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Measuring Islamic Boarding School Website Effectiveness Using Usability Analysis

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Abstract. The Islamic boarding school is the oldest educational institution in Indonesia. However, Islamic boarding schools must be able to keep up with today's technological developments, one of which is the application of information technology. One of them is an Islamic boarding school that has a website that is used by the media to cover and promote activities in the Islamic boarding school. With a website of an Islamic boarding school, it is necessary to measure the effectiveness of a website for Islamic boarding schools because Islamic boarding schools are like religious studies. Therefore, it is necessary to know the effectiveness of the Islamic boarding school website using usability tests. By applying SUS (System Usability Scale) to test the Islamic boarding school website i.e. Nurul Salam Lodoyo Islamic Boarding School, Blitar Regency, the usability value is 72. Where usability results were obtained from 55 respondents who answered Brooke's 10 standard questions. The availability score of 72 explains that an Islamic boarding school website is acceptable and is also ranked based on Brooke's standard rating scale. From these results, it can be concluded that the Islamic boarding school website still needs to be reevaluated and redeveloped to further improve its use value.

INTRODUCTION

Information technology has penetrated all spheres of life and society, including educational institutions [1]. One of the oldest educational institutions in Indonesia is an Islamic boarding school, as Islamic boarding schools are rooted in the religious response of the local community to the local assimilation of Islamic culture [2]. The development of the times is so rapid at this time that Islamic boarding schools accordingly do not lag behind. One proof of the contribution of Islamic boarding schools in the development of the times is the use of information technology in the management of Islamic boarding schools, one of which is the existence of a website. web to disseminate information and promote Islamic Boarding School [3]. Website is one of the advertising medium that is very easy and has a very good impact on the product or organization being promoted. One of the proofs is that Wibowo et al he development of the desa.id website can increase village tourism in Gampingan Village [4].

Once the website has been launched, an evaluation must be performed to determine the effectiveness, efficiency, and satisfaction of the website according to the users, the barriers they encountered, and the feedback provided thereafter. can become a reference to improve and enhance the performance of the website. better in the future [5]. There are several methods of measuring sites or systems that can be used as suggested Morris and Reza [6], which

belong to the: QUIS (User Interface Satisfaction Questionnaire), SUMI (Software Usability Measurement Repository), PSSUQ (Post Research Usability Questionnaire), and SUS (Study Usability Questionnaire) system usability measurement) [7].

SUS (System Usability Scale) is a commonly used method of measuring the usability of a system or website because of its ease of implementation. In the study Aris Widodo et al SUS (System Usability Scale) was used to measure the effectiveness of a website and know the location of Covid-19 virus patients in an area . The results obtained in the study Aris Widodo show the importance of the system for detecting the presence of Covid-19 patients in an area [8].

According to Sauro [9], Tullis and Stetson [10] have shown that SUS (System Usability Scale) is a valid and reliable usability assessment tool. Based on the above description, the authors wanted to evaluate research on the usefulness of Islamic referral websites to improve their performance and chose SUS (System Usability Scale) as the tool because of its validity and reliability. Research Purwaningtias and Ependi explains that the Islamic boarding school website can be assessed using the SUS (System Usability Scale), but the relevant respondents are the participants in the activities of the Qodratullah Islamic Boarding School [11]. In this study, respondents in general, not necessarily those who attended Islamic boarding schools, were used.

Based on the above issues, it is possible to apply the SUS (System Usability Scale) method of measuring boarding school websites using Brooke's standard questions. The objective was to explore the importance of a website for the promotion, management, and marketing of media for Islamic boarding schools. The Islamic Boarding School website used for usability testing is the website of the Nurul Salam Lodoyo Islamic Boarding School, Blitar Regency. This Islamic boarding school is one of the largest Islamic boarding schools in Blitar Regency, with a student population of around 1000.

METHODS

This study will be conducted by distributing questionnaires to respondents who are related to Islamic boarding schools. The process of this study can be seen in detail in Table 1. The steps of the research methodology can be seen in Table 1, the first step is to conduct a literature review. Document research is a process of studying theories and references about SUS (System Usability Scale) according to Brooke's criteria to come up with theories of usability, SUS stages (SUS scale). measure system usability) according to Brooke standards, test or evaluate the system using SUS (System Usability Scale) and perform data analysis. The second step is audit planning, which is the process of preparing tools to conduct the assessment. The results are questions, tools, responders, and scenarios. The third stage is conducting an assessment, which is an evaluation process that uses the phases of usability testing, interviewing, and distributing questionnaires to active users. The obtained results are problem data and questionnaire data. The fourth step is the analysis of the results, which includes calculating the availability, processing the results, and scoring the questionnaire. The results are satisfaction, speed, errors, and a list of problems. The fifth stage is the proposed fix, which is an improvement proposal to be made based on the issues that exist on the site that have been evaluated. The result is a list of recommendations for improvement. The sixth step is concluding and suggesting, including the formulation of research conclusions and suggestions for further research. The results obtained are conclusions and suggestions that can make a website better.

TABLE 1. Research methodology

Step	Process	Results
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Study Literature</div> <div style="text-align: center;">↓</div>	Studying theories and references about Usability using SUS with Brooke's standards used as the basis of research.	<ul style="list-style-type: none"> - Theory from usability - Steps of SUS using Brooke - SUS Test - Data analysis
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Evaluation Planning</div> <div style="text-align: center;">↓</div>	Prepare instruments for conducting evaluations.	<ul style="list-style-type: none"> - Questions - Tools - Respondents - Scenario

TABLE 1. Cont.

<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Evaluation Implementation</div>	Evaluation with stages: 1. Usability test. 2. Interview. 3. Dissemination of questionnaires to active users.	- Problem data - Questionnaire data
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Result Analysis</div>	Calculate the usability level, process the results and calculate the score of the questionnaire.	- Level of satisfaction. - Speed level. - Error rate. - List of problems.
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Repair Recommendation</div>	Formulate recommendations for improvement in accordance with the problems that exist on the website.	- List of repair recommendations
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Conclusion and Suggestion</div>	Make research conclusions and suggestions for further research.	- Conclusion - Suggestions

The object used is one of the Islamic boarding schools in the province of East Java, namely the Nurul Salam Islamic Boarding School, Blitar Regency. The Islamic Boarding School is one of the largest Islamic boarding schools in Blitar Regency as it has about 1000 students. For this reason, we will be assessing the availability of the Islamic boarding school website regarding technological advancements in the Islamic boarding school world using data from the Nurul Salam Islamic boarding school Lodoyo, Blitar Regency. Nurul Salam Lodoyo Islamic Boarding School, Blitar Regency has a website to be used as an information medium that can be consulted by guardians of students or users who want to know news and updates about the school. Nurul Salam Islamic boarding school. With this vision, Nurul Salam Islamic Boarding School can become a benchmark for the development of technology in the world of Islamic boarding schools. Exploring the usefulness of a system in one place can be measured using SUS (System Usability Scale) to find out the value of system availability. Islamic boarding school websites can be measured in terms of usability using the SUS (Systematic Usability Scale) with the 10-question Brooke questionnaire as shown in Table 2.

TABLE 2. The original SUS (*System Usability Scale*)

No.	Original Item
1.	I think that I would like to use this system.
2.	I found the system unnecessarily complex.
3.	I thought the system was easy to use.
4.	I think that I would need the support of a technical person to be able to use this system.
5.	I found the various functions in the system were well integrated.
6.	I thought there was too much inconsistency in this system.
7.	I would imagine that most people would learn to use this system very quickly.
8.	I found the system very cumbersome to use.
9.	I felt very confident using the system.
10.	I needed to learn a lot of things before I could get going with this system
The original SUS	

The results of the answers to the 10 questions in table 2 are then analyzed for the score from the SUS (System Usability Scale) [12] using equation (1) as follows:

$$SUS\ Score = \{(S_1 - 1) + (5 - S_2) + (S_3 - 1) + (5 - S_4) + (S_5 - 1) + (5 - S_6) + (S_7 - 1) + (5 - S_8) + (S_9 - 1) + (5 - S_{10})\} * 2.5 \quad (1)$$

Note: Si = the-i item statement

RESULTS AND DISCUSSION

The results of the questionnaire were then calculated using equation (1) to obtain the SUS (System Usability Scale) score. The results of the SUS (System Usability Scale) score assessment shown in Table 3.

TABLE 3. Respondents' assessment results

Respondents	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Score SUS
1	4	2	3	0	4	4	3	3	3	3	72.5
2	4	1	2	1	3	3	2	4	3	4	67.5
3	4	4	2	1	3	3	2	4	4	4	77.5
4	4	4	4	0	4	4	4	4	4	4	90
5	4	4	3	2	2	3	3	4	3	4	80
6	4	4	3	1	3	4	3	4	4	4	85
7	4	4	3	1	3	4	4	4	3	4	85
8	3	4	3	1	3	2	2	4	3	4	72.5
9	1	4	4	3	1	4	4	4	4	4	82.5
10	1	4	3	3	1	3	4	4	4	4	77.5
11	4	4	3	1	3	2	2	4	2	4	72.5
12	3	4	3	1	3	2	3	4	3	4	75
13	4	4	3	1	3	3	3	4	2	4	77.5
14	2	4	3	1	3	3	3	4	3	4	75
15	4	4	3	3	1	2	2	4	3	1	67.5
16	3	4	3	0	4	3	2	4	3	3	72.5
17	4	4	3	1	3	3	3	4	3	3	77.5
18	4	4	3	4	0	3	3	4	3	4	80
19	4	4	2	1	3	3	2	4	2	0	62.5
20	3	2	2	2	2	2	2	2	2	2	52.5
21	4	4	3	1	3	3	1	4	2	3	70
22	2	4	3	4	0	4	4	4	2	4	77.5
23	3	4	4	1	3	3	3	4	3	4	80
24	3	3	4	0	4	3	4	3	3	4	77.5
25	4	4	2	2	2	2	3	4	3	4	75
26	4	2	2	2	2	2	2	4	2	4	65
27	0	4	3	1	3	3	3	4	4	4	72.5
28	3	4	4	1	3	3	3	4	3	3	77.5
29	4	2	2	1	3	4	2	4	3	3	70
30	2	4	3	1	3	3	3	4	3	4	75
31	0	4	2	1	3	2	2	4	3	3	60
32	4	4	3	1	3	2	4	4	3	4	80
33	0	4	4	0	4	4	4	4	4	4	80
34	4	3	2	1	3	2	0	3	1	0	47.5
35	1	4	3	1	3	3	4	4	3	4	75
36	2	4	3	1	3	3	3	4	3	4	75
37	2	4	2	1	3	3	3	4	3	3	70
38	3	4	3	4	0	0	3	4	3	4	70
39	4	4	2	2	2	2	2	2	0	0	50
40	4	4	4	0	4	4	4	4	4	4	90
41	1	4	3	1	3	3	3	4	2	3	67.5
42	4	4	2	3	1	2	2	3	2	1	60
43	4	4	2	3	1	2	2	4	2	4	70
44	3	4	2	1	3	3	3	4	2	4	72.5
45	4	3	2	3	1	2	2	3	2	2	60
46	1	2	2	3	1	3	2	2	3	1	50

TABLE 3. Cont.

47	4	4	3	1	3	3	3	4	3	3	77.5
48	4	4	3	1	3	2	3	4	3	4	77.5
49	4	4	3	2	2	3	2	4	2	4	75
50	2	4	2	4	0	3	3	4	2	4	70
51	4	4	2	1	3	3	2	4	3	4	75
52	1	4	3	1	3	3	3	4	3	1	65
53	4	3	1	3	1	2	1	3	2	3	57.5
54	2	4	3	2	2	3	3	4	3	1	67.5
55	3	3	3	2	2	3	3	4	3	4	75
Mean Score (Final result)											72

SUS (System Usability Scale) is a general rating that can be used by users. The SUS (System Usability Scale) score can indicate user acceptance, the SUS (System Usability Scale) score must be greater than 70 to be included in the Acceptable or Good category [13]. And to get an A, the SUS (System Usability Scale) score must be 90 [9]. Meanwhile, the SUS (System Usability Scale) score on the evaluation of adjectives with a good rating reached a value greater than 70.4 [14]. The result of the System Usability (SUS) scale of 55 respondents is 72. The process of knowing the results of an assessment includes user acceptance by categories of acceptance ranges, value scales, and ratings as specified in Fig. 1 [13].

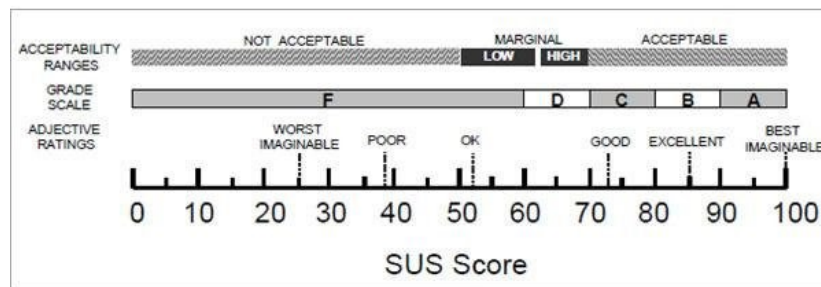


FIGURE 1. SUS Score (System Usability Scale) [15]

Based on the assessment results with a System Usability Scale (SUS) value of 72, the acceptability level is Acceptable, the grade scale is C, and the adjective rating is good. Refers to the SUS (System Usability Scale) scores obtained from the tests on the website of the Nurul Salam Lodoyo Islamic boarding school in Blitar Regency, it shows the internal school's website portal The Nurul Salam Lodoyo Muslim residence in Blitar Regency still needs to be assessed, and develop further. The results of 55 respondents to Brooke's 10 standard questions can be visualized as shown in Fig. 2. Figure 2 illustrates the relationship between the number of respondents, the total score, and the mean value of the SUS (Ability Scale). system usability) for each response.

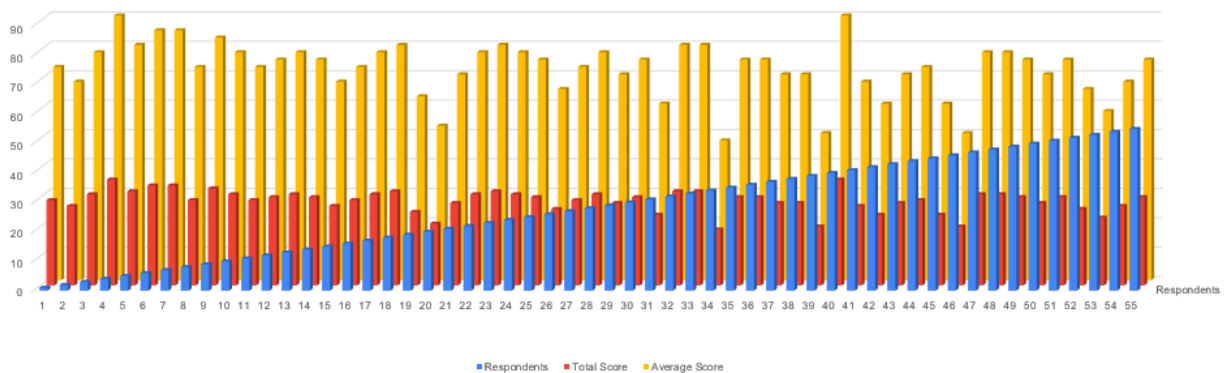


FIGURE 2. Graph of SUS (System Usability Scale) analysis results

CONCLUSION

The System Usability (SUS) scale result on the website of the Nurul Salam Lodoyo Islamic Boarding School, Blitar Regency is 72, indicating the site is acceptable and deemed acceptable. Furthermore, the website of the Nurul Salam Lodoyo Islamic boarding school, Blitar Regency is ranked as good by visitors based on the adjective rating value received. From the results obtained, it can be seen that the web portal of the Nurul Salam Islamic boarding school still needs to be evaluated and redeveloped to get better. The results of the usability scores generated in the study Purwaningtias and Ependi [11] were different because the types of respondents used were different. In this study, we used respondents in general or not only respondents who were active at Nurul Salam Lodoyo Islamic boarding school, Blitar Regency. If the study Purwaningtias and Ependi [11] uses respondents who are active in Muslim boarding schools used as research subjects. Usability measurement results can be the first step in evaluating a website. From the results of this study, it should be developed by conducting further research to define the problem in more detail, so that further optimization of the usability factor can be made. It is very important to do this, as SUS (System Usability Scale) is not diagnostic and is therefore needed and combined with other assessment methods to identify the problem.

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