International Journal Software Engineering and Computer Science (IJSECS)
4 (2), 2024, 604-614
Published Online August 2024 in IJSECS (http://www.journal.lembagakita.org/index.php/ijsecs)
P-ISSN : 2776-4869, E-ISSN : 2776-3242. DOI: https://doi.org/10.35870/ijsecs.v4i2.2524.

RESEARCH ARTICLE Open Access

The Application of SIMAKEL Website Technology for Offline Class Booking

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Received: May 14, 2024; Accepted: July 10, 2024; Published: August 1, 2024.

Abstract: Education is a critical driver for the advancement of a nation's infrastructure, particularly through the application of information technology. At Universitas Negeri Jakarta, the limited availability of classrooms, due to ongoing infrastructure development, has posed significant challenges to the management of face-to-face teaching schedules. This study aims to develop the SIMAKEL (Siap Masuk Kelas) website as an efficient solution for managing classroom reservations. The research employs a Research and Development (R&D) approach using the ADDIE model, which includes five stages: analysis, design, development, implementation, and evaluation. The findings indicate that the SIMAKEL website effectively facilitates classroom management, minimizes scheduling conflicts, and allows for real-time monitoring of room availability. The implementation of this system is expected to enhance the structure and efficiency of academic activities, providing students with streamlined access to classroom usage information. User evaluations reflect a high level of satisfaction with the website's performance, demonstrating its effectiveness in supporting academic operations.

Keywords: Education; Information Technology; Classroom Booking System; SIMAKEL; ADDIE Model.

1. Introduction

Education plays a vital role in the development of a nation's infrastructure and human resources, particularly through the application of information technology [1]. Information technology has significantly transformed how educational institutions manage information and deliver services to their stakeholders, including the management of classrooms [2]. Classrooms are crucial elements in planning academic activities as they serve as the primary venues for face-to-face instruction [3]. In the second semester of the 2024/2025 academic year, particularly in the Maritime Logistics Management program at Universitas Negeri Jakarta (UNJ), a total of 27 courses must be conducted. These courses are divided as follows: nine courses for the 2021 cohort, eight courses for the 2022 cohort, and ten courses for the 2023 cohort. However, the implementation of face-to-face classes faces significant challenges due to the limited availability of classrooms. This limitation is a direct result of ongoing infrastructure development within the university, which has reduced the number of classrooms available for academic activities [4]. To address these challenges, a solution is required to streamline the management of classroom resources, ensuring that academic activities can proceed more efficiently. Therefore, the researchers developed a classroom booking website named "SIMAKEL (Siap Masuk Kelas)." SIMAKEL is designed as a web-based platform that facilitates more structured classroom management, aligning with the growing trend of digitalization [5].

Digitalization has become an integral part of modern education, driving educational institutions to adopt more efficient and user-friendly systems. A web-based classroom booking system like SIMAKEL not only offers ease of access and use for its users but also contributes to the overall efficiency of classroom management [7]. Through this system, the process of booking classrooms can be conducted more quickly and accurately, allowing users to monitor the availability of classrooms in real time. This feature is crucial in avoiding scheduling conflicts and potential issues that may arise in classroom management [7][8][9]. The implementation of SIMAKEL is expected to enable educational institutions to utilize existing resources more effectively, optimize classroom usage, and enhance the quality of services provided to both students and faculty. Additionally, the system has the potential to improve the learning experience for classroom users by ensuring that each academic activity takes place in a properly booked and prepared room [10].

This research aims to further explore the concept, implementation, and benefits of a web-based classroom booking system through a Research and Development (R&D) approach using the ADDIE model. The ADDIE model, which consists of the phases Analysis, Design, Development, Implementation, and Evaluation, is employed to ensure that the system developed meets the users' needs optimally [11]. Each phase in the ADDIE model plays a crucial role in designing and implementing a system that addresses the specific needs of the Maritime Logistics Management program at UNJ. During the analysis phase, the researchers identified user needs and challenges encountered in conventional classroom management. The findings from this analysis served as the foundation for designing the SIMAKEL system to address these issues effectively. The design phase focused on creating a user-friendly system that is accessible and can be integrated with existing institutional systems. The development phase involved building the key features of the system according to the design specifications. After the system was developed, the implementation phase commenced with the official launch of the SIMAKEL website to its intended users. Finally, the evaluation phase involved gathering feedback from users to ensure that the system operated as expected and provided tangible benefits in classroom management at UNJ. The development of SIMAKEL as a web-based classroom booking system is expected to provide an effective solution to the challenges of limited classroom availability and to enhance the efficiency and quality of classroom management at Universitas Negeri Jakarta. This study will not only detail the process of developing this system but also evaluate its impact on the effectiveness of classroom management and user satisfaction.

2. Research Method

The study was conducted using a Research and Development (R&D) approach, guided by the ADDIE model, which is a well-established instructional design framework comprising five distinct phases: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model is recognized for its structured methodology in system development, ensuring that each phase contributes systematically to the creation of an effective and efficient educational tool [12]. The Analysis phase served as the foundation of the study, where a thorough assessment was carried out to determine the specific needs and challenges related to the online classroom booking system for the Maritime Logistics Management program at the Faculty of Engineering, Universitas Negeri Jakarta. This phase was critical in identifying the key issues, such as limited

classroom availability and scheduling conflicts, which informed the subsequent phases of design and development. Following the analysis, the Design phase focused on the creation of a user-centered interface and a robust database architecture. The design process involved meticulous planning to ensure that the system would be intuitive for users, with an emphasis on accessibility and ease of navigation. The database was designed to securely store booking information and manage class schedules efficiently. Additionally, the overall system architecture was carefully structured to integrate seamlessly with existing university systems, providing a cohesive user experience [13].

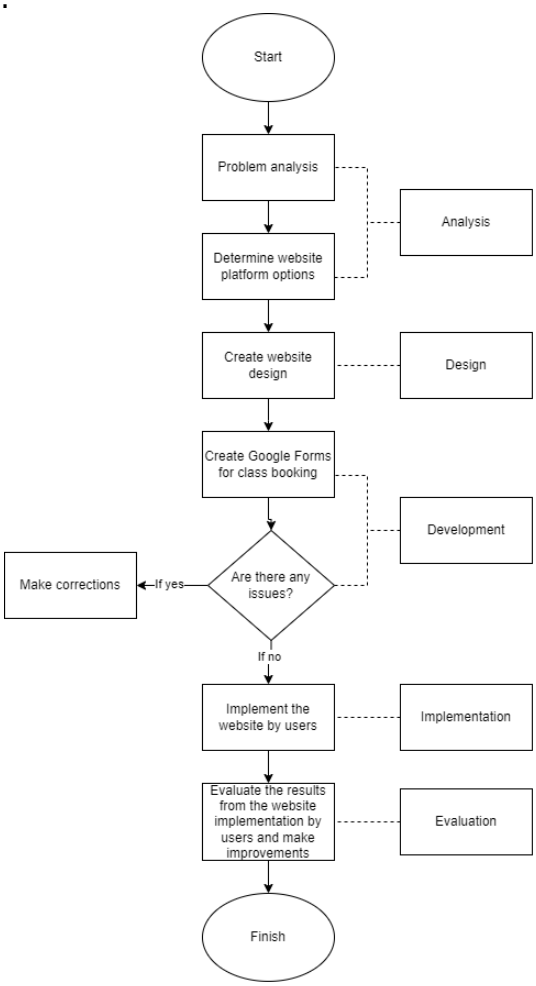

Figure 1. Flowchart for creating the Simakel website

In the Development phase, the designs and specifications from the previous stage were translated into a functional system. This phase involved the coding and programming of the SIMAKEL platform, followed by rigorous testing to ensure the system m*et al* functional requirements. The development team focused on building the core features of the system, ensuring that it was reliable, scalable, and user-friendly [14]. The Implementation phase involved the official deployment of the SIMAKEL system to its intended users, which included students and faculty members of the Maritime Logistics Management program. This phase also encompassed user training sessions to facilitate the transition to the new system, ensuring that users were well-equipped to navigate and utilize the platform effectively. The implementation process was designed to minimize disruption to ongoing academic activities while maximizing the adoption of the new system. Finally, the Evaluation phase was conducted to assess the performance and impact of the SIMAKEL system. Feedback was systematically collected from users and academic supervisors to evaluate the system's effectiveness in addressing the identified challenges. This phase provided critical insights into the system's functionality and areas where further enhancements could be made. The evaluation ensured that the system not only met the initial objectives but also contributed to the overall improvement of classroom management within the program. The application of the ADDIE model in this study facilitated the structured development and successful implementation of the SIMAKEL classroom booking system, providing a solution tailored to the specific needs of the Maritime Logistics Management program at Universitas Negeri Jakarta.

3. Result and Discussion

3.1 Results

The SIMAKEL website is a digital platform designed specifically for booking classrooms in the Maritime Port and Logistics Management (MPLM) program at Universitas Negeri Jakarta (UNJ). SIMAKEL, which stands for "Siap Masuk Kelas" (Ready to Enter Class), was developed using Google Sites, integrated with Google Forms for data collection, and Google Sheets for managing and displaying classroom booking information to users. This study elaborates on the concept, implementation, and benefits of this web-based classroom reservation system, developed using the Research and Development (R&D) method with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) [16].

3.1.1 Analysis

The first phase of the ADDIE model, Analysis, involved a comprehensive assessment of the specific requirements for creating a web-based classroom booking system. During this phase, the primary focus was on identifying the needs of the users—students, faculty, and administrative staff—who would interact with the system. The system was expected to provide an easy method for booking classrooms, with real-time updates on classroom availability. Users required detailed information, including the cohort, course, instructor, classroom, booking date, and duration of usage. The main objective was to enhance the efficiency and effectiveness of the classroom booking process, reduce scheduling conflicts, and enable real-time monitoring of classroom availability. By thoroughly analyzing the current challenges faced by the MPLM program, it became clear that a digital solution like SIMAKEL could streamline operations significantly. The need for such a system was driven by the frequent overlaps in classroom scheduling, which often led to conflicts and inefficiencies. The analysis also revealed that users needed a transparent and easily accessible platform to view and book available classrooms, thus minimizing administrative burdens and optimizing the use of physical resources.

3.1.2 Design

The Design phase was crucial in laying the foundation for a system that would be both functional and user-friendly. The design process began with the creation of a distinctive logo for SIMAKEL using Canva, a popular graphic design tool. The logo was carefully conceptualized to reflect the mission of SIMAKEL. The acronym "SIMAKEL" symbolizes the readiness of students to engage in learning activities, while the open door element in the logo represents an invitation for students to enter a world of knowledge and learning. The figures aligned within the logo depict students as explorers, eager to delve into various experiences, ideas, and knowledge within the learning environment.

Figure 2. Simakel Logo

Figure 3. Simakel First Page View

The design phase also involved creating the website itself using Google Sites. The homepage was designed with a green background inspired by the colors of Universitas Negeri Jakarta, symbolizing the institution's identity. The visual elements on the site were chosen to reflect the Maritime Port and Logistics Management program, creating a cohesive and professional appearance. The interface was designed to be intuitive, ensuring that users could easily navigate the options available for classroom booking. A significant part of the design was the selection of classrooms available for booking. The website displayed information about each room, including capacity. For example, Room L5-30 can accommodate 60 students, while Room L5-31 can hold 50 students. This feature allowed users to select the appropriate room based on the size of their class, thereby improving the booking process's efficiency.

Figure 4. Classrooms on the Simakel website

Figure 5. Google Form on the Simakel website

In addition to room selection, the booking process was facilitated through Google Forms, which was embedded into the website. The form required users to input essential details such as email addresses, course representatives, WhatsApp numbers, cohort, course, and instructor details. This information was crucial for the program's administrators to monitor and record classroom usage accurately. The design of the Google Forms included short answer fields, allowing users to fill out the necessary information quickly and efficiently. Subsequently, users could select the desired classroom from the available options. The form was designed to include a dropdown menu where users could choose from a list of available classrooms. Additionally, users were prompted to select the date for their offline class. The dropdown design allowed users to easily select a date from several available options, ensuring that the booking process was straightforward and user-friendly. To prevent scheduling conflicts, an elimination system was implemented using a Google Forms add-on called Choice Eliminator. This feature ensured that once a time slot was booked by one cohort, it would no longer be available for others. For instance, if the 2021 cohort booked a classroom from 08:00 to 10:00 AM on May 8th, that time slot would be removed from the options available to other cohorts. This functionality was crucial in avoiding double bookings and ensuring that classroom management was seamless and efficient.

Figure 6. Spreadsheet of offline class usage schedule results

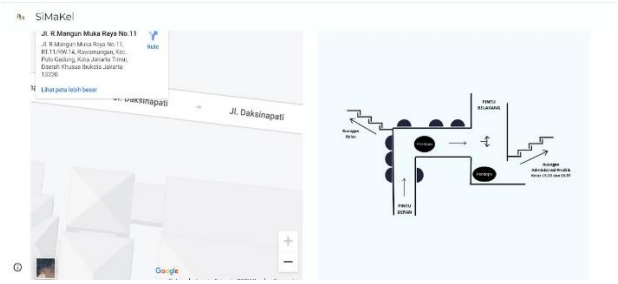

Figure 7. Small Location Plan and Google Maps of UNJ Engineering Building

The design also included a feature for viewing the transparency of classroom bookings. After users submitted their booking forms, they could revisit the SIMAKEL website to view updated booking information. This feature was made possible through an integration with Google Sheets, which displayed the booked schedules in real-time under the booking form section. The use of templates available in Google Sites allowed for smooth integration and visually appealing presentation of the data. Another important aspect of the design was the inclusion of a site map and a small map connected to Google Maps, which helped users locate their booked classrooms within the university's technical building. This feature was especially useful for new students or visitors unfamiliar with the campus layout. The map design, created using Canva, was tailored to match the actual campus layout, providing users with accurate and accessible navigation.

3.1.3 Development

The Development phase was focused on bringing the design to life by building a fully functional system. During this stage, the SIMAKEL website was constructed based on the design specifications developed earlier. This phase involved both the technical development of the website and the testing of its features to ensure everything worked as intended. The development team concentrated on ensuring that the system could handle multiple users simultaneously, provide accurate and real-time information, and be compatible with various devices, including tablets, PCs, and smartphones. One of the critical components of the development process was the integration of Google Forms with Choice Eliminator. This feature played a pivotal role in managing booking conflicts by ensuring that once a classroom was booked, it could not be selected again by another

user for the same time slot. This integration was thoroughly tested to confirm that it worked seamlessly, thereby preventing any potential overlap in classroom bookings.

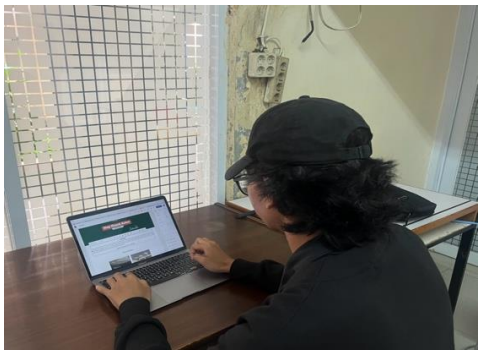

Figure 8. Simakel website creation

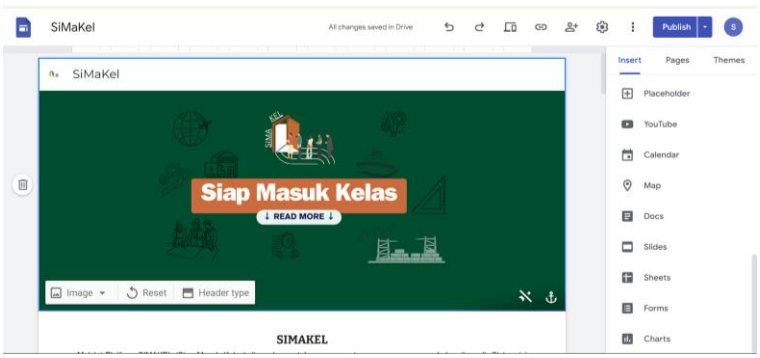

Figure 9. Display of Creating a Website Using Google Sites

The development phase also included the creation of instructional materials and user guides to assist users in navigating the new system. These materials were designed to be clear and concise, providing step-by-step instructions on how to book classrooms, check availability, and utilize the features of the SIMAKEL website effectively.

3.1.4 Implementation

Once the development phase was completed, the Implementation phase began. This phase involved the official launch of the SIMAKEL system and its introduction to the target users, including students and faculty within the Maritime Port and Logistics Management program. The implementation process included training sessions for users, where they were introduced to the features of the SIMAKEL website and taught how to use it effectively. These sessions were crucial in ensuring that users could transition smoothly from the previous manual booking system to the new digital platform. During the initial implementation, the system's performance was closely monitored, and feedback from users was collected to identify any issues or areas for improvement. For example, technical problems such as issues with the Choice Eliminator function or difficulties in navigating the website were addressed promptly to enhance user experience.

Figure 10. Use of the Simakel website by students of the Port Management and Maritime Logistics study program

3.1.5 Evaluation

The final phase, Evaluation, involved assessing the performance of the SIMAKEL system through user feedback. The evaluation was conducted using Google Forms, where users were asked to provide their opinions on various aspects of the system, including ease of use, functionality, and overall satisfaction. A total of 102 respondents from the Maritime Port and Logistics Management program participated in the survey. The evaluation results provided several key insights into the performance of the SIMAKEL system. For instance, 75.5% of respondents expressed high satisfaction with the system, highlighting the comprehensive features and user-friendly interface as major strengths. Additionally, 71.6% of respondents agreed that the system was effective and efficient in managing classroom bookings, while 73.5% noted that it successfully reduced scheduling conflicts. Moreover, 70.6% of respondents appreciated the real-time monitoring feature, which allowed them to optimize their use of available classroom space.

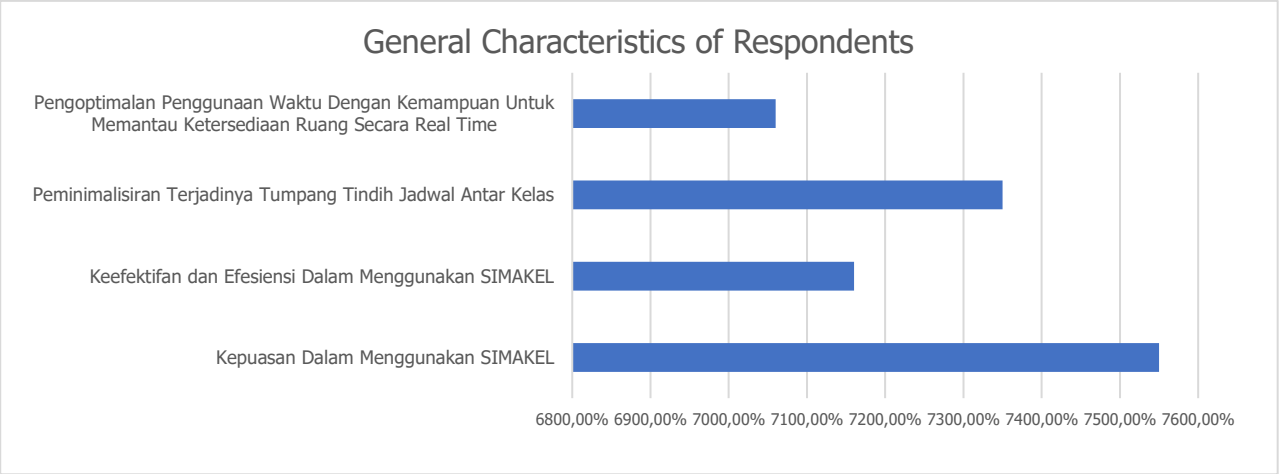

Figure 11. Simakel Website Evaluation Results Diagram

The evaluation showed an average satisfaction rate of 72.8%, indicating that the SIMAKEL system was well-received by its users and effectively addressed the challenges identified during the analysis phase. The feedback gathered during this phase also provided valuable recommendations for further improvements, such as enhancing the user interface or adding new features to better meet the evolving needs of the program. The SIMAKEL website represents a significant step forward in the management of classroom resources within the Maritime Port and Logistics Management program at Universitas Negeri Jakarta. The application of the ADDIE model throughout the development process ensured that the system met the specific needs of its users, offering a functional and user-friendly solution to the challenges of classroom booking. The design, development, and implementation phases were executed with careful attention to detail, resulting in a platform that significantly enhances the efficiency of classroom bookings, reduces scheduling conflicts, and provides real-time access to classroom availability. The positive feedback from the evaluation phase underscores the system's effectiveness and its potential for further development to meet the changing needs of the program. As the SIMAKEL system continues to evolve, it will play a crucial role in supporting the academic activities within the program, providing a reliable and efficient tool for managing classroom resources.

3.2 Discussion

The development and implementation of the SIMAKEL (Siap Masuk Kelas) website represent a significant innovation in the management of classroom resources within the Maritime Port and Logistics Management (MPLM) program at Universitas Negeri Jakarta. This discussion will explore the critical aspects of the system's design, development, implementation, and evaluation, as well as the implications of its use for both users and the broader academic environment. The design and development of SIMAKEL were guided by the ADDIE model, a structured approach that ensured each stage of the project was meticulously planned and executed. The Analysis phase identified the primary challenges facing the MPLM program, including frequent scheduling conflicts, inefficient manual booking processes, and a lack of real-time information on classroom availability. These challenges highlighted the need for a robust digital solution that could streamline classroom management and provide users with a seamless experience. In the Design phase, the focus was on creating a user-centered interface that would be intuitive and accessible to all users, including students, faculty, and administrative staff. The design incorporated essential features such as room selection, booking forms, and real-time updates on classroom availability. The use of Google Sites, combined with Google Forms and Sheets, provided a practical and cost-effective platform for developing the system. The integration of Choice Eliminator within the Google Forms was particularly innovative, as it ensured that once a classroom was booked, it could not be double-booked, thus preventing scheduling conflicts. The Development phase translated these design concepts into a functional system. This phase was critical in ensuring that the system's technical aspects—such as data handling, user interface, and integration with existing platforms—were implemented correctly. The use of Google Sites provided an easily customizable environment, which was essential in meeting the specific needs of the MPLM program. The development team also ensured that the system was scalable and could handle multiple users simultaneously, which was crucial for a program with a large student body.

The Implementation phase involved the rollout of SIMAKEL to its intended users. This phase was particularly challenging because it required users to transition from a manual, paper-based system to a fully digital platform. The success of this phase relied heavily on the effectiveness of the training sessions provided to users. These sessions were designed to familiarize users with the new system, teaching them how to navigate

the platform, book classrooms, and access real-time information on room availability. User adoption of the SIMAKEL system was generally positive, as reflected in the evaluation results. The majority of users reported that the system was easy to use and significantly more efficient than the previous manual processes. The real-time updates provided by the system were particularly well-received, as they allowed users to make informed decisions about classroom bookings and avoid scheduling conflicts. However, some users initially faced challenges in navigating the new platform, particularly those who were less familiar with digital tools. These challenges were addressed through additional support and resources, ensuring that all users could fully utilize the system.

The Evaluation phase provided critical insights into the effectiveness of the SIMAKEL system. The feedback collected from users highlighted several key strengths of the system, including its user-friendly interface, the elimination of scheduling conflicts, and the provision of real-time updates on classroom availability. The majority of users expressed satisfaction with the system, with many noting that it had significantly improved the efficiency of classroom management within the MPLM program. However, the evaluation also identified areas for improvement. For instance, some users suggested enhancements to the user interface to make it even more intuitive, particularly for those who were not as comfortable with technology. Additionally, there were suggestions for expanding the system's capabilities, such as integrating it with other university systems or adding features that could further streamline administrative tasks. These recommendations provide valuable direction for the future development of SIMAKEL.

The implementation of SIMAKEL has broader implications for academic management at Universitas Negeri Jakarta. The system has demonstrated that digital solutions can significantly enhance the efficiency and effectiveness of resource management within academic programs. By reducing the time and effort required to manage classroom bookings, SIMAKEL allows both faculty and students to focus more on academic activities rather than administrative tasks. This shift not only improves the overall learning experience but also supports the university's broader goals of digital transformation and innovation. Moreover, the success of SIMAKEL could serve as a model for other academic programs within the university, encouraging the adoption of similar digital tools across different departments. As educational institutions increasingly embrace digital technologies, systems like SIMAKEL will become essential in supporting the complex logistical needs of modern academic environments. Looking forward, the future development of SIMAKEL should focus on enhancing its features and expanding its capabilities to meet the evolving needs of its users. This could include integrating the system with other university platforms, such as student information systems or learning management systems, to provide a more comprehensive solution for academic management. Additionally, there is potential to scale the system for use across other departments or even other universities, adapting the platform to suit different institutional. The scalability of SIMAKEL is one of its key strengths. Because it is built on widely accessible and flexible platforms like Google Sites, Forms, and Sheets, the system can be easily adapted to meet the needs of different programs or institutions. This scalability, combined with the positive feedback from users, suggests that SIMAKEL could have a significant impact beyond the MPLM program, contributing to broader efforts to modernize academic management across educational institutions.

The SIMAKEL system represents a significant advancement in the management of classroom resources within the Maritime Port and Logistics Management program at Universitas Negeri Jakarta. Through a carefully structured development process guided by the ADDIE model, the system has successfully addressed the challenges of classroom booking, reduced scheduling conflicts, and provided real-time updates to users. The positive reception of the system among users highlights its effectiveness and potential for further development. The success of SIMAKEL underscores the importance of digital tools in modern academic management. As universities continue to evolve and embrace digital transformation, systems like SIMAKEL will become increasingly important in supporting the efficient and effective management of academic resources. The future development of SIMAKEL should focus on expanding its capabilities and ensuring its scalability to meet the needs of a broader range of users. By doing so, SIMAKEL can continue to contribute to the improvement of academic management not only at Universitas Negeri Jakarta but potentially across other educational institutions as well.

4. Related Work

The development and implementation of digital systems for classroom and resource management have been explored in various educational. These studies highlight the growing importance of efficient scheduling and booking systems in academic institutions, particularly in managing limited resources and ensuring smooth operations. Febrianti (2022) presented a study on the development of a course booking system aimed at

assisting tutoring sessions for elementary and junior high schools in Indonesia. This system, which incorporated both front-end and back-end functionalities, was designed as a mobile application to make the booking process more accessible and user-friendly for its target audience. The study emphasizes the role of mobile technology in improving administrative efficiency in educational settings, a principle that underlies the development of SIMAKEL [1]. Hartanti *et al*. (2021) examined the design of a mobile-based classroom control application. Their research focused on addressing the challenges of classroom management within higher education, particularly in reducing scheduling conflicts and improving the utilization of classroom resources. The mobile application developed in their study serves as a precursor to systems like SIMAKEL, demonstrating the potential of mobile technology in enhancing educational resource management [4].

Kujanpaa (2015) conducted a case study on developing a booking system for the Tuas Cisco Laboratory. This study provided insights into the customization of booking systems to meet specific institutional needs. The focus on optimizing resource use in a specialized environment is directly relevant to the design considerations of SIMAKEL, which aims to cater to the unique demands of the Maritime Port and Logistics Management program at Universitas Negeri Jakarta [5]. The review by Mosaic (2013) on room booking systems at the University of Cambridge offers a critical analysis of the challenges and limitations of existing systems. This review underscores the necessity of robust and scalable solutions capable of handling the complexities of academic scheduling in large institutions. The findings of this review align with the objectives of SIMAKEL, which seeks to provide a reliable platform for managing classroom bookings and preventing scheduling conflicts [8]. Asrori and Nuryani (2021) explored the development of a web-based meeting room booking system using the CodeIgniter framework. Their study highlights the technical aspects of creating a booking system, particularly the importance of a user-friendly interface and reliable back-end infrastructure. The lessons learned from this study are applicable to SIMAKEL, especially in terms of ensuring that the system is both functional and accessible to users [10]. Mustofa *et al*. (2021) developed a web-based laboratory reservation system that shares similarities with classroom booking systems. Their research emphasized the integration of booking systems with other institutional platforms, which is a consideration for future developments of SIMAKEL. Integrating various academic and administrative systems can create a more cohesive and efficient environment, facilitating smoother operations across the institution [11]. Ikbal and Mauluddin (2019) focused on usability testing of a classroom booking information system integrated with course scheduling. Their findings highlight the critical role of user experience in the success of booking systems. This study reinforces the importance of intuitive design and ease of use, principles that were central to the development of SIMAKEL to ensure high adoption rates and user satisfaction [15]. These studies collectively illustrate the importance of well-designed digital systems in managing educational resources effectively. The development of SIMAKEL draws on these principles, aiming to create a system that not only addresses the specific needs of the MPLM program at Universitas Negeri Jakarta but also contributes to the broader goal of enhancing educational management through technology.

5. Conclusion

The development and implementation of the SIMAKEL system have demonstrated the significant impact that well-designed digital tools can have on the management of educational resources. By employing the ADDIE model, the project was able to systematically address the specific needs of the Maritime Port and Logistics Management program at Universitas Negeri Jakarta. The system has successfully enhanced the efficiency of classroom bookings, reduced scheduling conflicts, and provided real-time access to critical information, ultimately improving both administrative processes and the overall user experience. The positive feedback from users indicates that SIMAKEL has effectively met its objectives, while also highlighting potential areas for future development, such as further integration with other institutional systems. SIMAKEL stands as a testament to the importance of adopting technological solutions in academic management, paving the way for more streamlined and effective educational practices.

References

[1] Febrianti, E. (2022). Development of course booking system (Front-end & back-end) based on mobile application to help tutoring elementary and junior high school in Indonesia. *[CEPAT] Journal of Computer Engineering Progress, Applications and Technology*, 1(01), 34. https://doi.org/10.25124/cepat.v1i01.4852

[2] Gulo, E. (2021). Inovasi IPTEK dan mutu pendidikan dan berintegritas. *Seminar Nasional Hukum Universitas Negeri Semarang*, 7(2), 523–546.

[3] Darmawati, D. (2023). Analisis manajemen pembelajaran pendidikan pancasila dalam meningkatkan pemahaman nilai-nilai pancasila pada mahasiswa semester I prodi pendidikan jasmani Unimerz tahun 2022. *Journal of Innovation Research and Knowledge*, 2(10), 3937–3946. https://doi.org/10.53625/jirk.v2i10.5239

[4] Hartanti, D., Pratama, B., & Handayani, D. (2021). Perancangan aplikasi pengendalian ruang kelas berbasis mobile. *Journal of Information and Information Security*, 2(1), 1–10. https://doi.org/10.31599/JIFORTY.V2I1.591

[5] Kujanpaa, J. (2015). Developing a booking system: Case: Tuas Cisco Laboratory. Retrieved from https://www.theseus.fi/bitstream/handle/10024/97700/Juuso_Kujanpaa.pdf;jsessionid=075AB9A4295015B7CD94E2048BEE1E1E?sequence=1

[6] Budiyatno, K. C., Pascasarjana, P., Administrasi, K., R. Sakit, & Administrasi, D. (2023). Transformasi digital sebagai bagian dari strategi pemasaran di Rumah Sakit Siloam Palangka Raya tahun 2020. *Journal of Administration of Indonesian Hospitals*, 8(2), 66–73. https://doi.org/10.7454/arsi.v8i2.5547

[7] Scheduling, S., & Officer, C. O. (2024). Timetabling procedure. *January 2018*, 1–22.

[8] Mosaic (EU) Ltd. (2013). Review of room booking systems: The University of Cambridge. Retrieved from https://www.prao.admin.cam.ac.uk/files/roombookingreport.pdf

[9] Agustian, H., & Jumaryadi, Y. (2019). Sistem informasi reservasi kelas kesehatan dan pengelolaan studio (Studi kasus studio Headspace Liza Natalia). *JUST IT: Journal of Information Systems, Information Technology, and Computers*, 10(1), 6–12. Retrieved from https://jurnal.umj.ac.id/index.php/just-it/article/view/4171

[10] Asrori, K., & Nuryani, E. (2021). Sistem informasi pemesanan ruangan meeting berbasis web app menggunakan framework CodeIgniter pada PT Barata Indonesia – Cilegon, Banten. *Journal of Information Systems and Information*, 4(1), 26–42. https://doi.org/10.47080/simika.v4i1.1102

[11] Mustofa, H., Ali, T. N., & Fauzan, R. (2021). Perancangan sistem informasi reservasi laboratorium TI UIN Walisongo berbasis web. *Walisongo Journal of Information Technology*, 3(1), 19–28. https://doi.org/10.21580/wjit.2021.3.1.8492

[12] Tegeh, I. M., & Kirna, I. M. (2013). Pengembangan bahan ajar metode penelitian pendidikan dengan ADDIE model. *Jurnal IKA*, 11(1), 16. Retrieved from https://ejournal.undiksha.ac.id/index.php/IKA/article/view/1145

[13] Cahyadi, R. A. H. (2019). Pengembangan bahan ajar berbasis ADDIE model. *Halaqa Islamic Education Journal*, 3(1), 35–42. https://doi.org/10.21070/halaqa.v3i1.2124

[14] Hutrianto, H., & Tujni, B. (2020). Pemodelan aplikasi booking tiket menggunakan Unified Modeling Language. *Jusikom: Journal of Computer Systems Musirawas*, 5(2), 106–115. https://doi.org/10.32767/jusikom.v5i2.996

[15] Ikbal, I., & Mauluddin, S. (2019). Usability measurement of classroom booking information system integrated with course scheduling information system. *IOP Conference Series: Materials Science and Engineering*, 662(2). https://doi.org/10.1088/1757-899X/662/2/022093

[16] Sama, H., & Eric. (2024). Pengembangan website e-learning berdasarkan preferensi mahasiswa UIB dengan metode research and development. *Zo. Journal of Information Systems*, 6(1), 1–13. https://doi.org/10.31849/zn.v6i1.16817

[17] Mukti, W. M., Puspita, Y. B., & Anggraeni, Z. D. (2020). Media pembelajaran fisika berbasis web menggunakan Google Sites pada materi listrik statis. *Webinar Pendidikan Fisika 2020*, 5(1), 51–59. Retrieved from https://jurnal.unej.ac.id/index.php/fkip-epro/article/view/21703/9143%0Ahttps://sites.google.com/view/fisikakuyess.