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An evaluation of teacher acceptance of a school health information system in Serang City

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ABSTRACT

This study examines teachers' acceptance of KesSekolah, a school health information system developed to support the School Health Units (UKS) program in junior high schools in Serang City. The system's acceptance was measured using User Acceptance Testing (UAT), which included two evaluation categories: acceptance of learning media and acceptance of learning materials. Each category contained structured statements designed to assess specific user needs. The findings show that the system was well accepted, with high scores for usability, reliability, and effectiveness. The highest score was for the system's usefulness in supporting the learning process (98.34%), followed by the quality of learning materials (95.82%) and their relevance to educational needs (91.98%). The system's reliability received a score of 87.9%, showing it is stable for regular use. In addition, the interface design (90.84%) and usability (89.48%) were rated positively, indicating an easy and user-friendly experience. Overall, the results suggest that KesSekolah effectively supports health education and school health program management, meeting user expectations.

1. Introduction

School Health Units (UKS) play a crucial role in maintaining and improving student health, as school-aged children represent a significant portion of the population. Ensuring that students have access to proper health services is essential for fostering a safe and supportive learning environment (Guo, 2024; Knittel et al., 2024). The effectiveness of UKS programs largely depends on efficient information management, allowing schools, health professionals, and policymakers to monitor student health trends, track interventions, and make data-driven decisions (Mohammad et al., 2023; Wordley et al., 2024). However, in Serang City, Indonesia, the existing UKS information system is still manually operated, which presents several challenges, including inconsistent data recording, inefficient reporting mechanisms, and limited accessibility for relevant stakeholders.

One of the primary issues with the manual UKS system is the lack of standardized data collection and reporting methods across different schools. Health records are often kept in paper-based formats, making data retrieval and analysis time-consuming and error-prone (Murai et al., 2022). The absence of a centralized and integrated database also limits the ability of school administrators and health officials to track student health trends over time (Boateng et al., 2022). Furthermore, without a digitalized system, coordinating between teachers, healthcare professionals, and government agencies becomes difficult, leading to potential delays in addressing student health issues (Sholihah et al., 2022). These inefficiencies underscore the urgent need for a modernized and technology-driven solution to enhance the management of school health data.

To address these challenges, an application-based School Health Information System, called KesSekolah, was developed to digitize and streamline the management of UKS data in Serang City. KesSekolah is designed to provide a user-friendly and efficient platform for recording, managing, and accessing health-related data in schools. The system enables teachers to input and update student health records, track medical visits, and generate reports, thereby improving data accuracy and accessibility. By adopting a digital approach, the system aims to reduce administrative burdens on teachers while ensuring that health records remain accurate, up-to-date, and easily accessible for relevant stakeholders, including school administrators and health departments.

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The success of a digital system like KesSekolah is heavily dependent on user acceptance, particularly among teachers, who serve as the primary users of the system. Teachers play a crucial role in implementing UKS programs by monitoring student health, ensuring compliance with school health policies, and providing first-line health interventions when necessary. If teachers do not accept or find the system difficult to use, its potential impact on improving school health services will be significantly diminished. Thus, understanding teacher acceptance and usability of the system is crucial for its successful implementation and sustainability.

User Acceptance Testing (UAT) is a well-established methodology used to evaluate the usability, functionality, and overall acceptance of a system before its full-scale deployment (Suprapto, 2021). In this study, UAT was conducted specifically among teachers from 29 public junior high schools in Serang City to assess their perceptions, challenges, and overall satisfaction with the KesSekolah system. The evaluation was conducted using a Likert scale-based assessment, which provided structured feedback on various aspects, including ease of use, functionality, interface design, and overall effectiveness in supporting school health management. By analyzing the UAT results, this study contributes to the growing body of research on digital transformation in school health management and offers valuable insights into the role of teacher engagement in ensuring the success of digital health interventions in educational settings.

This research highlights the importance of user acceptance as a critical success factor in implementing health information systems in schools. The findings of this study will help educational policymakers, software developers, and school administrators refine the KesSekolah system, ensuring its long-term adoption and effective integration into UKS programs. By providing a comprehensive evaluation of teacher acceptance, this study aims to bridge the gap between technological advancements and practical implementation, ensuring that digital solutions like KesSekolah contribute to sustainable improvements in school health management.

2. Research methodology

To evaluate teacher acceptance of the KesSekolah School Health Information System, this study employed User Acceptance Testing (UAT), a critical phase in software development that assesses whether the system aligns with user needs and expectations. UAT ensures that the developed system functions effectively within the intended user environment and identifies any usability or functionality issues before full-scale implementation (Ciriello and Loss, 2022).

The success of a school health information system relies not only on its technical performance but also on its acceptance and usability by teachers, who are the primary users responsible for inputting, managing, and utilizing student health data. UAT plays a crucial role in this regard by allowing teachers to directly engage with the system during testing, providing feedback on usability, efficiency, and effectiveness (Wahyudi et al., 2023). This user-centered approach ensures that the system does not merely meet technical specifications but also supports teachers in their administrative and educational duties related to school health management. Additionally, UAT serves as a confidence-building process, helping teachers familiarize themselves with the system and increasing their willingness to adopt the technology in their daily workflow (Gordon et al., 2022).

User Acceptance Testing (UAT) was conducted by involving 145 teachers from 29 public junior high schools in Serang City to evaluate the KesSekolah application. Each school was represented by 5 teachers: 2 science teachers, 1 physical education teacher, 1 guidance and counseling (BK) teacher, and 1 teacher from the Pancasila Student Profile Strengthening Project (P5). The aim of this testing was to identify the strengths and weaknesses of the application so that improvements could be made before its implementation in teaching.

The assessment process encompassed two categories of acceptability tests: the acceptability test for the learning media and the acceptability test for the learning materials. Each category consists of statements designed to evaluate specific user needs. Respondents provide their feedback by selecting a level of agreement or disagreement. To quantify the level of acceptance, response values are calculated and converted into an achievement percentage. Each statement in the questionnaire is responded to using a Likert scale with five levels (Table 1).

Table 1: Likert scale

Interval respond	Value
Strongly disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly agree	5

The response value (RV) represents the weighted sum of responses, where each response is assigned a numerical value based on its level of agreement. The formula is as follows, where N_{SD}, N_D, N_N, N_A, and N_{SA} refer to the number of responses for "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree," respectively.:

$$RV = (N_{SD} \times 1) + (N_D \times 2) + (N_N \times 3) + (N_A \times 4) + (N_{SA} \times 5) \quad (1)$$

The maximum possible score (MS) is determined by multiplying the total number of respondents by the highest rating scale value (5), as formulated below:

$$MS = N_{total} \times 5 \quad (2)$$

The achievement percentage (AP) is then derived as follows:

$$AP = (RV)/(MS) \times 100\% \quad (3)$$

The calculated achievement percentage is then interpreted descriptively to assess the acceptability of each evaluated aspect, providing insights into the overall system acceptance by the respondents (Table 2).

Table 2: Classification of achievement percentage

Achievement	Interpretation
20% - 39,99%	Very not worthy
40% - 59,99%	Unworthy
60%	Doubtful
60,01% - 80%	Worthy
80,01% - 100%	Very worthy

The achievement percentage is interpreted based on the predefined classification, as it considers the distribution of responses across different rating categories. These values are analyzed to provide a descriptive assessment of the system's acceptance. If all responses are Neutral, the achievement percentage reaches 60%, placing the system in the Doubtful category, indicating that the evaluation criteria have not been fully met. A percentage below 60% (i.e., ≤ 59.99%) corresponds to the Unworthy category, suggesting that the system fails to meet the minimum requirements for acceptance. When all responses fall within the Agree category, the achievement percentage reaches 80%, signifying that the system is Worthy, as all evaluation criteria have been satisfied. If the responses range from Agree to Strongly Agree, the achievement percentage exceeds 80% (i.e., ≥ 80.01%), categorizing the system as Very worthy due to strong positive user acceptance. The following section presents the computed Response Values, Maximum Scores, Achievement Percentages, and their corresponding Interpretations for each evaluation parameter.

3. Results and discussion

The results of the User Acceptance Testing (UAT) in Fig. 1 indicate that the KesSekolah health information system has been well received by teachers, demonstrating high levels of usability, reliability, and effectiveness in supporting school health management. The evaluation metrics show consistently high scores across various parameters, reinforcing the system's alignment with user expectations and needs.

The highest rating was given to the system's utility in supporting the learning process, with a score of 98.34%. This highlights the system's significant role in facilitating the School Health Program (UKS) by providing a structured and efficient platform for managing school health data. The system's reliability was rated at 87.9%, indicating that teachers find it stable for daily use with minimal technical disruptions. Reliability is a crucial factor in ensuring seamless health data management, which is essential for the success of the UKS program. In terms of user experience, the system's interface and visual design received a score of 90.84%, demonstrating that it meets aesthetic and usability standards, making it accessible and easy to use for teachers. Furthermore, the usability score of 89.48% confirms that teachers find the system intuitive and navigable, which supports efficient adoption and integration into their daily workflows.

The quality of the learning materials embedded within the system was rated at 95.82%, indicating that the content is considered highly valuable and meets educational standards for school health programs. The relevance of the materials received a score of 91.98%, suggesting strong alignment with educational needs, though minor refinements could enhance their applicability across different teaching contexts.

Overall, the results confirm that the KesSekolah system has met exceptionally high standards of acceptance among teachers and does not require significant modifications. Its successful implementation in junior high schools (UKS) in Serang City underscores its potential to enhance school health programs by providing teachers with an effective digital tool for managing and delivering health education. Moreover, the system's strong alignment with user needs reflects the effectiveness of the development approach and its capacity to improve school health management in educational settings.

The results of the User Acceptance Testing (UAT) show high acceptance across various criteria. Fig. 1 displays the achievement percentage for learning media, indicating strong teacher approval. Similarly, Fig. 2 illustrates the acceptance levels for the learning materials embedded within the KesSekolah system.

A summary of the test results and their interpretation across both learning media and learning material dimensions is provided in Table 3.

Table 3: Results of testing interpretation

Acceptability	Aspect	Interpretation
Learning media	Appearance	Very worthy
	Usability	Very worthy
	Reliability	Very worthy
	Utility	Very worthy
Learning material	Quality	Very worthy
	Relevancy	Very worthy
	Utility	Very worthy

4. Conclusions

The findings of this study confirm that the KesSekolah health information system has achieved a high level of acceptance among teachers, demonstrating strong usability, reliability, and effectiveness in supporting school health management. The system's utility in facilitating the School Health Program (UKS) was rated at 98.34%, highlighting its crucial role in providing a structured and efficient platform for managing school health data. Additionally, the system's reliability score of 87.9% indicates that teachers find it stable for daily use with minimal technical disruptions, ensuring smooth health data management within schools.

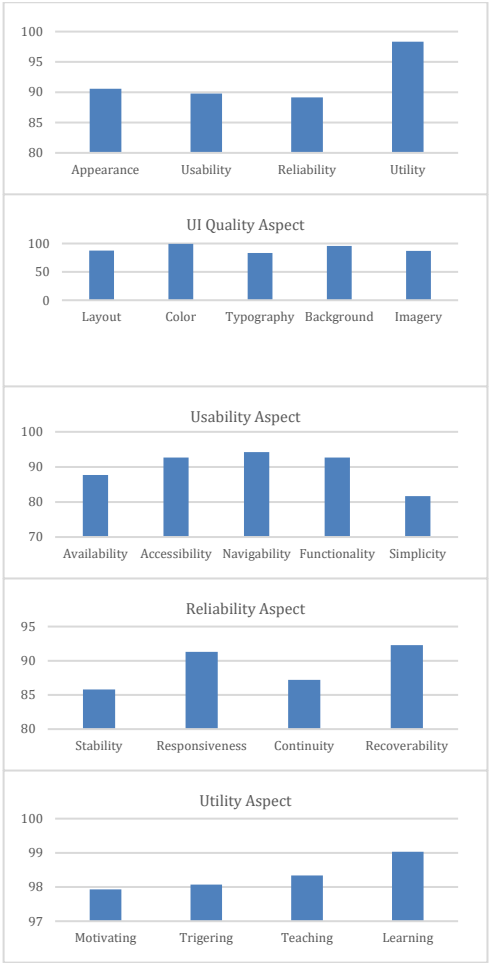

Fig. 1: Achievement percentage diagram of learning media acceptance testing

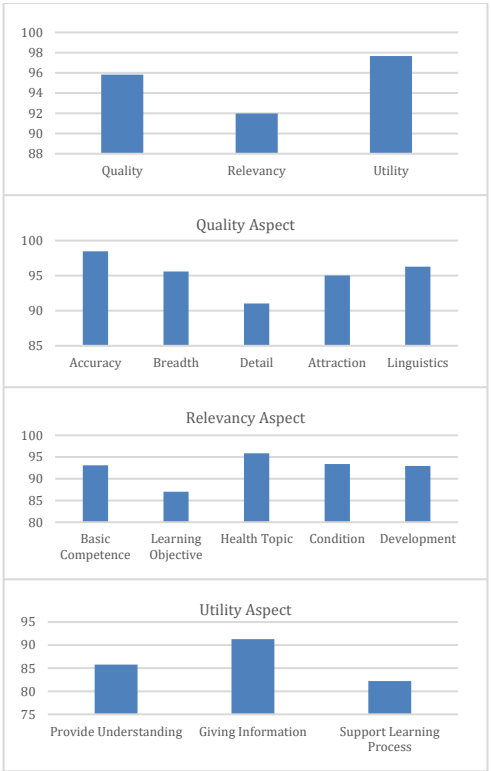

Fig. 2: Achievement percentage diagram of learning material acceptance testing

In terms of user experience, the system's interface and visual design, rated at 90.84%, meet both aesthetic and usability standards, making it accessible and easy to use. The usability score of 89.48% further confirms that teachers find the system intuitive, supporting seamless adoption and integration into their workflows.

Furthermore, the quality of the learning materials embedded within the system received a rating of 95.82%, signifying that the content is highly valuable and meets educational standards for school health programs. The relevance of the materials, rated at 91.98%, suggests strong alignment with educational needs, though minor refinement could enhance their applicability across diverse teaching contexts.

Given these positive outcomes, the KesSekolah system is deemed very worthy for broader adoption in junior high schools (SMP) in Serang City. Its strong alignment with user needs and its effective role in supporting the UKS program underscore the success of the development approach. Future research could explore further enhancements based on a larger sample size or assess the long-term impact of the system on school health management. By integrating digital solutions into school health programs, this study contributes to ongoing efforts to improve health education and management in academic environments.

Compliance with ethical standards

Ethical considerations

This research involved voluntary participation from teachers, and all participants provided informed consent. No personal identifying information was collected, and all data were anonymized to protect confidentiality. The study adhered to standard ethical guidelines for educational research.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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