
Development of a Web-Based Counseling Information System at UBHINUS Malang to Improve Service Effectiveness and Efficiency

Dea Rismi Oktoris^{1*}, Anita², Windarini Cahyadiana³

^{1,2,3} Information Systems, Faculty of Science and Technology, Jl. Raya Tidar No.100, Karangbesuki, Kec. Sukun, Kota Malang, Jawa Timur 65146, Indonesia

Keywords

Web-Based Information System, Counseling, Laravel, MySQL, Efficiency, Student Services, UBHINUS

***Correspondence Email:**
dededear@email.com

Abstract

This study aims to address the inefficiencies and lack of transparency in the academic and non-academic counseling process at Universitas Bhinneka Nusantara (UBHINUS) Malang, which was previously managed manually using excel. The objective was to design and develop a centralized web-based counseling information system that enhances service effectiveness and efficiency while ensuring better accessibility and data management. Data were collected through interviews with counseling staff to identify existing challenges and user needs. The system was developed using Laravel 12 and MySQL, implementing key features such as schedule management, independent student submissions, complaint categorization, counseling history tracking, and WhatsApp-based notifications. Additionally, lecturers and heads of study programs were given the ability to suggest students for counseling, fostering a more proactive support mechanism. The Black Box testing method was employed to evaluate functionality, and results confirmed that all system features operated as intended. The findings demonstrate that the platform significantly improved the structure, efficiency, and user-friendliness of counseling services compared to the manual system. The originality of this research lies in integrating role-based access and WhatsApp notifications to ensure more responsive communication between students and staff. Future development is recommended to integrate the system with the university's academic information system (SAKTI) and to incorporate a notification response tracking feature to further enhance interactivity and service quality.

1. Introduction

Higher education often involves various challenges that can hinder students' academic progress. These challenges encompass academic, social, and psychological issues that require professional intervention through counseling and guidance services. Such services aim to help students overcome difficulties and achieve academic success.

At Universitas Bhinneka Nusantara (UBHINUS) Malang, the counseling and guidance unit serves as a support system for students facing personal or academic problems. However, the management of counseling data and schedules has long relied on manual methods using Microsoft Excel, which presents several weaknesses. First, it is difficult to view a student's complete counseling history. Second, students who wish to apply for counseling independently lack access to available time slots to meet with the counseling staff. Third, heads of study programs (Kaprodin) have no access to view counseling outcomes. Lastly, counseling requests are often submitted verbally, which can lead to inefficiencies and data loss.

To address these limitations, a web-based information system was developed to facilitate the management of counseling activities. The system is designed to improve the effectiveness and efficiency of counseling services by providing features for comprehensive data recording, scheduling management, and transparent communication among users. Specifically, it enables staff to view complete counseling records for each student, and allows academic leaders such as the Head of Study Program and the lecturers to recommend students who may require counseling sessions.

Grounded in these theoretical perspectives, this research aims to integrate technology into counseling management at UBHINUS Malang, transforming manual administrative tasks into a digital platform that supports student well-being and institutional efficiency.

1.1 Literature Review

1.1.1 Review of Previous Research

Previous studies have emphasized the crucial role of technology in improving counseling and academic support systems across educational institutions. Mursityo, Pramono, and Ogi (2020) developed a web-based scheduling system for student-lecturer consultations integrated with Google Calendar. Their research demonstrated that digital scheduling could enhance communication and coordination between students and lecturers; however, the system lacked comprehensive record management features to support counseling documentation.

In a related study, Hafiz et al. (2020) designed a web-based counseling system for vocational schools, focusing on the management of student data and counseling records. Although the system improved data storage efficiency, it offered limited interactivity and did not fully address the multi-user needs of modern counseling environments. Similarly, Nabila and Ichwani (2022) proposed an e-counseling platform using a prototype model for psychology students. The platform prioritized appointment scheduling and feedback rating but lacked administrative-level access control, limiting its scalability for institutional deployment.

Further, Djabari, Arwani, and Putra (2023) developed a mobile-based counseling management system at FILKOM Universitas Brawijaya. Their findings highlighted strong usability and accessibility but revealed weaknesses in system integration and institutional data linkage, which constrained broader application. These results indicate that while prior studies have successfully introduced digitalization in counseling services, most systems remain partially fragmented and lack unified access across multiple user roles.

Building upon these earlier findings, the present study aims to develop a web-based counseling information system that offers more advanced functionalities, including multi-role user management, automated WhatsApp notifications, comprehensive counseling record tracking, and lecturer-initiated student recommendations. Through these improvements, this research seeks to enhance service transparency, coordination efficiency, and overall digital integration within the counseling process at UBHINUS Malang.

1.1.2 Theoretical Basis

1.1.2.1 Counseling

The concept of counseling itself has been defined by several scholars. E. G. Williamson describes counseling as a process that helps individuals understand and overcome personal, social, academic, and career-related problems, emphasizing holistic personal development rather than merely problem-solving (Lesmana, 2021). S. Super views career counseling as a lifelong process that assists individuals in understanding and managing their career development, helping them make occupational choices and adjustments throughout various life

stages (Lestari, 2020). Meanwhile, Garry R. Walz and Jeanne C. Bleuer define counseling as a systematic helping process that provides emotional support, information, and guidance to individuals or groups to enhance self-understanding, interpersonal skills, and problem-solving abilities (Dini, 2021).

1.1.2.2 Laravel

The Laravel framework is an open-source and free PHP-based web framework created by Taylor Otwell for developing web applications that implement the Model-View-Controller (MVC) architectural pattern. The MVC structure in Laravel slightly differs from the conventional MVC pattern. In Laravel, a routing mechanism acts as an intermediary between user requests and the controller, meaning that the controller does not directly receive the request from the user (Yudanto et al., 2017).

1.1.2.3 Mysql

MySQL is a Relational Database Management System (RDBMS) software that can manage databases efficiently and at high speed. It is capable of storing large volumes of data, allowing access by multiple users simultaneously and supporting synchronization (Angraina Fitri & Sulistio, 2020). MySQL is highly suitable for use because it provides robust security layers, including host name verification, access permissions at the subnet mask level, password protection, and, most importantly, it is free and open-source (Sama & David, 2021).

1.1.2.4 Website

The web is defined as a collection of pages used to display information, text, still images, animations, sound, and a combination of static and dynamic elements in an interconnected structure through web page links (hyperlinks) (Lesmana & Silalahi, 2020). Meanwhile, according to Angraina Fitri and Sulistio (2020), a website is a collection of pages that present information in the form of text data, image data, animation data, sound, video, or a combination of all of these elements.

2. Research Methods

In this study, the main method of data and information collection was interviews. Interviews were conducted with the counseling and guidance staff within the Student Affairs Unit at Universitas Bhinneka Nusantara (UBHINUS) Malang to gather information regarding the existing counseling workflow, the challenges encountered, and the requirements for system improvement.

The data analysis method applied in this research was cause-and-effect analysis. This analytical approach was used to identify the underlying factors contributing to the weaknesses of the current manual system and to determine the most appropriate solutions to overcome these issues. The analysis results served as the foundation for designing the web-based counseling information system, ensuring that the proposed solution directly addressed the identified causes of inefficiency.

System Design

This study includes the design and development of a web-based Counseling Schedule Management Information System at UBHINUS Malang, carried out through several stages of system design. The following are the stages involved in designing the counseling schedule management information system:



Fig 1. Use case diagram of the Web-Based Counseling Information System

Data Design

The design of the Entity Relationship Diagram (ERD) is an essential stage in system development, used to model the relationships between entities within the database. The ERD helps visualize the data structure, including entities, their attributes, and the relationships that connect them.

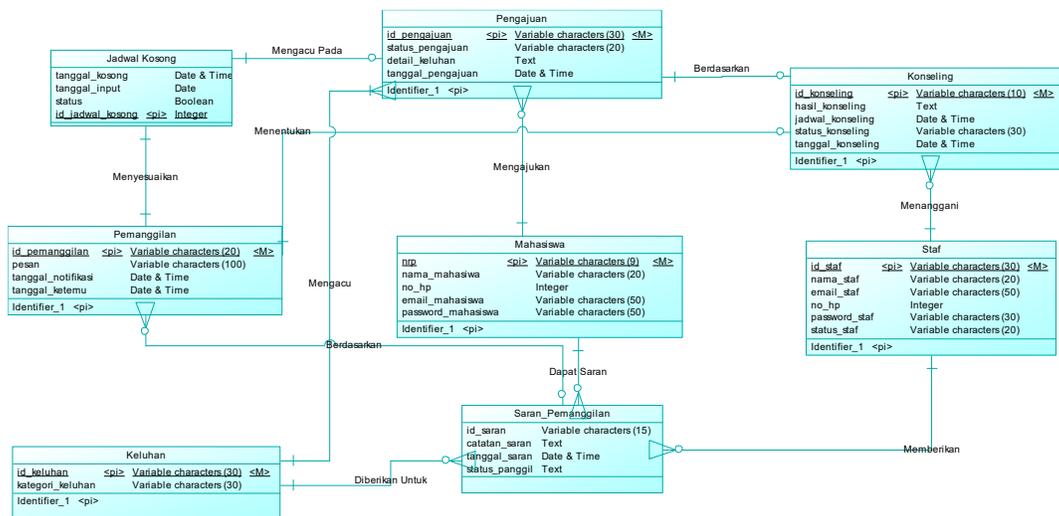


Fig 2. ERD of the Web-Based Counseling Information System

3. Result and Discussion

System testing was conducted using the Black Box Testing method to evaluate the conformity of system functions with user requirements. The testing covered all main system features, including counseling requests, scheduling, session result entry, student suggestions, and notification-based calling through WhatsApp. The results of the testing indicated that all features operated according to the design specifications and produced the expected output, as summarized in the table below.

Table 1. Blackbox testing

Feature Tested	Test Steps	Expected Output	Result
Counseling Request Submission	Select available schedule, choose complaint category, fill in complaint details, then click “Submit”	Request is successfully saved and appears in student request history and staff dashboard	Passed
Counseling Result Input	Enter counseling notes and click “Save”	Counseling result is saved and displayed in the student's counseling history	Passed
Student Recommendation	Select student, choose complaint category, enter complaint details, then click “Recommend”	Recommendation is successfully submitted and appears in the staff dashboard	Passed
Student Notification (Calling)	Select schedule and student, then click “Call”	Call notification is successfully sent to the student via WhatsApp	Passed
Counseling History	Click “Counseling History” on the selected student data	All counseling records for the selected student are displayed completely	Passed

In addition to technical testing, a user satisfaction survey was conducted to evaluate users' perceptions of the system. The survey involved students, lecturers, and counseling staff, using a five-point Likert scale (1–5) to assess aspects such as ease of use, clarity of information, and the relevance of features to user needs.

The results of the survey, presented in Figure 4.1, show that the majority of respondents rated the system between 4 and 5, indicating a high level of satisfaction with its usability and performance.

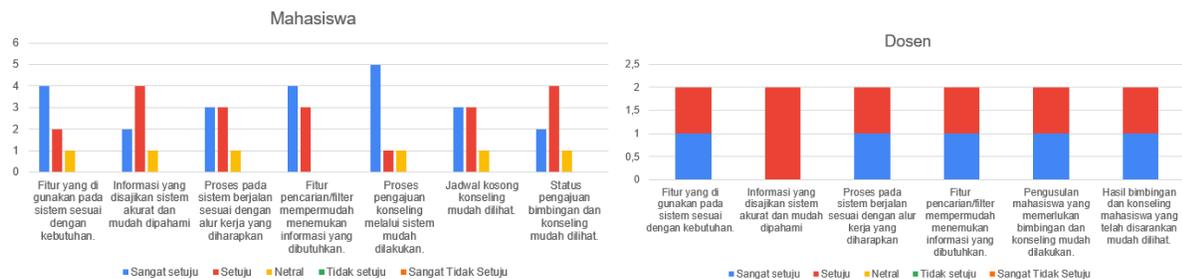


Fig 3. User Satisfaction Survey Results

Based on the results of the functional testing and user satisfaction survey, it can be concluded that the Web-Based Counseling Information System has successfully met user requirements from both technical and usability perspectives. The Black Box Testing results demonstrated the system's functional reliability, while the survey responses revealed a positive reception from students, lecturers, and counseling staff regarding the system's ease of use and effectiveness. These findings indicate that the developed system significantly enhances the efficiency and effectiveness of counseling services at UBHINUS Malang.

4. Conclusions

Based on the development and testing of the web-based Counseling Information System at UBHINUS Malang, it can be concluded that the system successfully meets user needs and functions effectively according to its design objectives. The system supports the management of counseling schedules, student submissions, counseling result recording, and communication between students, lecturers, and counseling staff (BK). It also integrates various user roles—students, BK staff, study program heads, lecturers, and the Vice Rector III—allowing access and functions according to each role’s responsibility. The implementation of WhatsApp-based notifications through wa.me links further enhances communication efficiency without the need for an external API.

The results of Black Box Testing confirm that all features work properly, while user satisfaction surveys from students, lecturers, and BK staff indicate a high level of acceptance in terms of usability, clarity of information, and functionality. Therefore, the system is declared feasible to be implemented as a tool to improve the effectiveness and efficiency of counseling services at UBHINUS Malang. Future research is recommended to integrate the system with the campus academic platform (SAKTI) and develop a response-tracking feature for WhatsApp notifications to enable more interactive two-way communication between users and staff.

5. References

- D. Efendi, I. Supheni, and R. W. Astutik, “Peran Sistem Informasi Akuntansi dan Kinerja Karyawan dalam Penguatan Pengendalian Internal di Koperindo Jatim Cabang Nganjuk,” *Jurnal Ekonomi dan Bisnis*, vol. 5, no. 2, pp. 112–120, 2013.
- Dini, “Konsep Bimbingan dan Konseling dalam Perspektif Modern,” *Jurnal Konseling Indonesia*, vol. 9, no. 1, 2021.
- Djabari, Arwani, and Putra, “Mobile-Based Counseling Management System at FILKOM Universitas Brawijaya,” *Jurnal Teknologi dan Sistem Informasi*, vol. 12, no. 2, 2023.
- Hafiz et al., “Rancang Bangun Sistem Konseling Berbasis Web pada SMK,” *Jurnal Pendidikan dan Teknologi Informasi*, vol. 4, no. 1, 2020.
- Lesmana, “Definisi dan Konsep Konseling Menurut Williamson,” *Jurnal Bimbingan dan Konseling*, vol. 8, no. 2, 2021.
- Lesmana and Silalahi, “Definisi Web dalam Pengembangan Media Digital,” *Jurnal Teknologi Informasi*, vol. X, no. X, 2020.
- Lestari, “Bimbingan dan Konseling Karir Menurut Teori Super,” *Jurnal Psikologi Pendidikan*, vol. 5, no. 1, 2020.
- Mursityo, Pramono, and Ogi, “Development of a Web-Based Scheduling System for Student–Lecturer Consultations Integrated with Google Calendar,” *Jurnal Teknologi Informasi dan Komunikasi*, vol. 9, no. 1, 2020.
- Nabila and Ichwani, “Development of an E-Counseling Platform Using a Prototype Model,” *Jurnal Psikologi*, vol. 7, no. 1, 2022.
- Perry et al., *Research Methods for Social Sciences*, New York: McGraw-Hill, 2003.
- Sama and David, “Keamanan MySQL dalam Pengelolaan Basis Data,” *Jurnal Teknologi Informasi dan Database*, vol. 3, no. 1, 2021.
- S. Super, “Career Development Theory,” *Journal of Career Counseling*, vol. 10, no. 3, 2020.
- Yudanto et al., “Pemanfaatan Laravel sebagai Framework Website Berbasis MVC,” *Jurnal Sistem Informasi*, vol. 6, no. 2, 2017.