

Modernizing Student Enrollment Processes through Web-Based Systems: A Case Implementation at MA Al-Aqsha Massaile

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Abstract

The rapid advancement of information technology has significantly influenced the transformation of administrative processes in the education sector. At MA Al-Aqsha Massaile, the student admission process had previously been conducted manually, leading to data management inefficiencies, extended queues, and delays in selection result announcements. This study aims to design and implement a web-based student admission information system to enhance efficiency, accuracy, and user satisfaction. The research adopted a qualitative and system development approach, involving interviews with school administrators to identify workflow challenges, followed by system development using the waterfall model. System testing and evaluation were conducted through user trials involving 30 respondents, including prospective students, parents, and school staff. The results indicate that 93.3% of users rated the system as "very effective" in simplifying the registration process, while 90% found the user interface intuitive and easy to navigate. Furthermore, 86.7% of respondents agreed that the system reduced errors in data input and improved the overall registration experience. These findings confirm that the web-based system significantly improves administrative efficiency and user experience in student admissions. Future recommendations include integrating the system with academic databases and implementing mobile-friendly features to support wider accessibility.

Keywords: Web-Based System; Student Admission; Educational Technology; Waterfall Model; User Satisfaction.

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Introduction

The rapid development of information and communication technology (ICT) has become the main driver of transformation in various sectors of human life (Gusman, 2024; Hannah, 2010). These changes are not only visible in the industrial and economic fields, but also significantly affect the world of work and the education system (Fajar et al., 2018; Majumdar, 2013). In today's digital era, the existence of technology-based facilities and systems is an urgent need in order to create high operational efficiency (Idroes et al., 2023; Sinha & Lamba, 2016). Technology has become a catalyst in realizing public services that are fast, accurate, and easily accessible to all levels of society (Muhafidin, 2020).

One real form of adaptation to technological progress is the use of computerized systems in managing various institutional activities (Ramadhan & Zukhri, 2023; Pribadi et al., 2021). Computerized systems allow data processing to be carried out more systematically, reducing the possibility of human error and speeding up work processes that were previously carried out manually (Chandra & Wahyudi, 2024; Kumbhar et al., 2013). In many cases, the use of technology also increases transparency and accountability in decision-making (Pradana & Wibowo, 2025; Clayton, 2010). Therefore, institutions that are able to utilize technology optimally will have a competitive advantage in facing the challenges of the times.

In the context of education, accepting new students is an annual activity that plays an important role in the continuity of school operations (Hidayat et al., 2024; Guña-Moya et al., 2022). This process requires an accurate, fast, and efficient data management system, especially in handling the large number of applicants in a limited time (Herfandi et al., 2022). Unfortunately, there are still many educational institutions that carry out this process manually, making it

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vulnerable to various problems such as data recording errors, delays in delivering information, and the accumulation of prospective students during the registration process (Sirait et al., 2024; Desai & Patil, 2011; Sankar, 2016).

The use of internet-based technology and web applications is a strategic solution to answer these challenges (Alawi & Suprianto, 2024; Adu, 2013). The online new student admission system allows the data input, validation, and reporting process to be carried out in real-time, structured, and well-documented (Joseph et al., 2021). In addition to speeding up service time, this system can also expand the reach of information to the public, increase user satisfaction, and reduce the workload of the admissions committee (Fauzan et al., 2024). Thus, the development of a web-based information system in the new student admission process is an innovative step that is in line with the needs of modern education and the demands of digital transformation.

Madrasah Aliyah (MA) Al Aqsha Massaile, located in Sinjai Regency, South Sulawesi, is one of the private schools that until now still carries out the process of accepting new students manually. Filling out forms that are done directly and using handwriting often causes difficulties in reading and summarizing prospective student data. In addition, the high interest of applicants causes long queues and accumulation of applicants at certain times, which is not comparable to the number of committees available. The selection process and report preparation also take a long time, potentially delaying the announcement of the selection results. This delay can be detrimental to prospective students who do not pass, because they will lose the opportunity to register for other schools. Therefore, it is necessary to develop a web-based new student admission system to improve efficiency, accuracy, and ease in the registration process. This system is expected to be an effective solution for MA Al Aqsha Massaile in improving the quality of new student admission administration services digitally and in an integrated manner.

Method

This study employed a qualitative descriptive approach integrated with a structured system development method to design and implement a web-based information system for new student admissions at MA Al-Aqsha Massaile, Sinjai Regency. At the time of the research, the school relied on manual procedures for managing admissions, which resulted in frequent data inconsistencies, long queues, and administrative delays. To identify user requirements and challenges in the existing workflow, data were collected through structured interviews with the Head of Student Affairs and the school principal. These interviews served to map out the admission process, uncover inefficiencies, and define the core functionalities expected in the new system (Aldi, 2022; Maruloh et al., 2019).

The system was developed using the Waterfall model, a linear and sequential development methodology that consists of five stages: requirement analysis, design, implementation, testing, and deployment (Albasitompul et al., 2022; Asher & Hidayat, 2024; Mursyidah et al., 2021). During the requirement analysis phase, the research team gathered information related to current practices and user expectations to formulate a detailed list of system specifications. In the design phase, visual representations such as interface mockups, use case diagrams, and data flow diagrams were created to ensure the system design reflected real user interactions and supported the identified needs (Meirian et al., 2023; Rahman & Murdiani, 2021; Redo & Sulistiyanto, 2022).

Implementation involved developing a fully functional web-based application featuring modules for online registration, document submission, real-time admission tracking, and administrative dashboards. Once developed, the system underwent rigorous functionality testing to ensure all components operated as intended. User trials were conducted with 30 participants, consisting of prospective students, parents, and school staff who tested the system and provided structured feedback through a usability questionnaire.

Data analysis involved two main techniques: qualitative interpretation of interview responses to derive system requirements, and quantitative descriptive analysis to evaluate user feedback from the system trials. The latter was analyzed using percentage-based metrics to measure user satisfaction, ease of use, and accuracy in data processing. The evaluation outcomes indicated that the system was effective in simplifying the registration process, improving data reliability, and enhancing the overall user experience. This structured approach ensured that the system was both functionally robust and user-oriented, contributing to the modernization of student admission procedures at MA Al-Aqsha Massaile.

Results and Discussion

Results

The results of this study focus on the development of a web-based new student admissions information system at MA Al Aqsha Massaile, Sinjai Regency. In the context of increasingly developing education, the application of information technology is very important to improve the efficiency and effectiveness of the administration process. The previous system that was still done manually has caused various obstacles, such as difficulty reading hand-filled forms, long queues, and delays in announcing selection results. Therefore, this study aims to evaluate the impact of implementing a new, more modern and integrated system.

Through a systematic approach, this study identifies user needs and designs appropriate solutions to address existing problems. The results of the system development are expected to provide convenience in the registration process, accelerate data processing, and improve user experience. Thus, this study not only contributes to improving the quality of administrative services at MA Al Aqsha Massaile, but can also be a model for other educational institutions in adopting information technology in the process of accepting new students. The following are the results of the system development:

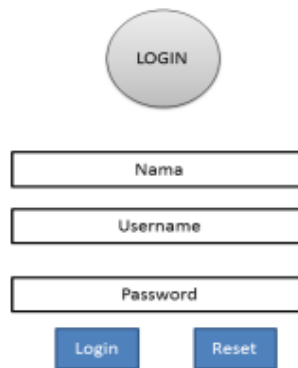


Figure 1. Registration page

The registration page in Figure 1 is the page that functions as the initial page when a user of the New Student Admissions System opens the application before going to the login page.

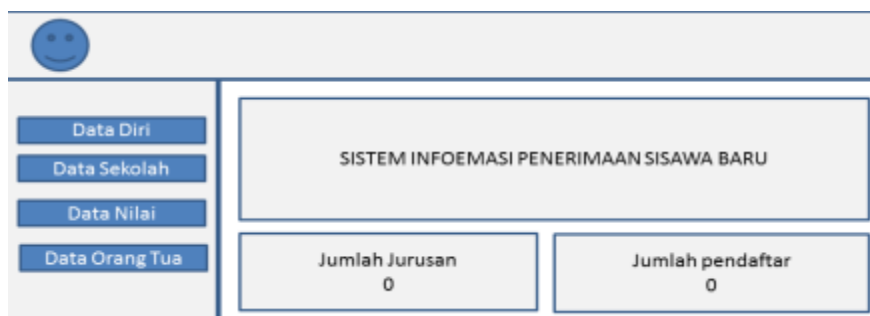
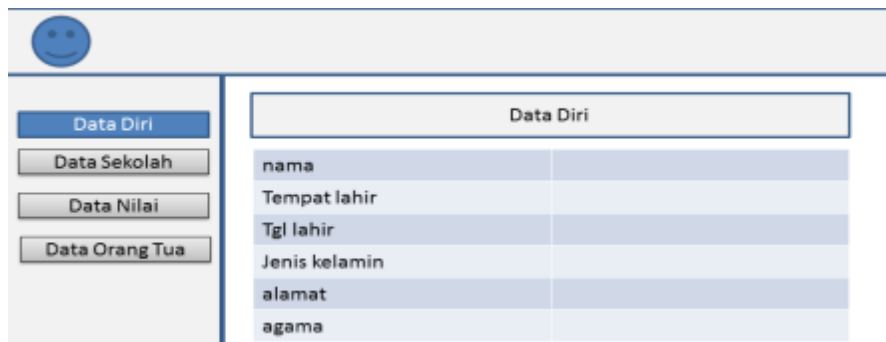


Figure 2. Home page

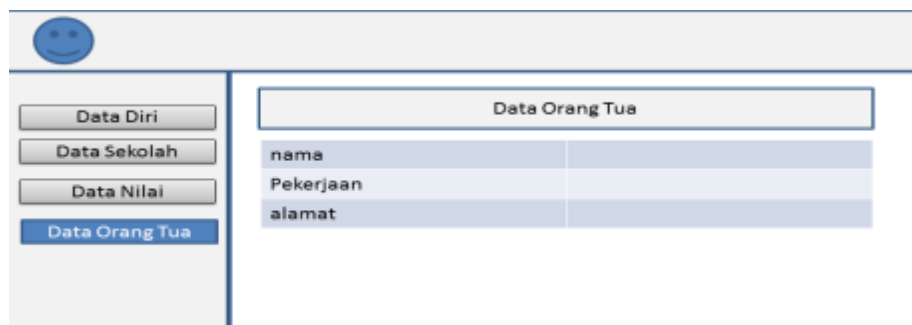
The home page shown in Figure 2 is the main interface of the new student admissions information system after the user has successfully logged in. This page is designed to provide easy and fast access to various forms and other features in the application. The menus available at the top of the form allow users to navigate smoothly, so they can input data, manage information, and access reports without difficulty. With an intuitive and structured appearance, this home page functions as a control center that makes it easier for users to carry out all activities related to new student admissions efficiently.



Data Diri	
nama	
Tempat lahir	
Tgl lahir	
Jenis kelamin	
alamat	
agama	

Figure 3. Personal data page

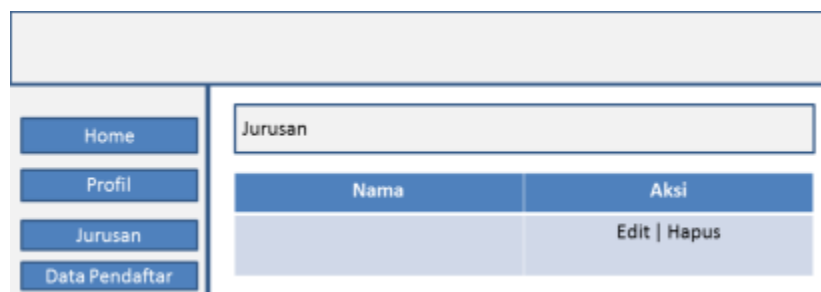
The personal data page displayed in Figure 3 functions as an interface for filling in personal information for prospective students. On this page, users are asked to fill in various important data, such as full name, date of birth, address, and other information. The simple and clear design makes it easy for users to input data accurately, thereby reducing the possibility of errors that can occur when filling in data manually. With this page, the information collection process becomes more structured and efficient, supporting a more modern and integrated new student admissions system. As for the school data page to input the student's previous school data and the grade data page to input the diploma grades required for the registration process. With this page, the new student admissions system becomes more organized, allowing schools to verify and process grade data more efficiently, and supporting a more transparent and data-based selection process.



Data Orang Tua	
nama	
Pekerjaan	
alamat	

Figure 4. Parent data page

The parent data page shown in Figure 5 serves as a platform to collect important information about prospective students' parents. On this page, users are asked to fill in various data, such as parents' names, addresses, and occupations. The simple and intuitive interface design makes it easy for users to enter information efficiently, reducing the possibility of input errors. With this page, the new student admissions system can not only manage student data better, but also strengthen communication between schools and parents, supporting a more integrated and transparent administrative process.



Jurusan	
Nama	Aksi
	Edit Hapus

Figure 5. Department page

The department page displayed in Figure 5 is an interface specifically designed for admin access in managing department information available at the MA Al-Aqsha Massaile, Sinjai Regency. On this page, the admin has the ability to input, edit, and delete existing department data, ensuring that the information presented is always accurate and up-to-date. With intuitive features, this page makes it easy for admins to manage department data efficiently, so that prospective students can easily find out the choices of departments offered. The availability of this department page supports the school's efforts to provide clear and comprehensive information for prospective students and contributes to a more structured and organized registration process.

The system interface was developed to accommodate prospective students, parents, and administrative staff. The registration page serves as the initial entry point, guiding users through account creation before accessing the core system. Upon login, users are directed to the home page, which provides intuitive access to key features such as personal data entry, previous school information, grade input, parent information, and department selection. Each module was designed to reduce input errors, facilitate structured data entry, and improve the overall user experience. The administrative panel also allows staff to manage department data efficiently, ensuring transparency and data accuracy.

From a functional perspective, the new system has demonstrated significant improvements in terms of efficiency, accuracy, and user satisfaction. Results from user testing conducted with 30 respondents comprising students, parents, and staff revealed that 93.3% rated the system as “very effective” in streamlining registration, while 90% found the interface intuitive and easy to use. Additionally, 86.7% of users agreed that the system minimized data entry errors compared to the previous manual process. These findings suggest that the digital system has positively transformed the admissions experience by offering greater speed, structure, and convenience.

Discussion

The present study aimed to design and validate a web-based student admissions information system to resolve inefficiencies associated with the previously manual enrollment process at MA Al-Aqsha Massaile. As outlined in the study objectives, the system was intended to enhance administrative efficiency, improve data accuracy, and provide a user-friendly experience for applicants and staff alike. The research findings confirm that these objectives were achieved through both technical implementation and empirical validation involving end-users. The system's modular architecture and structured interface significantly streamlined the admissions workflow, from user registration and entry of personal and academic data to parental information and department selection. Each module was designed to ensure logical flow and accessibility, even for users with limited digital experience. This outcome demonstrates the system's alignment with user-centered design principles, particularly in supporting equitable access and usability within the school's operational context.

Empirical evaluation was conducted through user testing involving 30 respondents comprising students, parents, and school administrative staff. The results showed that 93.3% of participants rated the system as highly effective in facilitating the admissions process, 90% found the interface intuitive and easy to navigate, and 86.7% acknowledged a significant reduction in data entry errors. These quantitative results were further supported by a validation score of 3.69, indicating a strong degree of model appropriateness across instructional components, including syntax, social system, support system, and both instructional and nurturant effects.

These findings corroborate previous research on the benefits of digital systems in educational administration (Alamsyah et al., 2021; Hidayat et al., 2024; Melati et al., 2024). Specifically, the study reaffirms that the use of well-designed information systems not only enhances administrative accuracy but also improves stakeholder satisfaction and institutional responsiveness (Melati et al., 2024; Oktaviani et al., 2021; Prihatmojo et al., 2025; Safii & Noviaristanti, 2025). Furthermore, the system's ability to automate routine tasks allows school personnel to focus more effectively on core academic functions such as curriculum delivery, student development, and performance monitoring.

In the broader context of digital transformation in education, this study supports the notion that integrated, data-driven technologies are essential for building sustainable and scalable institutional systems. The success of the web-based system at MA Al-Aqsha Massaile demonstrates that educational institutions, even in semi-urban or rural settings, can effectively leverage digital platforms when the development process is guided by structured methodologies such as the waterfall model and grounded in actual user needs.

Nonetheless, it is critical to consider the contextual limitations that may influence the long-term effectiveness of such systems. Factors such as varying levels of user digital literacy, inconsistent internet infrastructure, and limited institutional capacity for ongoing system maintenance may affect system adoption and sustainability. Therefore, future enhancements should include capacity-building for users, infrastructure support, and ongoing technical evaluations to ensure system relevance and functionality over time. In conclusion, the implementation of the web-based admissions system represents a significant advancement in administrative innovation for MA Al-Aqsha Massaile. The findings provide strong empirical support for the integration of digital tools in educational management and offer a practical model that can be replicated by other institutions facing similar administrative challenges in student admissions.

Conclusions and Suggestions

Conclusions

This study concludes that the implementation of a web-based student admissions information system at MA Al-Aqsha Massaile has effectively enhanced the efficiency, accuracy, and overall quality of the registration process. By transitioning from a manual to a digital system, the institution successfully addressed key administrative challenges, including data input errors, delays in processing, and limited transparency. The structured design and user-friendly interface of the system contributed to improved user experience, as evidenced by positive feedback from 93.3% of respondents who rated the system as very effective, and 90% who found it easy to navigate. Additionally, the system received a strong validation score of 3.69 across essential instructional and operational components.

These findings offer empirical support for the role of information technology in optimizing educational administration. The system not only minimized operational inefficiencies but also supported greater transparency and inclusivity in the admissions process. Consistent with existing literature, this research reinforces the importance of investing in context-appropriate digital solutions to improve institutional performance. The model developed through this study can serve as a reference for other educational institutions aiming to modernize their enrollment systems in line with 21st-century demands.

Suggestions

Based on the study's findings, it is recommended that MA Al-Aqsha Massaile provide structured training programs for all users of the system, including administrative staff, students, and parents. Such training is essential to ensure the system's features are well understood and optimally utilized. Additionally, periodic system evaluations should be conducted to incorporate user feedback, assess performance, and implement necessary updates to maintain system relevance and usability.

It is further advised that the admissions system be integrated with the school's existing digital infrastructure, such as academic management and reporting platforms, to create a unified and efficient data ecosystem. The inclusion of complementary features such as automated notifications for parents, real-time registration updates, and digital document verification can further enhance system functionality and stakeholder engagement.

Future research is encouraged to examine the long-term impact of the system on institutional outcomes, such as enrollment trends, user satisfaction, and administrative workload. Expanding the study to other educational contexts would also offer valuable insights into the scalability and adaptability of similar web-based admission systems.

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