

DESIGNING SMART PONDOK FOR STUDENT FINANCIAL MONITORING USING THE USER-CENTRED DESIGN METHOD

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Abstrak

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Islamic boarding schools, as religion-based educational institutions, face challenges in managing student financial administration, especially when still relying on manual systems. This study aims to design and develop a digital-based Smart Pondok system with student financial management features at Pondok Pesantren Mathaliul Anwar, Sumenep Regency. The issues raised include the limitations of manual administrative and financial systems, the high risk of human error, as well as the lack of transparency and data accessibility for students and their guardians. The method used in this research is User-Centered Design (UCD), which emphasizes user needs and convenience in the system design process. The implementation results show that the system can perform main functions such as admin authentication, tuition (SPP) transaction input, cooperative savings management, as well as withdrawal and real-time transaction history tracking. Functional testing proves that all features work according to user requirements. In addition, the system provides higher transparency and easier access to financial information for student guardians. Thus, this system has been proven to improve efficiency, accuracy, and transparency in student financial management within Islamic boarding schools.

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INTRODUCTION

Islamic boarding schools are educational institutions that play a crucial role in shaping a generation with good morals and knowledge. However, in terms of administration and financial management of students (santri), many pesantren still rely on manual systems, such as written financial records and poorly organized data management. This often leads to inefficiency, the potential for data loss, and obstacles in the financial reporting process (Hakim & Riyantomono, 2022).

The financial system in pesantren in Sumenep still depends on manual records and limited physical access, which hinders students and their guardians in obtaining financial



information. The lack of digital features, such as smart digital recording, also makes the process less optimal (CAHYANI, n.d.). To overcome this problem, the implementation of a Smart Pondok with modern features is needed to improve accessibility and the quality of financial record management for students, using the User-Centered Design (UCD) method to ensure that the system is designed according to user needs, making it more effective in supporting digital financial management (Nadhif et al., 2021).

Smart Pondok is a system that provides daily financial recording features for students based on the web, so that financial issues of students can be properly documented, where guardians can access their children's financial history through records accessible online with internet connectivity. Smart Pondok enables users to access information online from anywhere, thereby enhancing the ease and accessibility of data for Islamic boarding schools (Nurdiana et al., 2023).

Pondok Pesantren Mathailul Anwar in Sumenep Regency faces similar challenges. With the rapid development of technology, a digital-based system is needed to improve efficiency in managing student data and pesantren finances (Meivira & Anwar, 2025). The Smart Pondok concept emerges as an innovative solution to enhance the quality of pesantren management by integrating information technology into its operations.

One approach that can be applied in the development of this system is User-Centered Design (UCD), which emphasizes the needs and experiences of users in designing digital solutions (Karimullah et al., 2024). This method ensures that the developed system truly aligns with user requirements, whether they are pesantren administrators, students, or other stakeholders. With this approach, it is expected that the resulting system can facilitate student financial record-keeping, improve the transparency of fund management, and provide better accessibility for all parties in the pesantren environment (Nadhif et al., 2021).

Based on this, this study aims to design and develop a Smart Pondok with digital-based student financial management features at Pondok Pesantren Mathailul Anwar, Sumenep Regency, using the User-Centered Design (UCD) method. It is expected that this system can improve efficiency, accuracy, and transparency in the administration and financial management of pesantren.

RESEARCH METHODS

Research design

This study employed a system engineering approach using the User-Centered Design (UCD) method. The research stages were conducted iteratively, starting from problem identification, system design, implementation, and evaluation to ensure the system meets user needs.

Research Subjects

The subjects of this research were the guardians of students (santri) at Pondok Pesantren Mathailul Anwar, Sumenep Regency. A total of 40 guardians were selected as the research sample to provide assessments of the Smart Pondok application through a User Acceptance Test (UAT).

Research Instruments

The research instruments consisted of hardware, software, and data collection tools.

- **Hardware:** Lenovo Thinkpad T480 laptop (Intel Core i5-8350U, 8GB RAM).
- **Software:** Visual Studio Code as a code editor, XAMPP for local server, and Canva for designing the prototype interface.
- **Data collection tools:** A five-point Likert scale questionnaire and unstructured interview guidelines.

Data Collection Techniques

Data were collected through:

1. **Observation** of the student financial administration process at the pesantren.
2. **Unstructured interviews** with pesantren administrators and students to explore system requirements.
3. **Digital questionnaires** distributed via Google Forms to gather guardians' perceptions of the Smart Pondok application.

Data Analysis

Quantitative data from the questionnaires were analyzed using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The mean score and percentage were calculated to measure user satisfaction with the application. The analysis assessed aspects such as ease of use, interface design, access speed, stability, and information accuracy.

Evaluation

Evaluation was conducted using the User Acceptance Test (UAT). The results showed that the application achieved an average score of 4.3 (very good category) with a satisfaction level of 86%. This indicates that the Smart Pondok application effectively supports digital student financial management, although further development is still required to improve system stability.

RESULTS AND DISCUSSION

Characteristics of respondents

This study involved 40 guardians of students (santri) from Pondok Pesantren Mathaliul Anwar, Sumenep Regency as respondents. All respondents were directly involved in the student financial management system through the Smart Pondok application.

Data Analysis Results

The application was tested using a five-point Likert scale questionnaire to evaluate several aspects, namely:

1. Ease of use.
2. Interface design.
3. Access speed.
4. Application stability.
5. Accuracy of the information displayed.

Testing Instrument

The questionnaire consisted of eight statements designed to measure respondents' satisfaction. Respondents provided assessments on a scale of 1 = strongly disagree to 5 = strongly agree.

Description of Results

Based on the data analysis, all indicators obtained average scores above the “Agree” category. The highest score was achieved in the ease of use aspect (4.53), while the lowest score was found in application stability (4.28), although still within the “Good” category.

Table 1. Average Scores of Each Questionnaire Statement

Pernyataan	Skala	Jumlah Responden	Jumlah Skor
1	1	0	0
	2	0	0
	3	7	21
	4	15	60
	5	18	90
Jumlah		40	171
2	1	0	0
	2	0	0
	3	3	9
	4	20	80
	5	17	85
Jumlah		40	174
3	1	0	0
	2	0	0
	3	2	6
	4	26	104
	5	12	60
Jumlah		40	170
4	1	0	0
	2	0	0
	3	10	30
	4	15	60
	5	15	75
Jumlah		40	165
5	1	0	0
	2	0	0
	3	9	27
	4	20	80
	5	11	55
Jumlah		40	164
6	1	0	0
	2	0	0
	3	19	15
	4	16	64
	5	5	95
Jumlah		40	174
7	1	0	0
	2	0	0
	3	7	21

	4	16	64
	5	17	85
Jumlah		40	170
	1	0	0
	2	0	0
8	3	3	9
	4	13	52
	5	24	120
Jumlah		40	181

When the overall average score is converted into a percentage, the result is 86%, which falls into the “Very Good” category. This indicates that the Smart Pondok application was well received by users.

Interpretation of results

These findings confirm that the Smart Pondok application provides tangible benefits in supporting student financial management. Transactions that were previously conducted manually can now be carried out more quickly, accurately, and transparently. Guardians also gain easier access to their children’s financial information in real-time, thereby enhancing trust in the pesantren’s financial management.

Discussion

The results of this study are consistent with previous research, which demonstrated that the implementation of digital information systems in Islamic boarding schools can improve administrative efficiency and reduce the risk of recording errors (Hakim & Riyantomo, 2022). The application of the User-Centered Design (UCD) method also proved effective in producing a system that meets user needs

Although the application generally met user expectations, the stability aspect still requires improvement to ensure optimal performance under various conditions. Therefore, future development can focus on optimizing system performance and adding more interactive features to further enhance user satisfaction.

CONCLUSION

Research Conclusion

This study successfully designed and implemented a web-based Smart Pondok application for student financial management at Pondok Pesantren Mathaliul Anwar, Sumenep Regency. The trial results using a Likert scale questionnaire showed an average satisfaction level of 86% (very good category). The application has proven effective in supporting student financial transactions, improving the accuracy of record-keeping, and providing transparency and real-time access to financial information for guardians.

Implications

The implementation of the Smart Pondok application offers practical benefits such as administrative efficiency, transparency in financial management, and easier access to financial information. This can increase guardians’ trust in the pesantren’s administrative system and encourage the modernization of management through information technology in Islamic boarding schools.

Research Limitations

This study was conducted only at one pesantren with a limited number of respondents (40 guardians), so the findings cannot yet be generalized to all Islamic boarding schools. In addition, the application's stability has not been fully optimized when tested under more complex usage conditions.

Suggestions for Future Research

Future research may expand the number and diversity of respondents, test the application in various types of Islamic boarding schools, and develop additional interactive features. Furthermore, future studies can focus on improving system stability and integrating with external financial services to enhance the application's functionality.

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