



TEACHING QUALITY IMPROVEMENT THROUGH “SIULIN”

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Abstract

The exam is one of the curriculum implementation activities, which is part of the evaluation of learning activities. A midterm and final semester exam learning system is implemented in one of the integrated Islamic elementary schools in East Java. In contrast, currently, the exam is carried out manually on paper. It could be more efficient, especially with the use of paper. Besides that, the teachers will add working hours to correct exam results. An online exam application design is needed that can help teachers in the online exam process and corrections. The fundamental objective of this research is to create a website-based online exam information system at an integrated Islamic elementary school in one of the cities in East Java. The research method is descriptive qualitative to find facts and original information. Data collection techniques for information system development are used using observations, interviews, and literature studies. While the development method used is the waterfall method. The results of this study are that it can make it easier for teachers to carry out the process of evaluating, correcting, saving teacher time in correcting exam answers, helping teachers to recapitulate grades, reducing the impact of cheating during exams, reducing paper use and making it easier for students to see exam scores.

Keywords: Online Exams, Information Systems for teachers, evaluation

INTRODUCTION

Evaluation in learning is an important part of the curriculum and learning process. Evaluation can encourage students to be more active in learning continuously, encourage teachers to improve the quality of the learning process further and encourage education managers further to improve the facilities and quality of student learning. In this regard, optimizing the evaluation system has two meanings, namely the first is an evaluation system that provides optimal information. The second is the benefits achieved from the evaluation. The main benefit of evaluation is improving the quality of learning, which shows that the success of learning programs is always seen in the learning outcomes.

On the other hand, the evaluation of learning programs requires data about the implementation of learning and the achievement of learning objectives. Such conditions occur not only at the higher education level but also at the primary and secondary education levels. The success of learning programs is always seen from the aspect of learning outcomes. In contrast, the implementation of learning programs in class or the quality of the learning process takes place rarely touched by assessment activities (Arikunto, 2002).

At this time, the implementation of exams and correction of exam results are still done manually. Teachers need more time to create and assess students' test questions. Carrying out the exam requires a lot of question paper and answer paper that requires much money. Along with the development of technology, manual exams are now being replaced by computerized exams or online exams. With online exams, there is ease and speed in giving grades. The teacher does not need to check student answer sheets one by one and calculate student scores. But the value is already available by database software with automatic calculations based on student answers. In addition, teachers and students can save on paper because the exam is administered using a computer.

This study aims to design and build a sibling information system, a web-based online exam, to assist teachers in administering the exam. This research is supported by several studies that have been conducted previously by researchers, including those carried out by (Muhammad Irfan Wahidin, 2017) with the title "Design of Web-Based Online Exam Information Systems." The questions are presented in a multiple-choice system. This online exam system is implemented with facilities including exam management, exam question management, and teacher and student data management, which will later produce output scores. Then the second research was carried out by (Ahmad Riyadi, Eni Heni Hermaliani & Dwi Yuni Utami, 2019) with the title "Making an Online Examination System Application at Garuda Nusantara Bekasi Vocational School (Riyadi, and Utami, 2019)". The research method used in this research is the development of software, especially waterfalls and data collection techniques, by directly observing the process of implementing school exams and interviewing school residents. This application has made a significant impact on increasing the effectiveness of the teaching and learning process. In addition, improving value management can be done online using internet technology. Currently, the learning and evaluation system is carried out interactively, supported by mastery of technology (Hartatik, 2019).

The research to be carried out by researchers is a web-based online exam information system for teachers. In this system, the user can manage teacher data, manage class data, manage lesson data, manage question data, display exam questions, display test scores and display a recapitulation of student test scores. The system developed later as a place of service for researchers is the implementation of siulin in integrated Islamic elementary schools.

METHOD

The research methodology used in making this system is the waterfall method. The waterfall method is a method that approaches systematically and sequentially. The online exam system developed is website-based (Raharjo, dkk 2010)(Sidiq and Kurniadi, 2021).

Several stages of the waterfall method are:

1. Needs Analysis

The needs analysis stage is carried out by gathering complete requirements and then analyzing the user's needs, the software and hardware needed and the need for database creation. Analysis of hardware requirements in the manufacture of this system, namely a laptop with Intel® Core™ i3-6006U processor specifications, CPU @ 2.00GHz 1.99 GHz, 4.00 GB RAM. Analysis of the software requirements needed: the Windows 7 Operating System, Sublime text, XAMPP, the PHP programming language, Google Chrome and MS SQL Server.

2. System Design

System design is the stage of compiling processes, data, process flows, and relationships between data to carry out business processes and meet needs according to the needs analysis results. Design planning is carried out to help to provide a complete picture of what must be done, such as designing the user interface display of the Online Exam Information System, designing Use Case Diagrams, Use Case Text, Entity Relationship Diagrams (ERD), and Activity Diagrams. (Hartatik, 2020)

3. Research Steps

This research is engineering research, whose output is an online exam web application for college students. The following are the steps in carrying out the research In Figure 1.

[8][9].

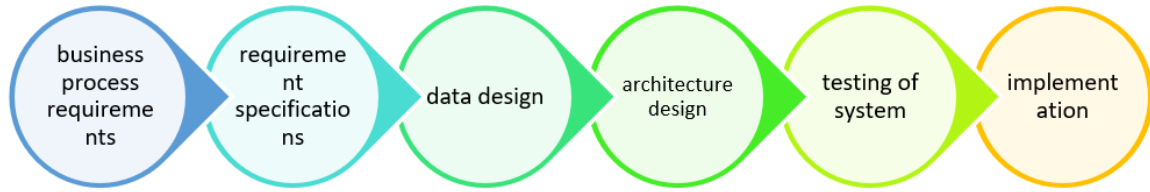


Figure 1. flowchart of research

RESULTS AND DISCUSSION

The Assessment System in the learning process is a series of activities to obtain, analyze, and interpret data about student learning processes and outcomes that are carried out systematically and continuously to become meaningful information in decision-making. After analyzing the need for a web-based online exam system for teachers, the following business processes are obtained in Figure 2:

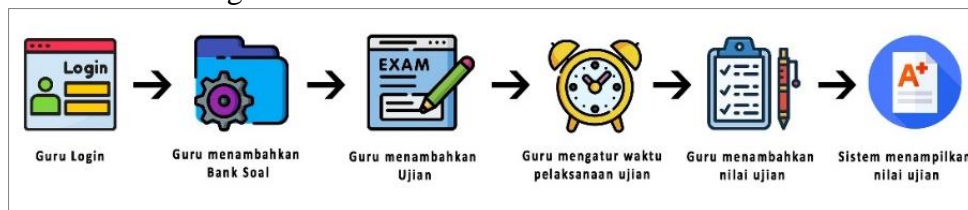


Figure 1. business processes

Database design to make it easier to describe data that has a relationship or relations in the form of a design or diagram using Entity Relationship Diagram (ERD). The following is an ERD of a web-based online exam system, shown in Figure 3.

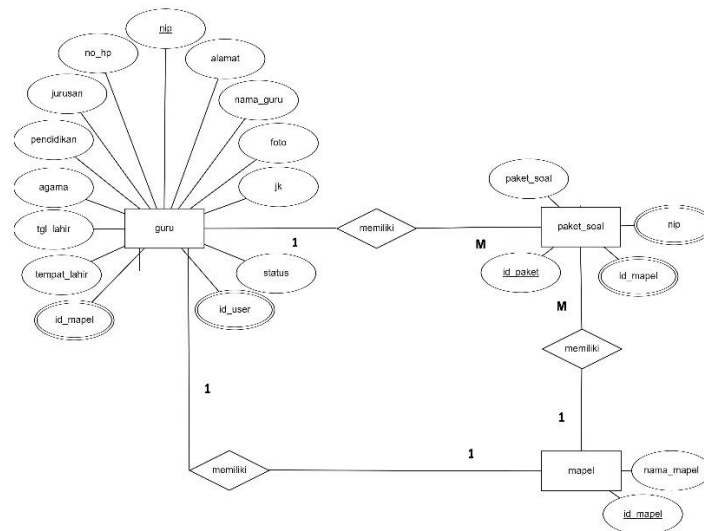


Figure 3. entity relationship diagram (ERD)

The implementation of this system design consists of a login page, exam table page, added exam questions page and added student exam score page (description). The following is the implementation of each page in Figure 4.

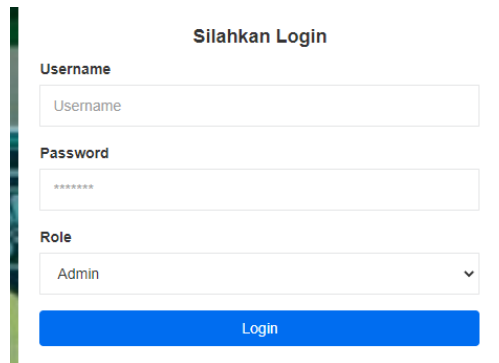


Figure 4. login page

The following in Figure 4 and Figure 5 is a display of the exam list and the implementation of the exam table on the teacher's dashboard. Teachers can manage exams and manage questions.

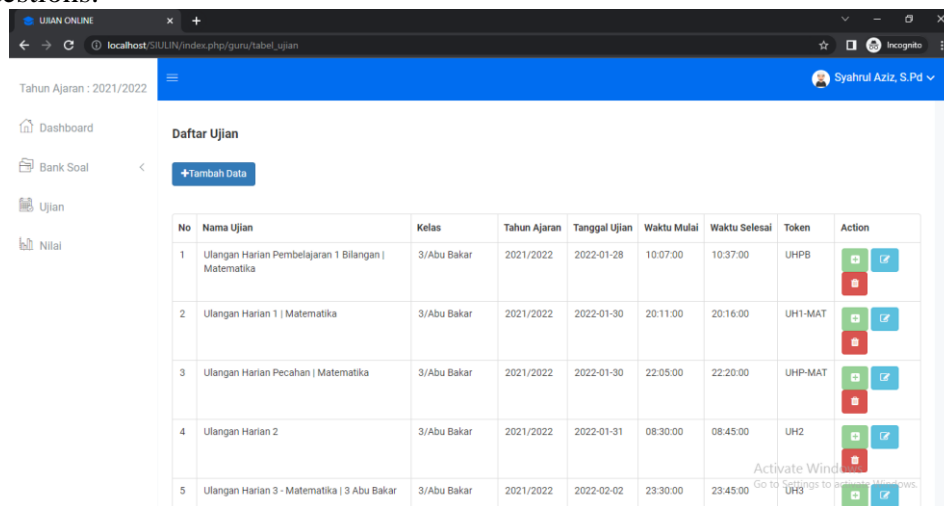


Figure 5. implementation of the exam table page

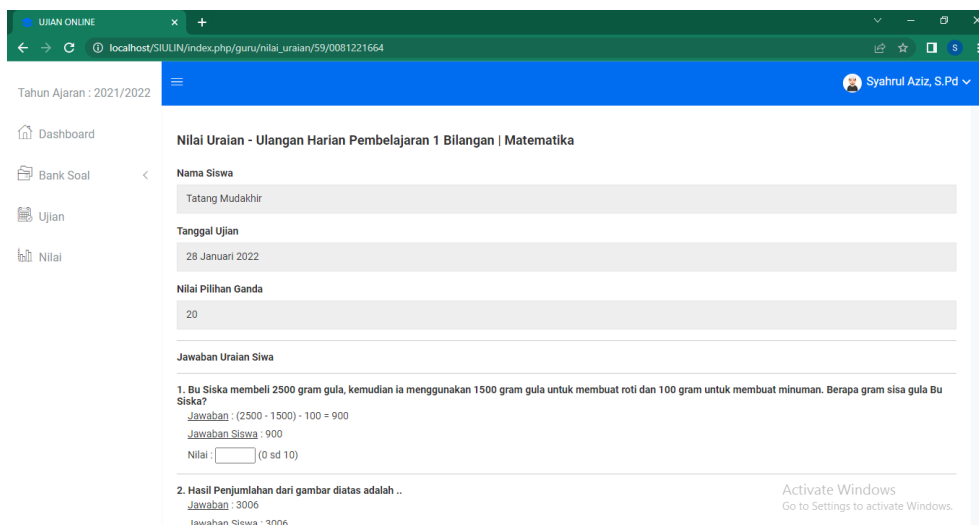


Figure 6. implementation of the test value add page (description)

The system test results shown above show that the test results are as expected. It means that the design of information system scenarios used by users, namely teachers, is by the design and implementation of the system.

Table 1. Information System Testing Results for Teachers

No	Test Name	Scenario	Hope	Status
1	login	Access the login page, enter your username, password, and role, and click the login button	The system can enter the dashboard according to the user's role	According to expectations
2	Displays question packet data	The teacher presses the question bank menu, selects the subject submenu	The system can display question packet data	According to expectations
3	Add question packet data	The teacher presses the add package button, fills out the question package form, saves the question package data	The system can add question packet data	According to expectations
4	Changing question packet data	The teacher presses the edit button on the question package that you want to change, fills in the question package edit form, presses the edit button	The system can change the question packet data	According to expectations
5	Deleting question packet data	The teacher presses the delete data package button, and a confirmation pop-up appears. Press the delete confirmation button	The system can delete question packet data	According to expectations
6	Displays question data	The teacher presses the add question button on the question package page	The system can display question data	According to expectations
7	Add question data	The teacher presses the add question button, fills in the question data form, clicks the add button	The system can add question data	According to expectations
8	Displays detailed question data	The teacher presses the question detail button	The system can display detailed question data	According to expectations
9	Change question data	The teacher presses the edit button on the question data that you want to change, fills in the question edit form, clicks the edit button	The system can change the question data	According to expectations
10	Delete question data	The teacher presses the delete data question button. A confirmation pop-up appears <input type="checkbox"/> press the delete confirmation button	The system can delete question data	According to expectations
11	Displays test data	The teacher presses the test menu	The system can display test data	According to expectations
12	Add test data	The teacher presses the add test data button, fills in the test	The system can add exam data	According to expectations

		data form <input type="checkbox"/> clicks the add button		
13	Displays exam data details	The teacher presses the test details button	The system can display detailed exam data	According to expectations
14	Changing test data	The teacher presses the edit button on the test data to be changed, fills in the test data edit form, clicks the edit button	The system can change the test data	According to expectations
15	Delete test data	The teacher presses the delete button on the test data, and a confirmation pop-up appears; press the delete confirmation button	The system is capable of deleting exam data	According to expectations
16	Adding exam questions	The teacher presses the details button on the exam page, presses the add question button, selects the question package to be added, adds questions in the question package, saves the questions that have been added	The system can add exam questions	According to expectations
17	Displays test scores	Teachers and students press the value menu	The system can display test scores	According to expectations
18	Adding test scores (description)	The teacher presses the value menu, adds the description value, fills in the description value form, and saves the value.	The system can add value (description)	According to expectations

A survey of 110 teachers finds that out of 110 teachers, 70 implemented offline assessments, and the required evaluation time was 14 days in Figure 7[10][11].

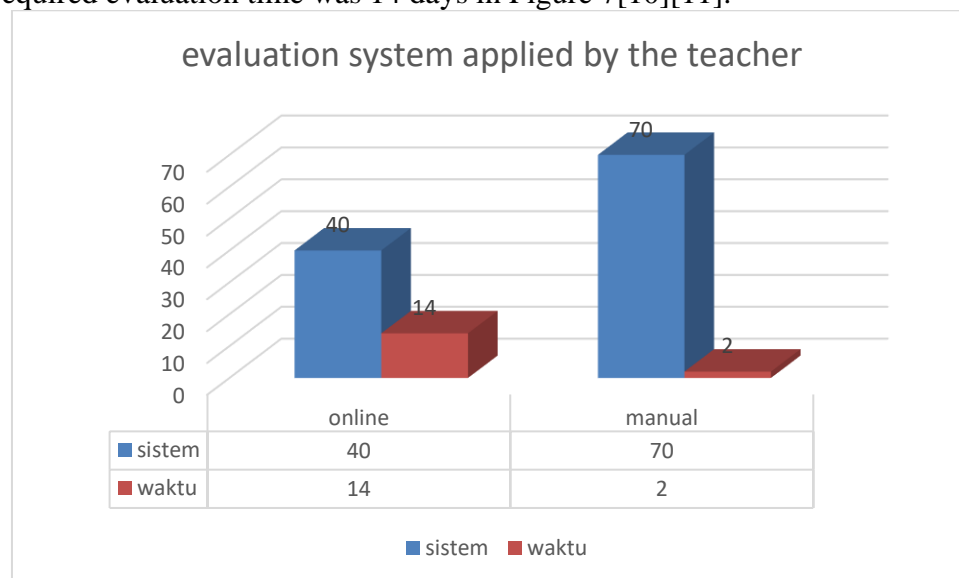


Figure 7. evaluation system applied by the teacher

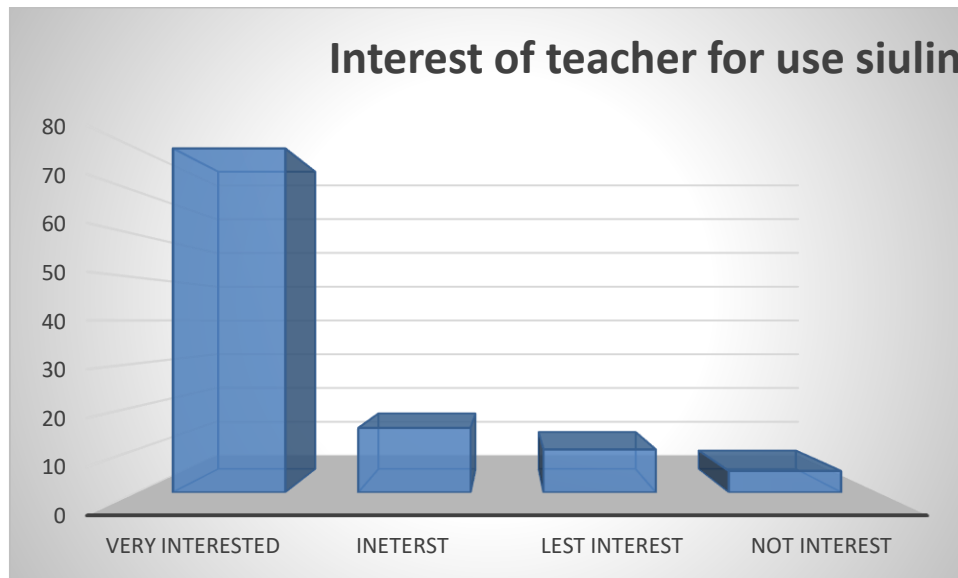


Figure 8. interest in usability si Ulin

And based on the survey results and socialization of Ulin, there are 80 teachers out of 110 teachers are very interested in using Siulin as a system that helps with online exams, as shown in Figure 8.

CONCLUSION

The Web-Based Online Exam Information System was designed, implemented, and created to make it easier for teachers to evaluate exams. The system for students that has been created has features for conducting exams and viewing exam results. This method examines the functionality of the information system, both functions by admin actors, teachers and students. The test results of the Web-Based Online Exam Information System were successful, and the design and implementation of information systems to improve teacher performance and services to students in terms of getting information on test results quickly.

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REFERENCES

- A. Riyadi, E. H. Hermaliani, and D. Y. Utami, "Making an Online Examination System Application at Smk Garuda Nusantara Bekasi," *J. Ilm. SINUS*, vol. 17, no. 1, p.23, 2019, doi: 10.30646/sinus.v17i1.383.
- A. B. Sidiq and D. Kurniadi, "Designing a Web-Based Online Exam Information System at SMK N 1 Solok," *Voteteknika (Vocational Tech. Electron. and Inform.)*, vol. 9, no. 2, p. 44, 2021, doi: 10.24036/voteteknika.v9i2.111521.
- Arikunto, Suharsimi. 2002. *Prosedur Penelitian suatu Pendekatan Praktek*. Jakarta : PT Rineka Cipta.
- Budi Raharjo, dkk 2010. *Modul Pemrograman Web (HTML, PHP, & MYSQL)*. Bandung: Modula

- Hartatik, P. Pratiwi, A. Purnomo, and R. Hartono, "Application of alphazze writing for basic school children base on android," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 578, no. 1, pp. 0–6, 2019, doi: 10.1088/1757–899X/578/1/012096.
- Hartatik, "View of ANALYSIS OF CAMPING GROUND TOURISM FEATURES ON THE WATU GAMBIR PARK WEBSITE.pdf." 2022.
- Hartatik, "Optimization of Student Graduation Prediction Model Using Naive Bayes Algorithm," *IJAI (Indonesian J. Appl. Informatics)*, vol. 5, no. 1, 2020, doi: <https://dx.doi.org/10.20961/ijai.v5i1.44379>.
- Hartatik, "Efficiency of the Course Practicum Assistant Selection Process Using Bayesian Algorithms," *Int. J. Multidiscip. Res. Lit. IJOMRAL*, vol. 1, no. 3, pp. 241–360, 2022, [Online]. Available: <https://doi.org/10.53067/ijomral.v1i3>.
- Hartatik, A. Purnomo, R. Hartono, and H. Munawaroh, "Naïve Bayes Approach for Expert System Design of Children Skin Identification Based on Android," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 333, no. 1, pp. 0–5, 2018, doi: 10.1088/1757–899X/333/1/012105.
- Hartatik and P. K. Wardhani, "Implementation of the Naïve Bayes Method in Designing a Decision Support System for Improving a Healthy Lifestyle Based on Android," *Indones. J. Appl. Informatics*, vol. 1, no. 2, p. 9, 2017, doi: 10.20961/ijai.v1i2.11298.
- Hartatik & Pramesti, *SPSS Application Book in Quick Count*. Elex Media Komputindo, 2011.
- Hartatik & Pramesti, *Buku Aplikasi SPSS dalam Quick Count*, Elex Media Komputindo, 2012.