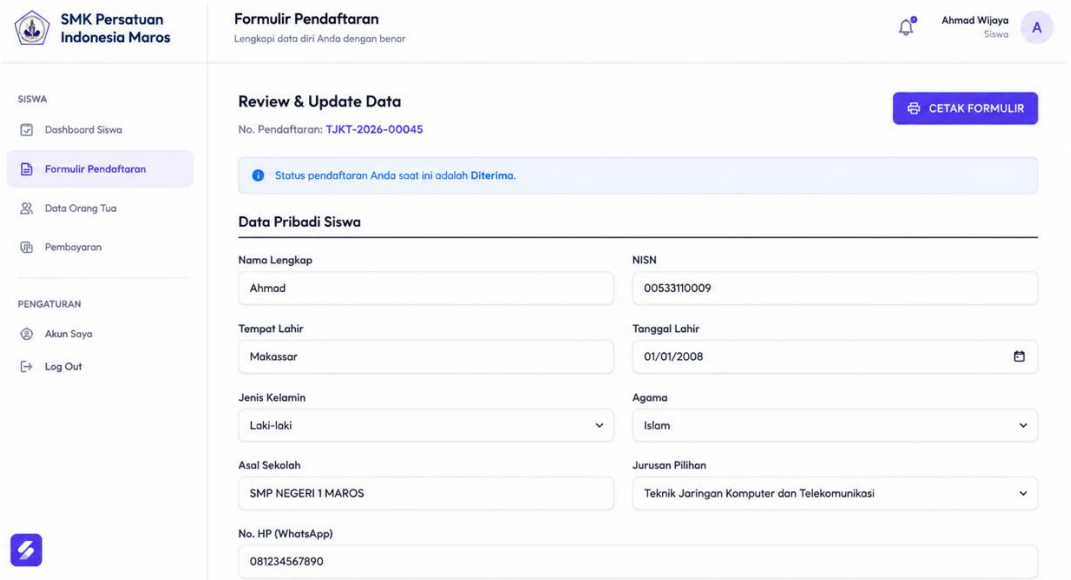


Figure 4. Registration form

The payment interface connects the application with Midtrans and presents payment options and transaction-status information. During testing, we conducted transactions in the sandbox environment. Successful test transactions updated the recorded payment status, and the notification function delivered messages to designated test numbers. Figure 5 presents the payment interface.

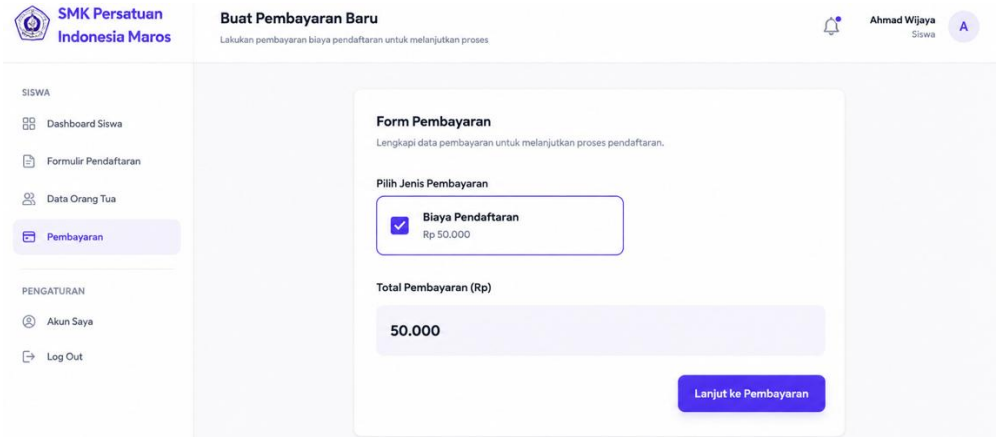


Figure 5. Payment interface

The admissions committee dashboard presents application records, applicant counts, and verification statuses. It also provides access to admissions scheduling and applicant information. These functions organize the information registration and verification personnel use. Figure 6 presents the committee dashboard.

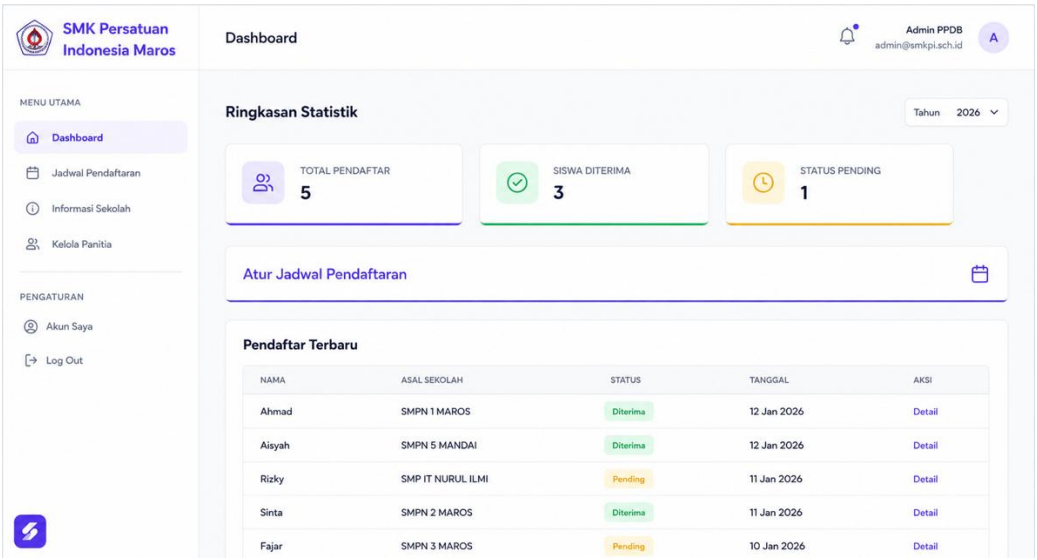


Figure 6. Admissions committee dashboard

The administrator dashboard provides access to user and admissions management functions. Its menus include student records, fee-related information, school articles, interview information, and feedback. The dashboard also presents admissions summaries and scheduling information. Figure 7 presents the administrator interface.

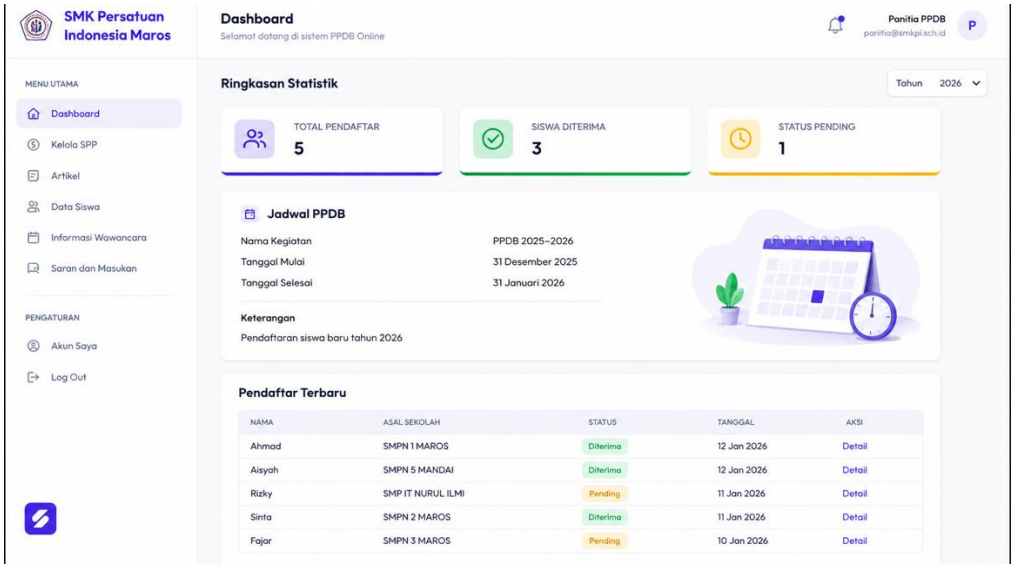


Figure 7. Administrator dashboard

The treasurer dashboard presents payment records, transaction statuses, and financial summaries. The payment table includes applicant information, program, amount, transaction date, and recorded payment status. Figure 8 presents the treasurer dashboard.

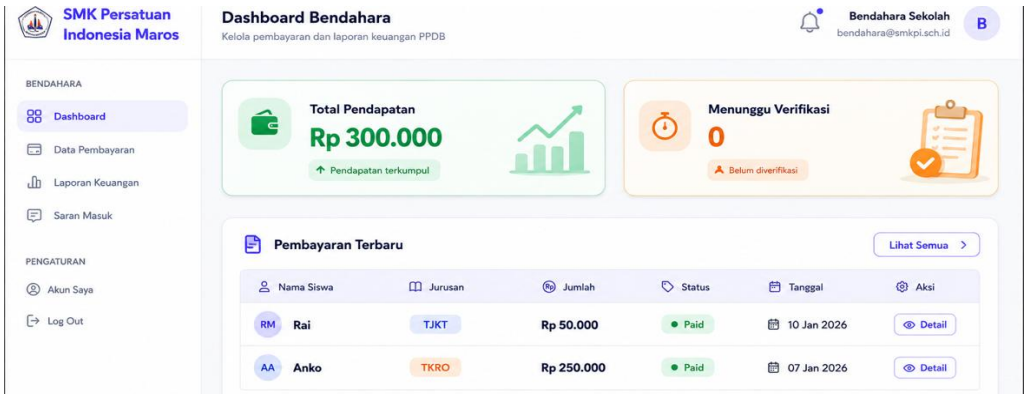


Figure 8. Treasurer dashboard

The principal dashboard presents admissions summaries and program-related information. Graphical displays organize applicant information by program and admissions year. These functions provide monitoring information; the study did not directly evaluate their effects on management decisions. Figure 9 presents the principal dashboard.

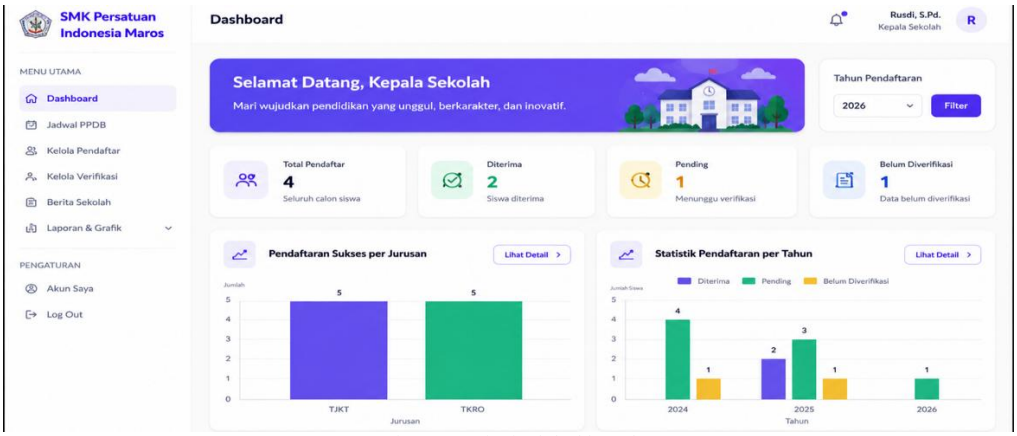


Figure 9. Principal dashboard

Functional Test Results

Functional testing examined eight reported scenarios covering authentication, application submission, document upload, payment processing, reporting, notification delivery, and session termination. We assessed each scenario by comparing the observed system response with the expected outcome. We evaluated payment transactions in the Midtrans sandbox and sent notifications to designated test numbers. Table 1 summarizes the reported results.

Table 1. Summary of the reported functional testing scenarios

Test ID	Function evaluated	Test condition	Expected outcome	Reported observation	Result
FT-01	User authentication	Login using valid credentials	The user accesses the dashboard associated with the assigned role.	The relevant dashboard was displayed.	Pass
FT-02	User authentication	Login using invalid credentials	The system rejects the login attempt and displays an error message.	An error message was displayed.	Pass
FT-03	Application submission	Submission of the registration form	Submitted registration information is saved.	Registration information was saved.	Pass
FT-04	Document submission	Upload of application documents	Uploaded documents are stored and available for verification.	Document upload was reported as successful.	Pass
FT-05	Payment processing	A successful payment transaction in the Midtrans sandbox	The transaction is processed, and the payment status is updated.	The test transaction was processed, and its status was updated.	Pass
FT-06	Administrative reporting	Execution of the report-generation function	The requested report is generated.	A report was generated.	Pass
FT-07	Notification delivery	Execution of a notification to a designated test number	The notification reaches the intended test recipient.	Notification delivery was reported as successful.	Pass
FT-08	Session termination	Logout from an authenticated session	The active user session is terminated.	The session was terminated.	Pass

Note. Results are restricted to the scenarios reported in this study. A passing result indicates agreement between the expected and observed outcomes for the specified test condition.

All eight scenarios were reported as passing. These findings indicate that the evaluated functions produced the expected outputs under the specified conditions. However, the reported tests do not establish comprehensive security, reliability under sustained use, or correct handling of every exception. Unsuccessful payments, invalid document uploads, notification failures, and unauthorized access require separate documented evaluation.

Participant Assessment

The questionnaire involved 20 participants: one principal, two admissions committee members, one treasurer, one administrative staff member, and 15 prospective students. Responses were summarized across usability, functionality, user interface, and perceived performance. Each aspect comprised four items and had a maximum possible score of 400, giving an overall maximum of 1,600. The obtained scores totaled 1,418, equivalent to 88.63% of the maximum possible score. Table 2 presents the scores for each aspect.

Table 2. Questionnaire scores by assessment aspect

Assessment aspect	Number of items	Obtained score	Maximum possible score	Percentage of maximum score
Usability	4	366	400	91.50%
Functionality	4	350	400	87.50%
User interface	4	335	400	83.75%
Perceived performance	4	367	400	91.75%
Overall	16	1,418	1,600	88.63%

Note. Twenty participants completed the questionnaire. Each item was scored from 1 to 5. The maximum possible score was 400 for each assessment aspect and 1,600 for the complete questionnaire. Percentages describe scores relative to their maxima, rather than the proportion of participants accepting the system.

The questionnaire produced an overall score of 1,418 out of 1,600, equivalent to 88.63% of the maximum possible score. Perceived performance obtained the highest percentage (91.75%), followed by usability (91.50%), functionality (87.50%), and user interface (83.75%). These results describe participants' assessments of the functions they used. They do not independently demonstrate faster processing, fewer recording discrepancies, or greater technical reliability.

The comparatively lower interface score warrants further examination using individual item responses and participant feedback.

Processing-Time Results

The controlled service evaluation involved five school personnel, each completing two matched task pairs. This produced 10 paired observations and 20 task executions comparing active verification time under the manual procedure and the integrated system. Table 3 presents the recorded times and descriptive statistics.

Table 3. Active verification time under the manual and integrated-system procedures

Personnel code	Task pair	Manual procedure, minutes	Integrated system, minutes	Paired difference, minutes
A	1	15	8	7
A	2	18	10	8
B	3	16	9	7
B	4	20	11	9
C	5	17	9	8
C	6	19	10	9
D	7	14	8	6
D	8	21	12	9
E	9	18	10	8
E	10	22	13	9
Total	—	180	100	80
Mean	—	18.00	10.00	8.00
Sample standard deviation (SD)	—	2.58	1.63	1.05

Note. Time is expressed in minutes. Five school personnel each completed two matched task pairs, yielding ten paired observations. Paired differences were calculated as manual time minus system time. Summary statistics describe task observations and should not be interpreted as results from ten independent participants.

Across the ten matched task pairs, mean active verification time was 18.00 minutes (SD = 2.58) for the manual procedure and 10.00 minutes (SD = 1.63) for the integrated system. The mean paired difference was 8.00 minutes (SD = 1.05), corresponding to a 44.44% reduction relative to the manual mean. System-based verification required less active time in each reported pair. These descriptive findings apply to the controlled verification tasks and exclude time spent waiting for applicant payments. They do not establish an equivalent reduction in the duration of the complete admissions process.

Recording-Accuracy Results

Recording accuracy was assessed separately using 30 equivalent case pairs. Each staff member processed six cases per procedure, yielding 30 manual records and 30 system records. Table 4 summarizes the records requiring correction.

Table 4. Records requiring correction under each procedure

Personnel code	Records examined under each procedure, n	Manual records requiring correction, n	System records requiring correction, n
A	6	1	0
B	6	2	1
C	6	1	0
D	6	1	1
E	6	1	0
Total	30	6	2
Percentage requiring correction	—	20.00%	6.67%

Note. Thirty records were examined under each procedure. We classified a record as requiring correction when we identified at least one discrepancy against the reference materials. Each affected record was counted once.

Six of the thirty manual records required correction, compared with two of the thirty system records. The corresponding proportions were 20.00% and 6.67%, yielding an absolute difference of 13.33 percentage points. Relative to the manual proportion, this reduced the proportion by 66.67%. These figures describe records containing at least one discrepancy; they do not represent the total number or severity of individual errors. The findings are limited to the cases examined in the controlled evaluation.

Discussion

The findings provide complementary evidence concerning functional conformity, participant assessments, and administrative task performance. All eight reported functional scenarios produced their expected outputs, while the questionnaire yielded an overall score of 88.63% of the maximum possible score. The controlled comparison also

showed shorter active verification time and fewer records requiring correction under the integrated system. These outcomes address different evaluation questions and should not be treated as interchangeable evidence of effectiveness.

The generally positive questionnaire scores indicate favorable assessments of the measured system characteristics. Perceived performance received the highest percentage, followed closely by usability, whereas the interface received the lowest score. These findings suggest that participants viewed the system positively, but they do not independently establish objective service improvements. (Ciriello & Loss, 2023) identify potential cognitive biases in technology acceptance surveys and caution against interpreting favorable ratings too readily. Their findings support complementing participant assessments with other evidence rather than assuming high scores reflect actual performance benefits.

The present study addresses this concern by reporting questionnaire findings separately from task measurements. The perceived-performance percentage reflects participant responses, while we recorded processing time during defined activities. The interface score identifies a comparatively weaker assessment area, but aggregate percentages cannot explain the underlying issue. We need item-level responses and user feedback before attributing the score to navigation, instructions, terminology, or visual organization. The study did not establish response bias; it recognizes this as a possible limitation of questionnaire-based assessment. The participant composition also affects interpretation. Fifteen of the 20 respondents were prospective students, whereas five were school personnel. The overall score therefore contains more applicant responses than personnel responses. It should not be interpreted as equally representative of registration, financial administration, and management reporting. Role-specific evaluation would better reflect the system's suitability for stakeholders with different responsibilities and access levels.

A Cronbach's alpha of 0.89 indicates strong internal consistency among the responses in the item set analyzed. However, a high alpha does not establish construct validity or demonstrate that an instrument measures a single construct. (Zakariya, 2022) explains that interpreting alpha as a reliability estimate requires attention to its assumptions and cautions against treating the coefficient as sufficient evidence of instrument quality. Accordingly, consider the reported coefficient alongside item content, expert review, sample characteristics, and the four-aspect structure. It does not provide separate reliability estimates for usability, functionality, interface, and perceived performance.

The controlled service evaluation provides evidence beyond participant perceptions. Mean active processing time was 18.00 minutes under the manual procedure and 10.00 minutes under the integrated system. The difference of 8.00 minutes corresponds to 44.44% less active time relative to the manual mean. This finding concerns checking application completeness, matching payment evidence, and recording verification status. It does not indicate an equivalent reduction in total admissions duration because applicant payment waiting and other admissions stages were excluded.

The relationship between system functions and the evaluated work can be interpreted through recent research on task–technology fit. (Jeyaraj, 2022) examined variation in task technology fit findings across information systems studies, emphasizing the importance of research design and context when interpreting relationships with outcomes. In the present study, connected registration and payment information was relevant to the verification task. However, the study did not measure task–technology fit as a separate construct or test its theoretical relationships. It therefore provides an interpretive perspective rather than a demonstrated explanation for the observed time difference. Recording accuracy showed a similar descriptive pattern. Six of 30 manual records required correction, compared with two of 30 system records. The corresponding proportions were 20.00% and 6.67%, a difference of 13.33 percentage points. Although the relative reduction was 66.67%, the absolute counts and denominators remain important because the comparison involved a limited number of records. These findings concern records with at least one discrepancy against reference information, not the number, severity, or operational consequences of every individual error.

Structured input and access to connected information plausibly explain the observed task differences. Personnel could consult registration and payment information within the same application rather than rely on separate records. However, the study did not isolate the effects of input validation, payment integration, notifications, or interface design. It also did not directly measure duplicate entry or task switching. These features should therefore be discussed as possible contributors rather than independently established causes of improved performance.

The findings extend the evaluation of admissions technology in vocational education. (Iskandar et al., 2024) examined a web-based registration system with online forms, document submission, and status tracking, emphasizing functional testing and respondent assessments. The present study adds a controlled comparison of verification time and records requiring correction. This extends evaluation coverage rather than proving the application is superior. Differences in institutional settings, participants, instruments, and testing conditions prevent direct comparison of questionnaire percentages or claims of equivalent effects. The educational relevance of the task findings aligns with the broader administrative focus identified by (Liu et al., 2025). Their systematic scoping review discusses ICT in relation to

administrative efficiency, information use, stakeholder communication, and implementation challenges. The present study contributes narrower evidence concerning a defined admissions workflow. It does not establish improvements in all of these dimensions. For example, the study tested notification delivery functionally, but it did not directly evaluate the quality of communication between the school and applicants.

The implementation context also remains important. (Timotheou et al., 2023) describe school digital transformation as involving interconnected stakeholders and conditions. From this perspective, a functioning admissions application represents one element of institutional digital development. The present task results do not establish school-wide transformation or improved educational outcomes. Sustained benefits would depend on how the system is used within administrative responsibilities, user support arrangements, and operational conditions. Several limitations constrain interpretation. The study was conducted at one school with a small, purposively selected participant group. The time comparison involved five personnel completing 10 task pairs. Repeated tasks from the same individuals are not equivalent to observations from 10 independent participants. The comparisons were descriptive and did not establish statistical significance or isolate the system as the sole cause of the differences.

The use of equivalent cases and both procedure orders supported comparability but did not eliminate familiarity or practice effects. Controlled cases also differ from operational admissions because they involve incomplete submissions, delayed payments, connectivity problems, and requests for assistance. We limited the recording assessment to 30 records per procedure and checked the fields against reference materials. Further research should examine whether the findings persist across complete admissions cycles and additional schools. Finally, the study did not directly assess accessibility, fairness, long-term workload, communication quality, or the use of reports in management decisions. Future evaluations should select indicators appropriate to these outcomes and distinguish stakeholder perceptions from observed service performance. This would strengthen the evidence concerning the system's contribution to educational administration without extending conclusions beyond the measures collected.

Educational Relevance and Practical Implications

The findings support consideration of the system for the admissions tasks evaluated at the study site. Shorter active verification time and fewer records requiring correction provide task-specific evidence relevant to school administration. These findings should inform implementation alongside institutional procedures, personnel capacity, and data-protection requirements. Schools should maintain clear responsibility for document verification, payment exceptions, and incomplete applications. Automated status information should support accountable administrative work rather than replace oversight. Applicant assistance should remain available when users encounter digital-access or registration difficulties.

Further implementation should include monitoring of service exceptions and role-specific experiences. Reports and dashboards may inform administrative follow-up, but their impact on decisions requires separate assessment. Development priorities should therefore follow documented service needs and operational findings rather than adding features without a defined purpose.

Conclusions and Suggestions

Conclusions

This study developed an integrated web-based admissions system for SMK Persatuan Indonesia Maros using Rapid Application Development. The system connects applicant registration, document submission, digital payment information, notifications, and administrative reporting. All eight functional test scenarios produced the expected outcomes. The questionnaire, completed by 20 participants, yielded an overall score of 88.63% of the maximum possible score, indicating generally positive participant assessments. The controlled service evaluation provided task-specific evidence beyond functional testing and participant perceptions. Across 10 matched task pairs completed by five school personnel, mean active verification time was 18.00 minutes under the manual procedure and 10.00 minutes under the integrated system. The difference represented a 44.44% reduction relative to the manual mean. Six of 30 manual records and two of 30 system records required correction, corresponding to 20.00% and 6.67%, respectively, a difference of 13.33 percentage points.

The study contributes context-specific evidence concerning technology-supported admissions administration in vocational education. It combines system development with functional testing, participant assessment, and evaluation of defined administrative tasks. The findings support shorter active verification time and fewer records requiring correction under the evaluated conditions. They do not establish long-term operational effectiveness, improved communication quality, or better management decisions across an entire admissions cycle.

Suggestions

Further research should evaluate the system during complete operational admissions cycles and across additional schools. Evaluation should examine whether the observed task differences persist under conditions involving incomplete documents, payment delays, connectivity problems, and requests for assistance. Studies involving more personnel and records should account for repeated observations and differences in case complexity. Examine questionnaire findings by user role and individual item to identify specific development priorities, particularly for the interface. Further instrument evaluation should assess the quality of the individual assessment aspects rather than rely exclusively on an overall internal consistency coefficient. Subsequent evaluation should address service dimensions not measured in this study, including accessibility, communication quality, administrative workload, and the use of reports in decision-making. Security and privacy should also undergo dedicated assessment because functional testing alone does not establish adequate protection of applicant and payment information. Additional features or integration with other school systems should be guided by documented institutional needs and evidence from operational use.

Acknowledgements

The authors thank the management, admissions committee, administrative personnel, and treasurer of SMK Persatuan Indonesia Maros for granting access to the study site and supporting the research activities. The authors also thank the prospective students who participated in the system evaluation.

Funding Statement

This research received no external funding.

Author Contributions

Muh. Riyaldi Pratama: Conceptualization, methodology, software, investigation, data curation, formal analysis, and writing the original draft. Xiangjun: Methodology, software review, and writing and editing the review. Bobur Sobirov: Interpreted findings on administrative services and wrote and edited the review. All authors reviewed and approved the final manuscript and agreed to be accountable for their contributions and to cooperate in resolving any questions concerning the accuracy or integrity of the work.

Conflict of Interest

The authors developed and evaluated the system described in this study. They declare no financial or other competing interests that could have influenced the conduct or reporting of the research.

Data Availability Statement

The supporting materials include questionnaire responses, functional-testing records, task-completion times, and recording-accuracy assessments. Requests for access to de-identified data and the questionnaire may be submitted to the corresponding author. Access will be considered in accordance with participant consent, confidentiality obligations, and institutional requirements. Identifiable participant information will not be disclosed.

Declaration of Generative AI Use

The authors used ChatGPT (OpenAI) to assist with language editing, manuscript organization, and checking calculations. During drafting, the tool also generated illustrative numerical examples. These examples were not used as empirical research data. The authors derived all numerical results reported in the manuscript from the original research records and independently checked them. The authors reviewed the AI-assisted text and verified the references against the original sources. The authors take full responsibility for the accuracy, originality, and integrity of the final manuscript.

References

Ahmed, M. T., Kabir, M. H., & Roy, S. (2022). Web based student registration and exam form fill-up management system for educational institute. *International Journal of Information Engineering and Electronic Business*, *14*(2), 47–62. https://doi.org/10.5815/ijieeb.2022.02.04

Al-Tahat, K. S., Magableh, A. A., Albahri, A. S., Garfan, S., Deveci, M., Albahri, O. S., Alamoodi, A. H., & Sharaf, I. M. (2026). Evaluation of software development life cycle using multi-criteria decision-making approach. *Kuwait Journal of Science*, *53*(3), 100595. https://doi.org/10.1016/J.KJS.2026.100595

Anaking, P., Ma'ady, M. N. P., & Rahim, A. F. A. (2023). Implementation of Rapid Application Development (Rad) Method In The Design Of Research Partner Recommendation System In Higher Education. *Asia Information System Journal*, *2*(2), 53–59. https://doi.org/10.24042/aisj.v2i2.18534

Ciriello, R. F., & Loss, S. (2023). The yea-paradox: Cognitive bias in technology acceptance surveys. *Information and Software Technology*, *161*, 107253. https://doi.org/10.1016/J.INFSOF.2023.107253

Fernández, A., Gómez, B., Binjaku, K., & Meçe, E. K. (2023). Digital transformation initiatives in higher education institutions: A multivocal literature review. *Education and Information Technologies*, *28*(10), 12351–12382. https://doi.org/10.1007/s10639-022-11544-0

Ichsanudin, M. N., Yusuf, M., & Suraya, S. (2022). Pengujian fungsional perangkat lunak sistem informasi perpustakaan dengan metode black box testing bagi pemula. *STORAGE: Jurnal Ilmiah Teknik Dan Ilmu Komputer*, *1*(2), 1–8. https://doi.org/10.55123/storage.v1i2.270

Iskandar, A., Retnawati, H., & others. (2024). Design of a Web-Based Information System for New Student Registration in Vocational High Schools. *Ingenierie Des Systemes d'Information*, *29*(4), 1469. https://doi.org/10.18280/isi.290420

Jeyaraj, A. (2022). A meta-regression of task-technology fit in information systems research. *International Journal of Information Management*, *65*. https://doi.org/10.1016/j.ijinfomgt.2022.102493

Liu, T., Luo, Y. T., Pang, P. C. I., & Kan, H. Y. (2025). Exploring the Impact of Information and Communication Technology on Educational Administration: A Systematic Scoping Review. In *Education Sciences* (Vol. 15, Number 9). https://doi.org/10.3390/educsci15091114

Mohamed Hashim, M. A., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. *Education and Information Technologies*, *27*(3), 3171–3195. https://doi.org/10.1007/s10639-021-10739-1

Oleti, C. S. (2025). Real-time payment systems: transforming global economic infrastructure through digital financial innovation. *World Journal of Advanced Research and Reviews*, *25*, 2464–2477. https://doi.org/10.30574/wjarr.2025.25.3.0827

Pratama, H. C., & Aji, A. S. (2026). Web-based and mobile-based new student admission and registration system for high school students. *Jurnal Mandiri IT*, *14*(3), 236–245. https://doi.org/10.35335/mandiri.v14i3.484

Salunkhe, A., Pawar, V., Pise, P., Mule, S., Survase, A., Godase, V., & Zambre, S. (2025). A Review on Real-Time RFID-Based Smart Attendance Systems for Efficient Record Management. *Advance Research in Analog and Digital Communications*, *2*(2), 32–46. https://doi.org/10.1108/DPRG-06-2023-0077

Santoso, L., & Amanullah, J. (2022). Pengembangan Sistem Informasi Akademik Berbasis Website Menggunakan Metode Rapid Application Development (Rad). *Elkom: Jurnal Elektronika Dan Komputer*, *15*(2), 250–259. https://doi.org/10.51903/elkom.v15i2.943

Singgalen, Y. A., No, J. J. S., Semanggi, K., Setiabudi, K., Selatan, K. J., & Khusus, D. (2024). Implementation of Rapid Application Development (RAD) for community-based ecotourism monitoring system. *Journal of Information System Research (JOSH)*, *5*(2), 520–530. https://doi.org/10.47065/josh.v5i2.4749

Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., Monés, A. M., & Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and Information Technologies*, *28*(6). https://doi.org/10.1007/s10639-022-11431-8

Wahyudi, I., Fahrullah, F., Alameka, F., & Haerullah, H. (2023). Analisis Blackbox Testing Dan User Acceptance Testing Terhadap Sistem Informasi Solusimedsosku. *Jurnal Teknosains Kodepena*, *4*(1), 1–9. https://doi.org/10.54423/jtk.v4i1.54

Widiyatmoko, A. T., Nugroho, A., & Wiyanto, W. (2024). Development of web-based student registration information system with rapid application development approach. *Journal of Computer Networks, Architecture and High Performance Computing*, *6*(1), 484–491. https://doi.org/10.47709/cnahpc.v6i1.3459

Widyasari, E., Harsono, H., & Suyatmini, S. (2025). The role of information technology in improving school administration management. *INJOSEDU: International Journal of Social and Education*, *2*(3), 626–643.

Zakariya, Y. F. (2022). Cronbach's alpha in mathematics education research: Its appropriateness, overuse, and alternatives in estimating scale reliability. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1074430