ANALYSIS USING ISO 9241-11 ON STUDENT PORTAL WEBSITE

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Abstract

This study aims to determine the usability of the student website portal which is a portal to support the academic process at a university. A high level of usability indicates a high utilization of the system by users to help them. Usability measurement is carried out using 19 questionnaire questions referring to ISO 9241-11, which are grouped into five usability variables, namely learnability, efficiency, memorability, error, satisfaction. The sample in this study were students using web portals with as many as 69 respondents. The results of this study indicate that users agree that the Siakad website is easy to learn, easy, accessible, and use in a relatively short time. In addition, the results of the study also show that users are neutral in their opinion that the content and menus on the Siakad website are quite easy to remember, the error rate that occurs on the website tends to be low and has also met the expectations and needs of students by displaying the latest data and information and maintaining the privacy of each student.

Keywords: Usability, ISO 9241-11, Portal.

Introduction

Student Portal is an information system that functions as a forum for academic information in all academic units as well as a means of communication between the academic community on each campus. The student portal is the SIAKAD system, SIAKAD is a system that displays data and processes academic activities involving students, lecturers, academic administration, and the academic community.

According to Bauer (2010) what is meant by usability testing is "Usability testing has traditionally meant testing for efficiency, ease of learning, and the ability to remember how to perform interactive tasks without difficulty or error."

The usability testing method is a method used to develop a website by testing it directly on end-users. Usability testing is an attribute to assess how easy a website interface is to use. Usability testing has five variables that we will examine, namely: Learnability means, how easy it is to reach all content and menus as well as for ordinary users who visit the website, Efficiency means, how quickly they can access content, and menus contained in the website Memorability. , after the user visits the website several times, is there any menu and content that the user remembers. The error means, how many errors are there in this student portal website, is there a menu that cannot be clicked if there is, the website displays error messages according to existing conditions and so on, Satisfaction means, how much satisfaction and need users who are concerned with the content and menus on the student portal website. (Nielsen, Jakob: 2012). Based on the description above, the author intends to raise these problems to fulfill the final task of the lecture. The title chosen was "USABILITY TESTING ANALYSIS USING ISO 9241-11 ON THE STUDENT PORTAL WEBSITE".

Formulation of the problem

The formulation of the research problem is as follows:

1. How is the usability of the Siakad website?
2. Are the menus and content on the Siakad website easy to learn and use?
3. Is the Siakad website effectively used?Are the menus on the website easy to remember?
4. Do the errors on the Siakad website interfere with the use of the website ?
5. Is the Siakad website comfortable to use?

Literature Review

The ISO standard is ISO 9241-11 International Organization for Standardization 9241-11. The measurement of the ISO 9241-11 standard uses several evaluation criteria, namely efficiency, effectiveness, and satisfaction.

Usability Testing is a method used to evaluate the user experience of a product, whether on a website or application. Users will spend too much time understanding the interface, thus making them less efficient at work. Increased productivity. The user interface allows users to concentrate more on their work instead of on the device they are using. Less training. Therefore, time and costs can be reduced. A usable product will also reduce the problems experienced by users, and therefore, support for the product can also be reduced. Increased acceptance (Binti & Rozali, 2015). When people who use the system like it, they tend to use it that is usable. Reduce development costs. Making changes early in the design lifecycle is much cheaper than making them last. Increased sales. The benefits of a system can create superior competitiveness when compared to other products. For this reason, the focus of this research is evaluating Student Online Siakad in universities with usability testing and in-depth interviews to find out how useful the system is.

Implementation Concept

The ISO standard is ISO 9241-11 International Organization for Standardization 9241-11. The measurement of the ISO 9241-11 standard uses several evaluation criteria, namely efficiency, effectiveness, and satisfaction.

According to Oktasari (2015:1340), implementation comes from English, namely to implement which means to implement. Implementation is the provision of means to carry out something which is the impact or result of something. Something that is done to have an impact or effect can be in the form of laws, government regulations, court decisions, and policies made by government institutions in state life.

Policy implementation links the policy objectives and their realization with the results of government activities. This is in accordance with the views of Van Meter and Horn (Grindle, 1980: 6) that implementation is building a network that supports policy objectives that are realized through government activities involving various interested parties.

Methods

The research method used in the SIAKAD Portal consists of several steps, starting from the step of identifying the problem, followed by conducting a literature study, wherein in this literature study there are sub-steps, namely conducting a literature review and object research study. The next step is usability testing, wherein this usability testing there are sub-steps, namely the preparation and distribution of questionnaires. After doing usability testing, there is an analysis step of usability testing results, wherein the analysis of usability testing results there are sub-steps of recap and processing of questionnaire data and calculating the results of the questionnaire. This research method can be seen clearly in Figure 1.

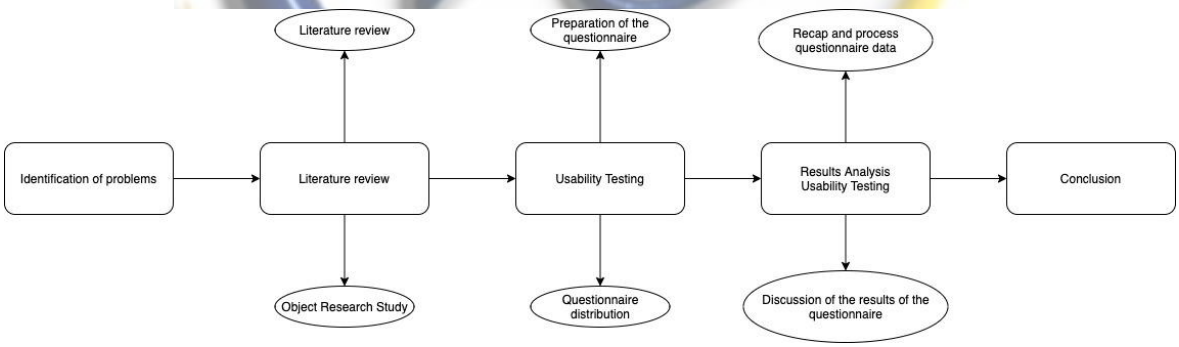

Fig. 1. Methods**.**

Questionnaires of 69 questions were distributed to students grouped into 5 variables, namely learnability, efficiency, memorability, error, satisfaction. The questions in the questionnaire that have been made aim to find out how well the system has been used by students so far.

Table 1 Questionnaire

No	Question
Learnability	
1	Is the text of the Siakad website easy to understand and clear for you?
2	Is the Siakad website easy to operate? (with reasons)
3	Is the color display on the Siakad website pleasing to the eye and easy to understand?
4	Is the language provided on the Siakad website easy to understand?

5	Are the menus available on the Siakad website easy to understand?
Efficiency	
6	Is the Siakad website page easy to find on search engines (google)? (with reasons)
7	Is it possible to display the content quickly when typing data in the search field on the Siakad website?
8	Is every menu that is clicked on the Siakad website able to display information quickly?
9	Does the Siakad website display the latest information?
10	Is the Siakad website fast and easy to access class schedules?
Memorability	
11	Can you remember previously visited pages?
12	Is the menu on the Siakad website easy to remember?
Error	
13	Did you not find the error menu on the Siakad website? (with reasons)
14	Is there a clear message when the error appears?
15	Do you find that there is no response when you click the menu?
Satisfaction	
16	Have your needs been met with the Siakad website? (with reasons)
17	Is your privacy guaranteed on the Siakad website? (with reasons)
18	Does the Siakad website meet your expectations?
19	Has the Siakad website provided complete and correct information?

Table 2 Item Response

Variable Name	Item Response
Learnability	No Item 1 to 5
Efficiency	No Item 6 to 10
Memorability	No Item 11 to 12
Error	No Item 13 to 15
Satisfaction	No Item 16 to 19

The questions on the questionnaire which are divided into 5 variables aim to determine the following aspects:

1) Learnability, measuring whether the Siakad website is easy for students to learn so that students can easily reuse the Siakad website.
2) Efficiency, measuring whether the system has been maximized so that it can be used with optimal results with the least effort by the user.
3) Memorability, measuring whether the system is easy to remember so that students have no trouble using the Siakad website every time.
4) Error, measuring whether there are still errors in the system such as functions that cannot be used,

features that do not work as expected, etc. In addition, to find out whether the website response is good when the error occurs.

5) Satisfaction, measuring whether the system can be used comfortably and has met student expectations

In this study, the Likert scale was used to measure students' attitudes and opinions about the Siakad website. According to Anwar Sanusi (2017: 59), the Likert Scale is a scale based on the sum of the attitudes of respondents in responding to statements related to indicators of a concept or variable being measured.

Table 3 Likert Scale Score Rules

No	Symbol	Information	Score
1	SA	Strongly Agree	5
2	A	Agree	4
3	N	Neutral	3
3	DNA	Disagree	2
4	SD	Strongly Disagree	1

Discussion

The results of the usability test are used to measure the level of use of the Siakad student website portal.

The number of respondents involved in this study was 69 student respondents using web portals from various study programs..

The primary data collection method is done by distributing questionnaires/questionnaires using google forms and interviews. The Likert scale is designed to convince respondents to answer at various levels on each question item or statement contained in the questionnaire. Data about the dimensions of the variables analyzed in this study were addressed to respondents using a scale of 1 to 5 to obtain ordinal data. The following are the results of a survey of 69 respondents.

Table 4 Respondent

Respondent No	Variable Type				
	Learnability	Efficiency	Memory	Error	Satisfaction
1	3.6	4.2	4	2.33	3.5
2	4.8	4.6	4.5	4.33	3.75
3	3.6	3.6	1	3.00	2.75
4	2.8	4.2	3	2.00	3.25
5	3.8	4	4	3.00	3.75
6	2.2	3.4	1	2.67	2.5
7	3.4	3.4	4	2.33	2.75
8	3.8	4.2	3	4.33	4.25
9	5	4.8	4	3.00	3.75
10	4.8	5	5	4.00	3.75
11	3.6	2.8	2.5	2.33	2.25
12	3.6	3.8	2	3.33	2.25
13	3.6	4.4	4	3.00	3.75
14	3.8	3	3	2.67	2.5

15	3	3	4	3.00	2
16	4.2	4.2	4	3.33	3.75
17	3.6	3.8	3	2.67	3
18	3.2	3.2	3	2.67	3.5
19	3.6	3	2	1.33	1.25
20	3.6	3.4	3	3.33	3.25
21	3.8	3	2	3.00	2.25
22	3	2.6	3	2.33	2.25
23	3	2.8	3	3.00	3
24	4	4	4	3.33	4
25	4.6	4.6	4	3.00	4.5
26	3	2.8	3	3.00	3
27	3.6	3.6	2.5	3.00	3.5
28	2.2	2.2	3	4.00	2
29	5	5	5	3.00	5
30	2.6	3.2	4	3.00	3.25
31	4	4	3	3.33	4
32	4.8	5	5	4.00	5
33	3.2	3.2	3	3.33	3
34	4	3.4	4	3.33	4
35	3	3	3	3.00	2.75
36	4.4	4.2	4	3.00	4.25
37	4	3.4	3.5	3.33	3.5
38	4	4	3	3.00	4
39	4	4	4	3.00	3.75
40	4	3.4	4	3.00	3.75
41	5	3.4	3.5	3.33	3.75
42	3.4	3.2	3	3.67	3.25
43	3.2	3.2	3.5	3.33	3.75
44	4.4	4.2	3.5	2.67	3.75
45	3.4	2.6	2.5	2.67	3
46	3.6	3	3.5	3.00	3
47	5	4.6	5	3.67	5
48	5	4.2	4	4.00	4

49	4.6	4.4	4.5	3.67	4
50	4	3.8	3	3.33	3.75
51	5	5	5	4.00	5
52	3.8	3.6	4	3.00	2
53	3.6	4.6	3	3.67	4
54	3.8	4	4	3.67	3.75
55	4	4.2	2	3.67	4.5
56	3.8	3.4	4	3.33	3.75
57	1.6	2.4	3	2.33	1.5
58	4	3.8	4	3.67	3.25
59	4.2	3.2	3	4.00	1.5
60	4	3.8	3.5	3.00	3.5
61	2.8	3.6	4	3.67	3.75
62	3.2	3.8	3	2.33	3
63	4	4	4	3.33	4
64	3.8	3.2	4	4.00	3.75
65	3.2	3.6	3.5	2.67	2.75
66	1.8	3.4	1	2.67	1.75
67	2.4	2.2	3	3.67	2
68	2	4.4	1	2.00	2.75
69	4.6	4.4	4.5	3.33	3.75
Average	3.70	3.69	3.38	3.14	3.33

Table 5 Table of Learnability Criteria based on the classification of respondents

Learnability				
All data	Information Systems	Informatics Engineering	Japanese Language	Industrial Engineering
3.70	3.56	3.07	3.90	4.11

Table 6 Table of Learnability Criteria Based on Percentage of respondents

Learnability					
All Data	1 Scale	2 Scale	3 Scale	4 Scale	5 Scale
100%	20.29%	43.19%	25.51%	7.83%	3.19%

Table 7 Table of Efficiency Criteria based on the classification of respondents

Efficiency				
All data	Information Systems	Informatics Engineering	Japanese Language	Industrial Engineering
3.69	3.59	3.8	3.75	3.82

Table 8 Table of Efficiency Criteria based on the percentage of respondents

Efficiency					
All Data	1 Scale	2 Scale	3 Scale	4 Scale	5 Scale
100%	2.03%	7.83%	26.67%	46.09%	17.39%

Table 9 Memory Criteria Table based on respondent classification

Memory				
All data	Information Systems	Information Engineering	Japanese Language	Industrial Engineering
3.38	3.17	2.92	3.80	3.44

Table 10 Memory Criteria Table based on the percentage of respondents

Memory					
Semua Data	1 Scale	2 Scale	3 Scale	4 Scale	5 Scale
100%	5.80%	10.14%	33.33%	41.30%	9.42%

Table 11 Table of Error Criteria based on respondent classification

Error				
All data	Information Systems	Information Engineering	Japanese Language	Industrial Engineering
3.14	3.03	2.83	3.32	3.33

Table 12 Table of Error Criteria based on the percentage of respondents

Error					
Semua Data	1 Scale	2 Scale	3 Scale	4 Scale	5 Scale
100%	6.28%	17.87%	40.10%	26.57%	9.18%

Table 13 Table of Satisfaction Criteria based on the classification of respondents

Satisfaction				
All data	Information Systems	Information Engineering	Japanese Language	Industrial Engineerin

				g
3.33	3.83	3.08	3.70	3.83

Table 14 Table of Satisfaction Criteria based on the percentage of respondents

Satisfaction					
All Data	1 Scale	2 Scale	3 Scale	4 Scale	5 Scale
100%	7.25%	11.23%	33.70%	36.96%	10.87%

Learnability

In the learnability section, there are 5 questions related to the appearance, language, and ease of operation of the menu on the Siakad website.

The first question relates to the writing of text on the Siakad portal which is easily accessible or not. The average score on this question is 3.88, with a total of 32 respondents giving a score of 4, as many as 17 respondents giving a value of 5, then as many as 15 respondents giving a score of 3. Students who gave a value of numbers 1 - 2 only 5 respondents.

The second question contains the difficulties when operating the website. The average score for this question is 3.72, most of the students gave a score above 3 on the grounds that the website is simple and uncomplicated. Students who scored below 3, said that the information provided on this website was not as complete as the previous version.

The third question is related to the color display on the Siakad portal, with the average score for this question being 3.54. In this question, more than 50 students gave a score from 3 to 5, and only a few students gave a score below 3.

The fourth question relates to the language used on the siakad portal, whether it is easy to understand or not. Just like the previous question, most of the students gave a score from 3 to 5. Only less than 10 students gave a score from 1 to 2. The average score for this question was 3.80.

The fifth question is the last question on the learnability variable, relating to the menus on the Siakad portal that are easy to understand or not. The average score on this question is 3.54. A total of 20 students gave a score of 3, as many as 26 students gave a value of 4, then as many as 13 students gave a value of 5. Only a few students gave a value from numbers 1 to 2.

Efficiency

In the efficiency variable, there are 5 questions related to how efficient the Siakad website is in accessing and displaying information.

The sixth question on the questionnaire, as well as the first question on the efficiency variable, relates to the ease of searching the Siakad website on search engines such as Google. The average score for this question is 3.83. More than 55 students gave a score from 3 to 5 for this question. Only a few students gave scores from numbers 1 to 2. Students who gave scores from numbers 3 to 5 on average wrote down why the Siakad website was not difficult to find because it immediately appeared on the top page of search engines. For students who score below 3, the average gives reasons that what appears on search engines is the old version of the Siakad website domain.

The seventh question relates to the website's performance in displaying data based on search results. The average score on this question is 3.71. A total of 21 students gave a score of 3, as many as 34 students gave a value of 4, then as many as 10 students gave a value of 5. Only a few students gave a score from numbers 1 to 2.

The eighth question relates to the website's performance when clicking the menu and accessing the menu. The average score on this question is 3.75. A total of 18 students gave a score of 3, as many as 35 students gave a value of 4, then as many as 11 students gave a value of 5. Only a few students gave a score from numbers 1 to 2.

The ninth question relates to the information displayed on the Siakad website whether it is up-to-date or not. A total of 22 students gave a score of 3, as many as 25 students gave a value of 4, then as many as 10 students gave a value of 5. Only less than 15 students gave a score of 1 to 2. The average score for this question was 3.43.

The tenth question as well as the last question of the efficiency variable relates to the speed and ease of the Siakad website in accessing the class schedule. Just like the previous question, most of the students gave

a score from 1 to 3. Only less than 10 students gave a score from 1 to 2. The average score for this question was 3.72

Memory

In the Memory section, there are 2 questions related to memory in operating the menu on the Siakad website.

The eleventh question is related to whether the Siakad website has remembered what you have visited. The average score for this question is 3.72, with a total of 15 respondents giving a score of 3, as many as 36 respondents giving a value of 4 and then 11 respondents giving a score of 5. Students who gave a value of numbers 1 - 2 were only 7 respondents.

The twelfth question is related to whether the Siakad website has remembered what menus have been visited. The average score for this question is 3.39, with a total of 21 respondents giving a score of 3, 29 respondents giving a score of 4 and then 7 respondents giving a score of 5. Students who gave a score of numbers 1 - 2 were only 12 respondents.

The thirteenth question relates to whether on the Siakad website an error menu is found. As a result, the average for this question is 2.96, with a total of 7 respondents giving a score of 5, as many as 14 respondents giving a value of 4, as many as 23 respondents giving a value of 3, and quite many students who rate 1-2, namely as many as 25 respondents.

The fourteenth question relates to a clear message when an error appears on the Siakad website, with the average score for this question being 3.33. In this question, more than 55 students gave scores from 1 to 3. Only less than 15 students gave scores from 1 to 2.

The fifteenth question relates to whether each user has problems with the menu on the Siakad website which when clicked does not display anything or does not redirect the user anywhere. As a result, the average score on this question is 3.14. In this question, as many as 36 respondents answered a score of 3, as many as 16 respondents answered a value of 4, and as many as 5 respondents answered a value of 5. Meanwhile, respondents who answered with a score of 1-2 were quite a few, namely around 12 respondents.

Satisfaction

In the Satisfaction section, there are 4 questions related to satisfaction, and comfort in operating the menu on the Siakad website.

The sixteenth question contains that your needs have been fulfilled with the Siakad website. The average score on this question is 3.42, most of the students gave a score above the number 3 on the grounds that the website has given a sense of satisfaction and looks more simple. Students who gave a score below 2, said that the website did not give a sense of security and often the website was often down.

The seventeenth question contains that your privacy is guaranteed on the Siakad website. The average score on this question is 3.57, most students give a score above 3 because the website has given a sense of security. Students who gave a score below 2, said that the website did not give a sense of security but only a few students gave this opinion.

Question eighteen is about whether the website meets your expectations. The average score on this question is 3.06, with a total of 29 respondents giving a score of 3, as many as 20 respondents giving a value of 4, and then as many as 4 respondents giving a score of 5. Students who gave scores from numbers 1 - 2 were only 16 respondents.

The nineteenth question is related to whether the Siakad website has provided complete and correct information. The average score for this question is 3.28, with a total of 30 respondents giving a score of 4, as many as 5 respondents giving a value of 5, then 15 respondents giving a score of 3. There are only 15 students who gave a score from numbers 1 - 2.

Recommendation

Based on the results of research and analysis that has been made by the author, the recommendations that the author can give are as follows:

1. Fix existing errors so that the features on the website can be used optimally.
2. Pay more attention to the wording and the layout of each menu to make it easier to remember
3. Maximizing each existing content and menu and immediately bringing up menus that are not yet available on the website, such as when checking payment history.

Conclusion

Based on the results of research and analysis that has been made by the author, the following conclusions can be drawn:

1. From the results of the questionnaire processing, the five variables got more than a value of 3, so it can be concluded that students quite agree that the Siakad website is suitable for use by Widyatama University students. However, the author makes recommendations as suggestions for improving the Siakad website.

2. A total of 11.02% agree and 25.51% quite agree that the Siakad website is easy to learn. While the majority of students, namely 63.48% of respondents did not agree that the Siakad website is easy to learn. However, from the average calculation results, Variable Learnability got an average value of 3.70, which means that the appearance of the Siakad website is comfortable to use and easy to operate, the language and menus used are easy to understand.
3. A total of 9.86% of respondents do not agree that the Siakad website is efficient when used, 26.67% of respondents quite agree that the Siakad website is efficient when used. However, the majority of students, as many as 63.48% of respondents agree that the Siakad website is efficient when used. From the results of the average calculation, Variable Efficiency got an average value of 3.69, which means that the Siakad website can be accessed and used in a relatively short time or it can be said that the Siakad website is efficient when used.
4. The majority of respondents by 50.72% agree and 33.33% quite agree that the Siakad website is easy to remember. Only 15.94% of students disagree that the Siakad website is easy to remember. From the results of the average calculation, Variable Memory got an average value of 3.38, which means that the content and menus on the Siakad website are quite easy to remember.
5. As many as 24.15% of students think that the Siakad website still often has errors when used. However, 35.75% of students agree and 40.10% of students quite agree that the frequency of errors on the Siakad website is rare. From the results of the average calculation, Variable Error got an average value of 3.14, which means that students quite agree that the error rate that occurs on the website is quite rare.
6. The majority of students as much as 47.83% of respondents agreed and 33.70% of respondents quite agreed that the Siakad website was comfortable to use. Only 18.48% of respondents disagree that the Siakad website is comfortable to use. From the results of the average calculation, Variable Satisfaction got an average value of 3.33, which means that students quite agree that the Siakad website is comfortable. to be used, which means the Siakad website is sufficient to meet the expectations and needs of students by displaying the latest data and information and maintaining the privacy of each student.

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