Evaluation of The E-Learning System Usability Using The *System Usability Scale (SUS)*

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ABSTRACT
This study uses quantitative data which is then analyzed using statistics to answer more specific questions, and to predict that a certain variable affects other variables. Respondents in this study were grouped into beginners and advanced users who use e-learning. The number of respondents in this study were 30 students as the research sample. The results of the calculation of the average score of the System Usability Scale (SUS) on the satisfaction of e-learning users towards respondents, obtained a score of 79 with Acceptability Ranges or user acceptance of e-learning in the Acceptable because it gets a score of 79. Furthermore, for the Percentile Rank the value 79 obtained so that it is in the Grade B The data that has been obtained using the usability scale system will later be used as a reference for recommendations for improving the e-learning system. For further research, the author provides suggestions for using test with the Webqual usability method with the influence of usability values on student activities in study.

Keywords*: evaluation, e-learning, usability testing, system usability scale*

1. INTRODUCTION

Technology in recent years has developed rapidly, one of the fields that has a fairly high impact in technological developments is the field of education, where basically education is a process of communication and information from educators to students that contains educational information, which has elements of Elements of educators as a source of information, media as a means of presenting ideas, ideas and educational materials as well as the students themselves (Elyas, 2018). Developing this model is not just presenting subject matter on the internet but needs to be considered logically and holds learning principles. Likewise, a simple, personal, and fast development design, as well as an element of entertainment will make students feel at home studying in front of the internet as if they were studying in class. Science and technology, especially information technology, is growing very rapidly (Silahuddin, 2015). The use of e-learning has many benefits for online learning today. Starting from the use time which is very flexible so that students can access information related to the learning process when they have free time or when they are in a state of high enthusiasm for learning. When they are in a comfortable place to study, they can also access e-learning at that time even though the place is far away. Make it easy for students to repeat the material if there is material that they think is poorly understood, even the quality of the explanation is the same as the beginning, without the slightest lack (AJIATMOJO, 2021). E-learning is the delivery of information, communication, education, training on-line. E-learning provides a set of tools that can enrich the value of conventional learning (Husnussaadah, 2021). ITB STIKOM Bali has *e-learning* that can be accessed through the page in the site contains information related to lectures. The use of information systems is an important matter for an organization or educational institution, where information systems can assist in meeting the needs for processing daily transaction data, supporting operations, managerial, and strategic activities of an organization and providing certain outside parties with

required reports (Nugroho et al., 2022). Nowadays, usability is one of the most important parts in all parts of daily life especially design in all areas, especially Computer Science and parts of information technology. To ensure that the ITB STIKOM Bali E-Learning System has good performance, end-user testing is necessary. The results of the test can be used as evaluation material for improvements to be made. Usability testing is carried out to assess the interaction between system users and the application whether it can run well or not. Measurements are carried out following the concept of user testing, with an emphasis on measurement and not testing, determining goals in exploring questions (Huda, 2019).

Usability is a factor that affects an application can be said to be good or not. According to Jakob Nielsen in (Hadi et al., 2018) usability as an attribute of the assessment of how easy the application can be used. A good interface design will have an impact on the ease of interaction. In addition, it can increase the value in terms of user satisfaction. There are 3 aspects of usability measurement, namely effectiveness, efficiency and satisfaction. The usability method has been used by previous researchers to determine the performance of the interface and the problems contained in the interface. A previous study by (Anam et al., 2021) discuss Application of usability testing for analyzing the quality of 'family pharmacy' system in Pekanbaru, (Nugroho et al., 2022) in his research usability testing on the management information system of Pacitan Pacitan uses the system usability scale method, (Wiratama & Sasongko, 2017) In his research, he discusses the evaluation of the website interface of SMK Muhammadiyah 2 Sragen using the usability testing method, (Huda, 2019) In his research, he discussed the implementation of the usability testing method with a usability scale system in assessing the Siloam Hospital Palembang website, (Hadi et al., 2018) In his research, he discusses the Usability Analysis and Improvement of the KAI Access Mobile Application with the Usability Testing and Use Questionnaire Methods. In this study, measurement of user views of the e-learning system was carried out using the System Usability Scale (SUS) approach. This test aims to describe the level of usability of the ITB STIKOM Bali e-learning system and as input for further development.

2. METHODS

The approach used in this research is a quantitative approach, namely carrying out research in a systematic, controlled and empirical manner. This study uses quantitative data which is then analyzed using statistics to answer more specific questions, and to predict that a certain variable affects other variables (Susanti & Nurdiana, 2018). The research method begins with the research stages as shown in Figure 1 starting from the study of literature. Literature study is a collection of studies that have been carried out and are related to the research being carried out. In addition to previous research, a literature study was also carried out on theories related to the research being carried out, especially the theory about usability testing. The next stage is to study the e-learning system, the goal is to determine the tasks to be included in the scenario that will be done by the user when carrying out usability testing. The design of usability testing is planning a test consisting of 30 students using e-learning, testing locations, and preparing usability testing tools. Sampling from members of the population using random regardless of strata (levels) in population members (Saputra & Apriadi, 2018). The next stage is the implementation of usability testing and test results. Data analysis was carried out after usability testing was completed. Data analysis is performed on the time it takes the user to complete the task scenario.

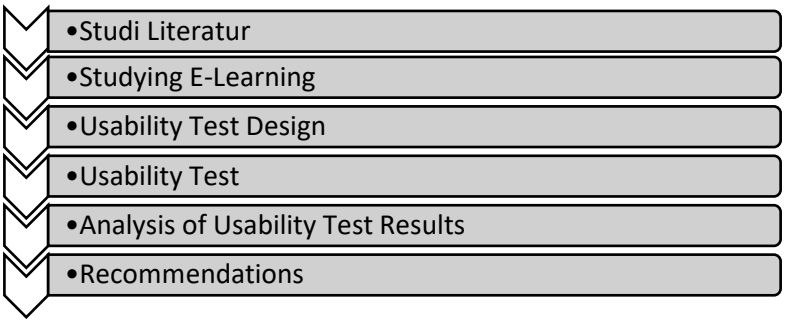

Figure 1. Research Stages

This research uses descriptive statistical analysis, one of the methods in collecting information and data relevant to the research. This analysis only describes information or provides information about data, situations, or phenomena. This analysis only serves to describe a research problem (Putera & Candiasa, 2021).

3. RESULTS AND DISCUSSION

Usability testing used 30 participants who tested using desktop devices. Usability testing uses task scenarios for users to find information in the e-learning system and search for information. 10 statement items from the SUS questionnaire referring to John Brooke's reference (Kusic, 2018). In the SUS, each questionnaire statement uses a Likert scale, respondents are required to fill in 10 SUS statement items to provide a subjective assessment of the following options:

Strongly Disagree (STS) = 1
Disagree (TS) = 2
doubtful (RG) = 3
Agree (S) = 4
Strongly Agree (SS) = 5

The SUS calculation has its own rules, namely for question items 1,3,5,7, and 9 (odd) the contribution score is the position scale minus 1. For question items 2,4,6,8 and 10 (even) the contribution score is 5 minus the position of the scale. From the amount that has been obtained, this number is multiplied by 2.5 to get the overall *system usability* (Aprilia et al., 2015)

Table 1. SUS Score Calculation Results

Respondent	Score SUS	Respondent	Score SUS	Respondent	Score SUS
1	72.5	11	75	21	53
2	80	12	82.5	22	55
3	80	13	77.5	23	58
4	85	14	80	24	60
5	82.5	15	75	25	63
6	77.5	16	87.5	26	65
7	82.5	17	85	27	68
8	82.5	18	80	28	70
9	75	19	75	29	73
10	75	20	72.5	30	75
Total Score: 2370					
Average Score SUS: 79					

Table 1 shows that the results of the calculation of the average *System Usability Scale* (SUS) score on the satisfaction of e-learning users towards respondents, obtained a score of 79 with *Acceptability Ranges* or user acceptance of e-learning in the *Acceptable* because it gets a score of 79.score *The Percentile Rank* obtained is 79 so that it is included in the *Grade B* The interpretation of the SUS score is if the SUS score is greater than 68 then it is said that *usability* of the system being evaluated is above average (good), whereas if it is below 68, it is said to be *usability* systembelow average (not good). The following is an overview of the score positions for each form of interpretation in Figure 2 below.

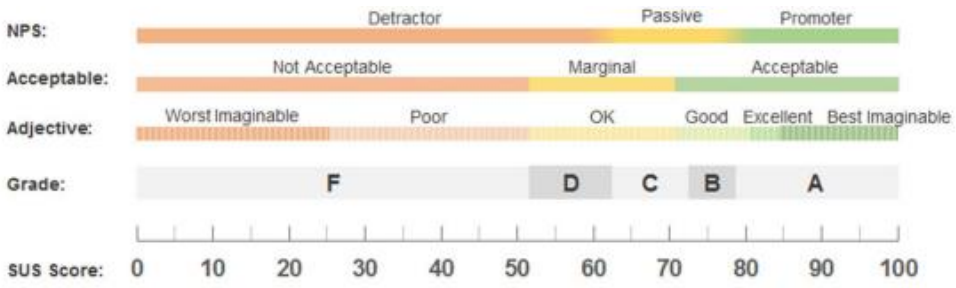

Figure 2. System Usability Scale Assessment (Kesuma, 2021)

4. CONCLUSION

The average score of the System Usability Scale (SUS) on the satisfaction of e-learning users towards respondents, obtained a score of 79 with Acceptability Ranges, Furthermore, for the Percentile Rank score, the value obtained is 79 so that it is included in the Grade B category, for further research, the author provides suggestions for using test with the Webqual usability method with the influence of usability values on student activities in study.

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