Conference Paper

Usability Scale System Implementation as An Effort Improving Personal Engagement on The Official Website of The Study Program at UPN "Veteran" Jawa Timur

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ABSTRACT

In the digital era, websites are a very important online presence for organizations, including universities. A good and professional website can help universities improve their image and reputation, reach a wider range of prospective students, and promote themselves online. Seeing the urgency of a website for tertiary institutions, it is necessary to evaluate it to ensure the expected benefits of the website can be achieved. This study aims to evaluate the usability of the official website of study programs at UPN Veteran Jawa Timur using the System Usability Scale (SUS). Ten official websites of study programs at UPN Veteran Jawa Timur were taken as samples. The results of the usability evaluation show that the average SUS score is 61.4, where the conclusion is marginally low, so it can still be increased to an acceptable level. The results of the usability evaluation with the System Usability Scale (SUS) will be used to design mockup websites for study programs at UPN Veteran Jawa Timur.

Keywords: System usability scale, website, online presence, usability

Introduction

As one of Indonesia's state institutions, UPN Veteran Jawa Timur has numerous faculties with study programs. UPN Veteran Jawa Timur currently has 7 faculties, 25 undergraduate study programs, and 6 postgraduate study programs. Since becoming a state campus in 2014, UPN Veteran Jawa Timur has become one of the most desired campuses among potential students. In general, prospective students at UPN Veteran Jawa Timur check for information about the study program they have an interest in on the official website of the study program.

Websites have several advantages for universities, including providing easily accessible information about the university to prospective students and the general public, strengthening the university's branding and image through attractive design, quality content, and a good user experience, and also facilitating interaction and communication between universities and their stakeholders (Schimmel et al., n.d.).

Considering the importance of having a university website, it is vital to assess its quality and exposure. Webometrics ranking is one indicator of a website's quality and visibility. Webometrics is based on data collected and analyzed from search engines and other online data sources. Webometrics seeks to assess and improve the quality and visibility of a website in comparison to other online resources.

On the world university webometrics ranking portal, the UPN Veteran Jawa Timur website is ranked 8377th, far below the webometrics ranking of Surabaya's state universities, which include Airlangga University in 990th position, Sepuluh Nopember Institute of Technology in 1160th position,

State University Surabaya in 3585th position, and Sunan Ampel State Islamic University Surabaya in 4073rd position.

Increasing the quality and quantity of content, as well as user engagement, are two things that may be done to boost webometrics rankings. Website administrators must guarantee that the content supplied is of high quality, current, and relevant. Meanwhile, users can communicate with each other via interactive features such as forums, comments, and social media. Usability testing is a means of determining the extent to which a website may be utilized successfully, efficiently, and to satisfy its users. This testing should ideally be done on a regular and continuous basis to provide users with the best possible experience while visiting a website. These visitors' experiences will affect personal engagement, which can help boost the university's webometrics score.

A system usability scale is one of the instruments widely used to do usability testing. This tool can be used to assess user experience (UX) as well as website usability. The purpose of this study is to use the System Usability Scale (SUS) to assess the usability of the official website of the study program at UPN Veteran Jawa Timur. The results of the System Usability Scale (SUS) usability test will be used to develop a study program website mockup at UPN Veteran Jawa Timur.

Literature Review
Website

A website is a page or set of pages within an internet domain that users can access over the internet network. Websites can contain a variety of information, including text, photographs, videos, and other forms of media (Brügger, 2009). Websites are typically used for communication, information, entertainment, commerce, or other reasons. Websites are built with programming languages like HTML, CSS, and JavaScript and are browsed by web browsers like Google Chrome, Mozilla Firefox, or Safari.

Websites provide numerous benefits to higher education institutions (Apriananta & Wijaya, 2018), including providing information about the higher education institution that is easily accessible to prospective students and the general public and strengthening the higher education institution's branding and image through an attractive design and content. improving the effectiveness of marketing and promotions through websites by optimizing the use of SEO (Search Engine Optimization), social media, and online advertising, and providing a platform for interaction and communication between lecturers, students, and other university-related parties (Kriyantono, 2020).

Webometrics

Webometrics is the study of the size, attributes, and measurement of websites and social networks about the influence and performance of educational, scientific, and development organizations worldwide. Webometrics is frequently referred to as "cybermetrics" or "web science" (Khamala, 2018). Webometrics is based on data collected and analyzed from search engines and other online data sources, such as information on websites, blogs, social networks, and other online data. Webometrics seeks to assess and improve the quality and visibility of a website in comparison to other online resources (Aguillo et al., 2010).

Webometrics is also used to assess the performance and reputation of educational and research organizations like universities and research institutes. Webometrics can provide information about the visibility, quality, and impact of educational and research institutions in cyberspace through data measurement and analysis, allowing institutions to improve their performance and grow their influence online. It can also be used to assess the efficacy of certain firms' or individuals' internet marketing efforts and branding strategies. In this situation, webometrics can assist in determining how successful an online marketing campaign or branding strategy is in growing an organization's or individual's online visibility and impact.

Research related to webometrics was carried out to try several methods with the aim of increasing webometrics ranking, one of which is the inbound-outbound method (Rahardja et al., 2017). Various other approaches that have been studied are the entropy and promethee methods (Jati & Dominic, 2017).

System usability scale

System Usability Scale (SUS) is a standard measurement tool used to evaluate the level of user experience and usability of a system, product or service. The SUS contains ten statements that respondents must answer using a 5-point Likert scale from "Strongly Agree" to "Strongly Disagree" (Welda et al., 2020). SUS was developed by John Brooke in the 1980s and has been widely used in a variety of industries and fields, including software development, web design, healthcare, and education. SUS is a fast and easy way to collect user feedback and measure effectiveness, efficiency, and user satisfaction with a system (Vlachogianni & Tselios, 2022). If the system score calculation result is above 70, it is generally considered a good usability score, while a score above 85 is considered very good.
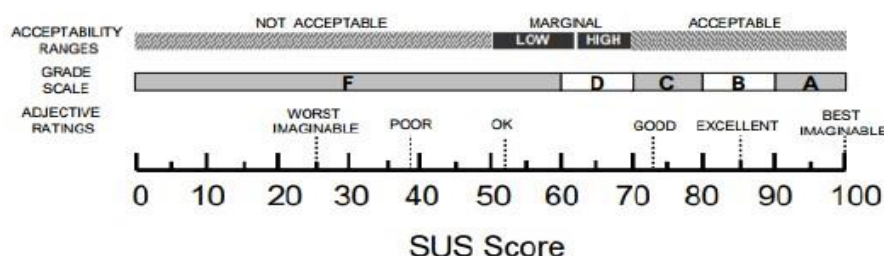

Figure 1. SUS Score

Several prior research on usability testing have included examining the usability of mobile applications for reporting road flooding (Pratama et al., 2021). Another example of a system usability scale application is a case study of website testing (Salamah, 2019; Sembodo et al., 2021). SUS has proven to be a reliable and effective measurement method for assessing a system's usability, and its simplicity and ease of use have contributed to its widespread adoption in the UX research field.

The terms UI (User Interface) and UX (User Experience) are used frequently in digital design. The visual look and interaction of the user interface are referred to as the UI (User Interface). Graphic design, layout, color, typography, and interactive components such as buttons, icons, and input forms are all included. The primary purpose of a UI is to provide consumers with a nice and simple visual experience. In the meantime, UX (User Experience) refers to the whole user experience when interacting with digital products. This encompasses how people interact with the product, from the registration procedure to actually utilizing it. UX also considers how users perceive and comprehend the product, such as whether they are comfortable, satisfied, or frustrated (Muhyidin et al., 2020).

Research related to software development, including web-based software, generally uses user center design in implementing UI/UX (Sanjaya et al., 2022).

Material and Methods

A research method is a procedure for conducting research with the aim of producing accurate and reliable data and information. Research methods play a very important role in the process of collecting data and information. The following is the implementation method.

The following are details of the research procedures:
1. Identify issues with ten different study programs in the UPNVJT environment.
2. Conduct a literature review on the efficacy of websites for webometric improvement, followed by a field study on ten study programs.

3. Measure, evaluate, and assess 10 different study program websites.
4. Create a functional website mockup for UPNVJT study programs.
5. Design a blueprint, plan, or thorough description of a project, structure, or product that will be built. Dimensions, material specifications, components, and directions for developing a usable study program website in the UPNVJT environment can all be found in blueprints.

The stages of the research procedure clarify that this research will be conducted with high ethics and integrity, assisting in ensuring that the data produced is relevant and helpful for research goals and can be appropriately interpreted. This can aid in the production of conclusions that can be accounted for and used as a foundation for decision-making or scientific growth.

Results and Discussion

The problem that will be resolved in this research is an evaluation of the official website of the study program within the UPN Veteran Jawa Timur, where the results of the evaluation will be used as a basis for compiling a mock-up of the study program website. Table 1 summarizes the name of the study program along with the URL address of the study program's official website.

Table 1. Official website of study programs at UPN Veteran Jawa Timur

No	Faculty	Study Program	Official Website
1	Medical		https://fk.upnjatim.ac.id/
2	Economics and Business		https://febis.upnjatim.ac.id/
3		Master of Accounting	https://mak.upnjatim.ac.id/
4		Master of Management	https://mm.upnjatim.ac.id/
5		Accountancy	https://akuntansi.upnjatim.ac.id/
6		Economic development	https://ekbang.upnjatim.ac.id/
7		Management	https://manajemen.upnjatim.ac.id/
8		Entrepreneurship	-
9	Agriculture		https://faperta.upnjatim.ac.id/
10		Agribusiness	https://agribis.upnjatim.ac.id/
11		Master in Agribusiness	https://magri.upnjatim.ac.id/
12		Doctor of Agribusiness	https://dokgri.upnjatim.ac.id/
13		Agrotechnology	https://agrotek.upnjatim.ac.id/
14		Master in Agrotechnology	https://magrotek.upnjatim.ac.id/
15	Technique		https://ft.upnjatim.ac.id/
16		Chemical Engineering	https://tekkimia.upnjatim.ac.id/
17		Industrial Engineering	https://tekindustri.upnjatim.ac.id/
18		Food Technology	https://tekpangan.upnjatim.ac.id/
19		Environmental Engineering	https://teklingk.upnjatim.ac.id/
20		Civil Engineering	https://teksipil.upnjatim.ac.id/
21		Mechanical Engineering	https://tekmesin.upnjatim.ac.id/
22		Physics	https://fisika.upnjatim.ac.id/
23		Master of Environmental Science	https://mling.upnjatim.ac.id/
24	Social science and political science		https://fisip.upnjatim.ac.id/
25		Communication Studies	https://ilkom.upnjatim.ac.id/
26		Business Administration	https://adbis.upnjatim.ac.id/
27		State Administration	https://adneg.upnjatim.ac.id/
28		International Relations	https://hubint.upnjatim.ac.id/
29		Tourist	https://pariwisata.upnjatim.ac.id/
30		Indonesian Linguistics	https://linguistik.upnjatim.ac.id/

To be continued….

31	Computer Science	English for business and professional commu-nication	https://bispro.upnjatim.ac.id/
31	Computer Science		https://fasilkom.upnjatim.ac.id/
32		Informatics	https://if.upnjatim.ac.id/
33		Information Systems	https://sisfo.upnjatim.ac.id/
34		Data Science	https://sada.upnjatim.ac.id/
35		Digital Business	https://bisdi.upnjatim.ac.id/
36		Master of Information Technology	https://mti.upnjatim.ac.id/
37	Architecture and Design		https://fad.upnjatim.ac.id/
38		Visual communication design	https://dkv.upnjatim.ac.id/
39		Architecture	https://arsitektur.upnjatim.ac.id/
40		Design interior	-
41	Law		https://fhukum.upnjatim.ac.id/

In table 1 it appears that several study programs still do not have official websites. Apart from that, from the author's observations, the contents of some study program websites are not updated, especially for new study programs. Then the user interface of several study program websites looks too plain, and seems less attractive and informative.

The data in this study was collected through respondents' answers from 10 study programs at UPN Veteran Jawa Timur. The 10 study programs that are the object of this research include food technology, information systems, international relations, civil engineering, legal science, environmental engineering, communication science, informatics, accounting, and agrotechnology study programs.

The System Usability Scale is a measurement of the usability of a website based on user experience. Therefore, research data was obtained from students of 10 selected study programs who had used or interacted with their study program's website. The sampling technique used was simple random sampling, provided that the respondent had interacted with the study program website. The minimum sample is obtained through Slovin calculations.

Table 2 summarizes the number of respondents for each study program at the UPN Veteran Jawa Timur

Study Program	Minimum Sample
Food Technology	90
information Systems	87
International Relations	85
civil Engineering	84
Legal studies	90
environmental Engineering	82
Communication Studies	88
informatics	89
accountancy	92
agrotechnology	89

Following analysis of the data gathered, a system usability scale score is determined for each research program. The following guidelines are used to determine the SUS score:
1. For every odd numbered question, the score for each question obtained from the user's score will be reduced by 1
2. For every even numbered question, the final score is obtained from 5 points minus the question score obtained from the user

3. The SUS score is obtained from the sum of the scores for each question which is then multiplied by 2.5

Score calculation rules apply to 1 respondent. For further calculations, the SUS SCORE of each respondent is found for the average score by adding up all the scores and dividing by the number of respondents.

SUS (system usability scale) is one of the most popular usability testing tools. SUS was developed by John Brooke in 1986. SUS has 10 questions and 5 answer choices. Answer choices range from strongly disagree to strongly agree. SUS has a minimum score of 0 and a maximum score of 100. Table 3 summarizes the SUS questions.

Table 3. The SUS questions

No	Questions
1	I think I will use this system again
2	I find this system complicated to use
3	I find this system easy to use
4	I need help from other people or technicians in using this system
5	I feel that the system features work as they should
6	I feel there are many things that are inconsistent (not harmonious in this system)
7	I feel like others will figure out how to use this system quickly
8	I find this system confusing
9	I feel there are no obstacles to using this system
10	I need to get used to it first before using it

Table 4 is a summary of the results of calculating SUS scores from 10 study programs at UPN Veteran Jawa Timur. This can be obtained from a questionnaire distributed to students in the case study program. The data is then processed following the SUS score calculation rules.

Table 4. SUS Score

No	Study program	SUS Score	Conclusion
1	Food Technology	60	Marginal low
2	Information Systems	60.5	Marginal low
3	International Relations	53	Marginal low
4	Civil Engineering	63.8	Marginal high
5	Legal studies	63	Marginal high
6	Environmental Engineering	61	Marginal low
7	Communication Studies	68	Marginal high
8	Informatics	53.06	Marginal low
9	Accountancy	67.7	Marginal high
10	Agrotech	64	Marginal High
Average		61,4	Marginal Low

The average SUS score for the 10 study programs that are the subject of the case study is 61.4, according to the calculation findings given in Table 4.

Conclusion

After calculating, the overall respondents' average SUS score was determined. The SUS assessment is then used to adjust the score and determine which group the test results with the average score achieved belong to.

The average SUS score, according to the literature, is 68. A SUS score above 68 will be regarded as above average, whereas a score below 68 will be regarded as below normal. If your score is lower than 68, there is a usability issue that needs to be fixed.

The study's findings indicate that the average SUS value is 61.4, which is somewhat below the expected level. The websites of the 10 study programs that were the subject of case studies at UPN Veteran Jatim are generally fairly good, but they still need to be improved to at least be good value and fall into the acceptable category.

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