



# E-Commerce User Interface Enhancement Based on User Experience Evaluation of Usability Aspects

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## ABSTRACT

The growth of information technology has an effect on the business sector, as evidenced by the rise of e-commerce websites that make buying and selling easier for individuals. In order to achieve the goal of improving user experience on e-commerce websites, this research analyzes user experience on e-commerce websites so that Rumah58.com can be recognized by more people, identify problems and improve user experience, which can increase user attachment and loyalty to the website and can provide website improvement recommendations for Rumah58.com based on the results of the user experience analysis. This study generates recommendations for enhancing the Rumah58.com e-commerce website to enhance the convenience and satisfaction of its consumers. It seeks to make the Rumah58.com e-commerce website more user-friendly and satisfying, since the website is now more accessible, the navigation is easy, and the website's features are comprehensive and clear. Visitors get quicker access to the Rumah58.com website, straightforward navigation, and comprehensive and understandable site features.

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## 1. INTRODUCTION

The growth of technology, particularly information technology, has accelerated in recent years. Information technology is frequently utilized to facilitate comprehension and aid in the completion of a task. The growth of information technology has had an impact on the business sector; for instance, there are currently a large number of purchasing and selling sites (e-commerce) that have made it easier for individuals to buy and sell things (Fauzi et al., 2023; Muhammad Wali et al., 2023). One of them is Semadi Kwazay Indoland, a company that is creating an e-commerce website using the domain name rumah58.com. Making the website display user-friendly and understandable to all Balinese people is one step in order for the rumah58.com website to be quickly recognized, so that a user experience analysis can be conducted on the e-commerce website so that rumah58.com can be known by a larger segment of the community and can provide recommendations for website improvements for rumah58.com that are tailored to the results of the user experience analysis.

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User experience (UX) is how a user gets satisfaction and understands the product or service received from a website. User experience is obtained from what they think and feel about a product or service, related matters make user experience subjective, so that user experience can be known together with other tests that make users directly interact with related products in order to get an objective assessment (Jain & Purandare, 2021; Ritonummi & Niininen, 2021). In this study will be focused on the evaluation of usability aspects. What is meant by usability here is the criteria for the ease of use of the product for all groups.

Usability evaluation can be done by involving or without involving users. Evaluation by involving users, namely how users implement the system as well as the problems they face. There are four method criteria in usability evaluation, namely model or metrics-based, inspection, testing, and inquiry (Kumaresh et al., 2021) (Liu et al., 2019). Of the several evaluation methods that use the user for the evaluation process, namely the testing and inquiry methods, so that in research using these methods by observing users when interacting with the e-commerce website Rumah58.com. The usability testing method is used to obtain data to calculate the level of effectiveness and efficiency of the include system (Hasibuan & Putri, 2022; Iqbal & Bahruni, 2019), while the inquiry method is used in obtaining data regarding user satisfaction. UX evaluation helps to determine how well a website can meet the needs and expectations of its users. Therefore, recommending e-commerce websites based on UX evaluations will help ensure that users will have a positive online shopping experience.

In previous research by (Candiasa et al., 2023) show that the score for the participant questionnaire was 49.75 where the score was smaller than the SUS standard score of 68. So it can be said that the respondents were not satisfied using the Rumah58.com website, so a recommendation for website improvement was needed on Rumah58.com. the purpose of this research namely recommendations for improvements to the Rumah58.com e-commerce website based on analysis results to increase user satisfaction. This is also reinforced by research by (Souissay et al., 2019) who conducted user experience analysis on respondents regarding the improvement of Lazada website pages. E-commerce website recommendations based on UX evaluations can also help determine how well a website can provide quality products and competitive prices (Ahsyar et al., 2020; Fatah, 2020).

UX evaluation can help determine how well a website provides clear and accurate product information, and streamlines the buying process (Indrayani et al., 2020). The study comparison focuses on the tested component of UX analysis, namely the usability aspect, so that this research may be used to users of the Rumah58.com website in order to determine the demands of users and the evaluation of users in order to make recommendations for website enhancement.

With recommendations for improvements, it is hoped that the e-commerce website Rumah58.com can provide even better comfort and satisfaction for its users. It is easier

for users to access the Rumah58.com website, the navigation is easy to understand and understand (Bitkina et al., 2020), complete and clear website features and it is hoped that the Rumah58.com e-commerce website can provide even better comfort and satisfaction for its users. It is easier for users to access the Rumah58.com website, the navigation is easy to understand and understand, the website features are complete and clear.

## 2. RESEARCH METHOD

The type of usability evaluation research on the e-commerce website Rumah58.com is an evaluation survey research which then data from the survey results will be used to measure the level of user satisfaction related to the use of the Rumah58.com website. This research is a continuation of previous research (Candiasa et al., 2023) which performs user experience analysis using Firstclick, performance, measurement, RTA and Questionnaire. From the results of the analysis, this research can make recommendations for improving the Rumah58.com website. The evaluation survey method is a user-based survey, namely the usability evaluation of the Rumah58.com website involves users in getting the results. Method This research is descriptive analytical. (Schrepp et al., 2017) describes a descriptive survey method explaining current conditions or attitudes. This study analyzes descriptively related to the evaluation of the use of the Rumah58.com website in terms of usability aspects.

### 2.1. Research Population Sample

In evaluating the user experience on the rumah58.com website, researchers need a population sample consisting of several users. The rumah58.com website has been visited by more than 13 (thirteen) thousand visitors who aim to buy products displayed on the rumah58.com website or just visit to view the contents, profiles and promos offered on rumah58.com. Visitors consist of teenagers and adults. Considering that many users visit rumah58.com, researchers also want to evaluate the user experience to find out the level of user satisfaction and response in their experience when visiting the rumah58.com website.

### 2.2. Research Instruments

#### a. Interview

Is a data collection technique in the field by carrying out question and answer activities from researchers to respondents. The function of the interview is to obtain valid information or data that the researcher wants to find (Dharmayanti et al., 2018). In this study, researchers interviewed the owner of the rumah58.com website to find out the needs related to the visitor experience when accessing the rumah58.com website. The interview method used is unstructured interviews in order to obtain accurate information about what the informants as website owners really need in knowing visitor respondents when accessing the rumah58.com website.

#### b. Observation

In general, observation is a process of systematically observing and recording the symptoms studied, so that in observation there is no questioning of the subject under study. (Malhotra, 2017). In this stage, the researcher conducts unstructured observation activities, namely observing directly how visitors respond in their experiences when accessing the rumah 58.com website.

#### c. Questionnaire

Is a list of questions that must be answered by the respondent or the person who will be measured in the hope of knowing the variables that are considered important by the respondent (Sugiyono, 2017). In this stage the researcher uses

open and closed questionnaires for respondents after visiting the rumah58.com site. In the open and closed questionnaires, the researcher asked what experiences the respondents had after visiting the rumah58.com site, and provided the opportunity for respondents to express criticism, suggestions and input in writing in the form of comments. Researchers used open and closed questionnaires as a research instrument in terms of user experience and usability of respondents

d. Carry out Usability Testing

Dividing respondents into two groups, namely 25 people in the advanced group and 25 people in the novice group, with a total of 50 respondents. Advanced respondents are users who are used to using the internet and/or making transactions on e-commerce websites before. Meanwhile, novice respondents are users who are not used to using the internet and are not used to making transactions on e-commerce websites.

### 3. RESULTS AND DISCUSSIONS

#### 3.1 Improvement Recommendations

In websites, usability is a necessary condition. If the website fails to clearly explain what the company or organization has to offer as well as what users can do on the website, the user will leave or decrease according to the problems from the results of the respondent's data who are concerned about usability, thus requiring recommendations for improvement. Checking whether a business decision is appropriate for its real-world usage, allows one to see how successful a user is with their task, and is useful in getting user reactions and feedback regarding the product.

Based on data in terms of effectiveness using Performance Measurement in previous studies (Candiasa et al., 2023) which shows that there are participants who make errors or fail to complete their tasks. Meanwhile, in terms of efficiency, statistically the 10 tasks indicated that there was no significant time difference between the two groups of respondents and showed that the page The Rumah58.com e-commerce website is quite efficient in terms of usage.

Can be concluded e-commerce website Rumah58.com in terms of effectiveness experienced a total of 6% errors in the novice group respondents and a total of 4% in the advanced group respondents out of a total of 10 tasks given to 25 respondents in each group. The following is a description of tasks 5,6,7 which experienced errors in each group of respondents.

a. Task 5: Sort property listings by properties for sale only

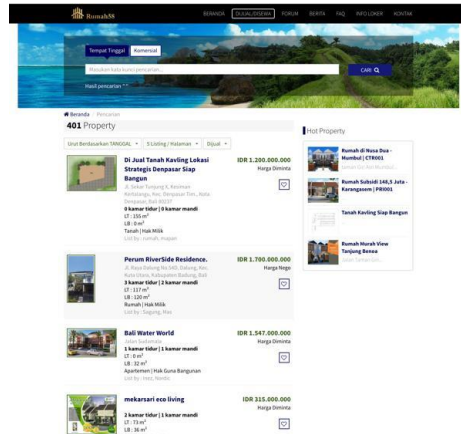


Figure 1. Sort Property Listings

In this task, participants are asked to sort properties that are for sale only. There are 2 ways to complete this task, the first way is by typing "for sale" in the search field and then clicking the search button. The second way is to select the list for sale under the search field to sort properties with sale status. There were several respondents who failed in this task, especially the novice group of respondents because they did not realize the listing feature font was small in size without clear instructions and thought that the search field could only display the name of the property to be sold.

b. Task 6: Edit property posts and add new photos

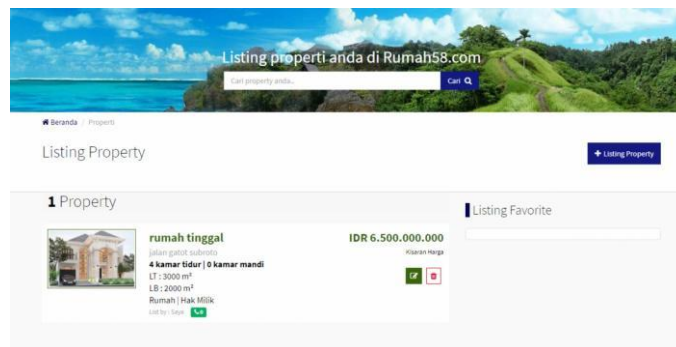


Figure 2. Edit Property Post

c. Task 7: Enter the Forum page and comment on the first post of the forum

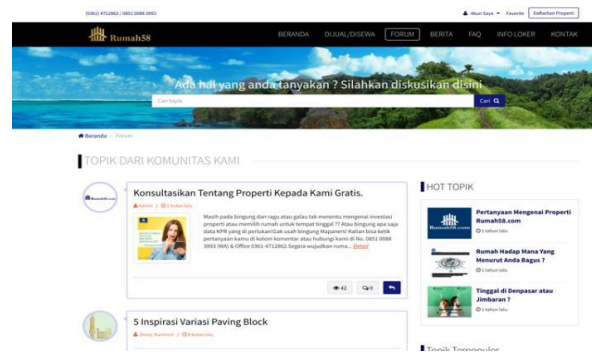


Figure 3. Doing Comments on Forums

In this task, participants are asked to comment on the first forum post. To complete this task the participants select the "Forum" menu then click on the left arrow symbol at the bottom of the comments. There were several respondents who failed this task, especially the novice group of respondents, because the respondent participants did not realize that the symbol was a symbol for adding a comment to the forum, judging by the shape of the symbol which is not generally used on other websites.

Of the 10 tasks given to 2 groups of respondents onecommerce websiteRumah58.com, problems are classified into 2 parts with reference to work priorities. For the problem of Task 5 it is categorized as a major problem because it has a percentage of users with the highest total error score of 40% in both groups of respondents, if not corrected it can make 40% of users likely to give up, especially for novice group users so that it has quite an impact on the company. The problems in Task 6 and Task 7 are classified as minor because the users feel disturbed but do not prevent the majority of users from completing the scenario. From the results of the respondent's questionnaire that has been made, it can be concluded that the answers to the repair/guideline design are as follows. This improvement plan is the answer to respondents' complaints on the Rumah58.com website

Table 1 Improvement Plan

No	Responses to Respondents' Complaints
1	Navigation organizes content by placing it in a hierarchy.
2	Switching pages can embed navigation behavior into button and link containers.
3	The Offline function gives users access to the files they want to download.
4	Use simple and direct language that is easy for users to understand.
5	Helper text provides context about the input field or fields as well as additional information about what input is desired.
6	When input is not accepted, the text field may display an error message below the input line.
7	Confirmation asks the user to verify that they really want to continue with the action they just invoked.
8	Displays empty status. The most basic empty status displays non-interactive images and text tags.
9	Search allows users to quickly search for app content.
10	List holds content, and can vary within the list.
11	The navigation drawer slides from the left and contains navigation destinations.
12	For an optimal user experience, the Material Design user interface can customize the layout.
13	Buttons should be easy.

### 3.2 Improvement Recommendation Results

- a. Recommendations for Improvement of Task 5
  - Sort property listings by properties for sale only

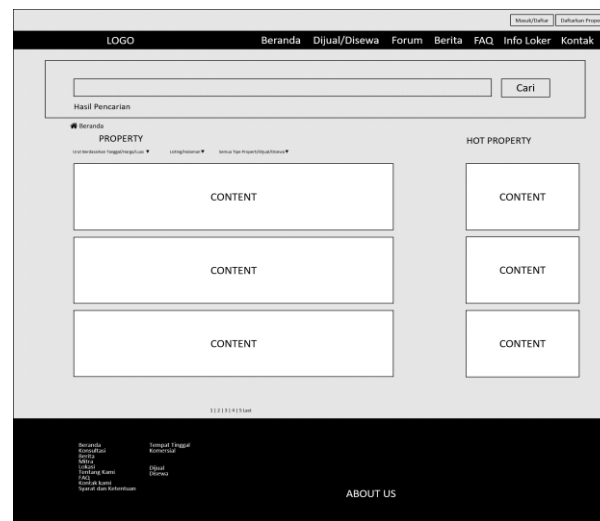


Figure 4. Property Listing Layout

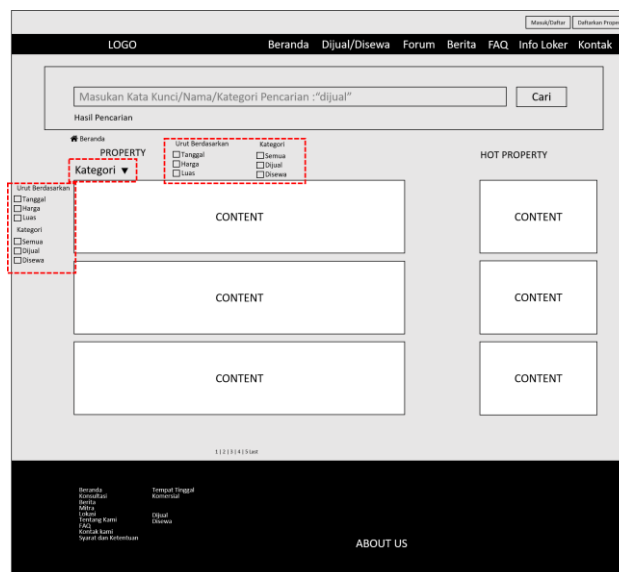


Figure 5. Property Listing Recommendation Layout

Several respondents failed in this task, especially the novice group of respondents because they did not realize the listing feature font was small in size without clear instructions and thought that the search field could only display the name of the property to be sold. There are several alternative fixes for the features in this form. Based on the guideline table that has been made, the Property Listing view will be made as shown in Figure 5 Property Listing Recommendation Layout. By using a checkbox that can be checked by the user because of the very familiar nature of the Checkbox feature, it can make it easier for website users to sort content easily. The checkbox can be placed in the middle or on the side adjacent to the first line of content. The second alternative is to summarize all components in 1 category.

- b. Recommendations for Improvement of Task 6  
 Edit property posts and add new photos

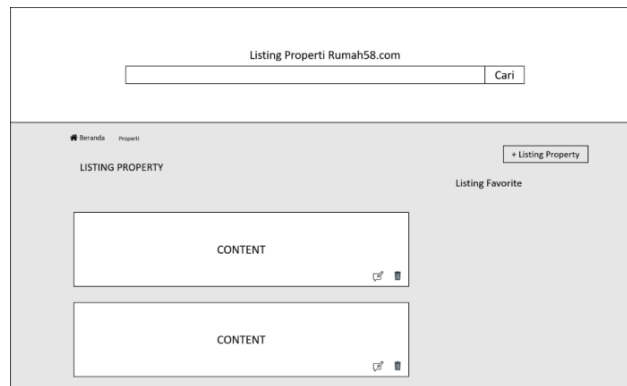


Figure 6. Property Post Edit Layout

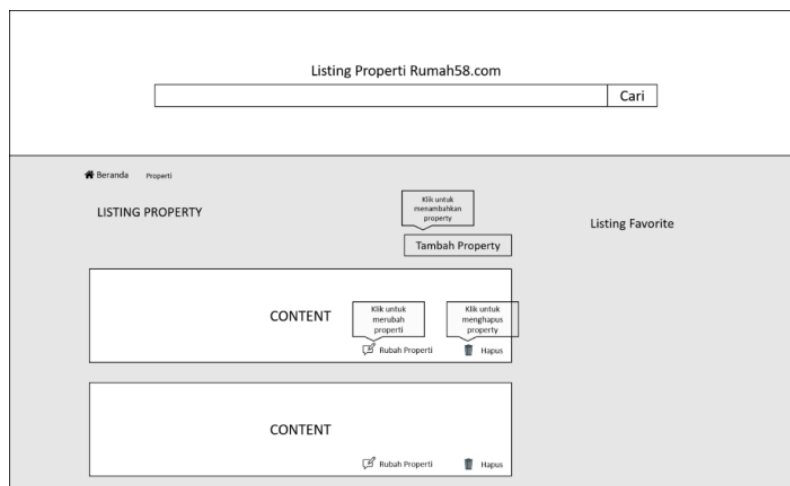


Figure 7. Recommended Layout Edit Property Post

Some respondents failed in this task, especially the novice group of respondents because they did not realize the meaning of the buttons or icons in this feature. There are several alternative fixes for the features in this form. Based on the guideline table that has been made, the Edit and Add Property Post views will be created as shown in Figure 7 Layout of Property Post Edit Recommendations. By changing the symbol and adding explanations to Change Properties and Add Properties as well as pointers that pop up when the mouse moves in the direction the user suspects.

c. Recommendations for Improvement of Task 7

Enter the Forum page and comment on the first post of the forum.

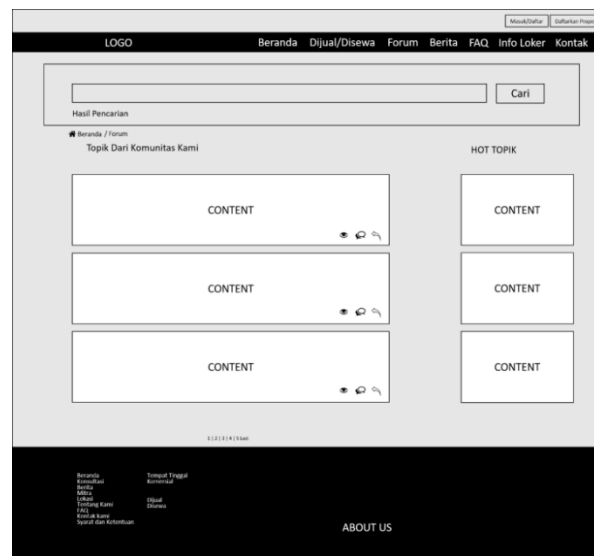


Figure 8. Layout of Comments on Forums

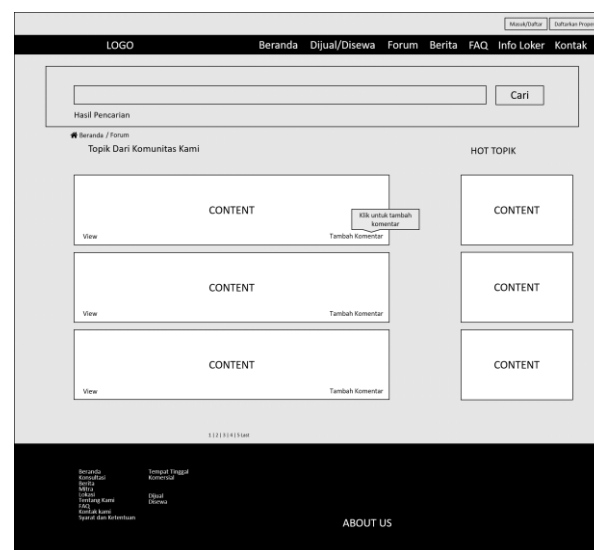


Figure 9. Layout Recommendations Comments on Forums

Respondents who failed at this task were mainly on respBeginner group members don't realize that the arrow symbol to the left in Figure 8 Layout Comments on the Forum is a symbol for adding a comment to the forum, judging from the shape of the symbol that is not generally used on other websites. For this reason, based on the guideline table that has been made, the display for added comments is made as shown in Figure 9. Recommended Forum Comments Layout. By shifting the number of views on the left and replacing the symbol with "add comment" to make it easier for users to access this feature.

Among the four techniques, performance measurement has more advantages than other techniques. Because this technique is applied in obtaining quantitative data related to the performance of the test takers when carrying out their duties during the usability test. Quantitative data is very useful when testing comparisons of processing times to see efficiency and comparing the number of errors to see effectiveness. Compared to techniques that are only based on verbalizing thoughts, feelings and opinions when

respondents interact with the system, where these factors can be biased, change and tend to be more subjective.

#### 4. CONCLUSION

The style and layout of the rumah58.com website require improvement. This is due to the fact that the results of the questionnaire and questions given to respondents indicate that they have difficulty understanding the display on the rumah58.com website, particularly inexperienced respondents, thus it takes longer to comprehend the layout. The selection of language and phrases is also a barrier preventing inexperienced respondents from comprehending rumah58.com's user interface. Suggestions for enhancement in this study are centered on menu simplification and terminology uniformity as a result of mistake data collected from users. The suggestion for additional study is to be able to implement the recommendations for website enhancement so that additional testing may be conducted to determine the evolution of user evaluations, particularly in terms of usability.

#### REFERENCES

- Ahsyar, T. K., Jakawendra, A., & Syaifullah, S. (2020). Analisa usability website berita online menggunakan metode user centered design. *Jurnal Ilmiah Rekayasa Dan Manajemen Sistem Informasi*, 6(2), 165–172.
- Bitkina, O. V., Kim, H. K., & Park, J. (2020). Usability and user experience of medical devices: An overview of the current state, analysis methodologies, and future challenges. *International Journal of Industrial Ergonomics*, 76, 102932.
- Candiasa, I. M., Gunadi, I. G. A., & Putra, I. N. W. S. (2023). UX Evaluation Using Firstclick, Performance Measurement, RTA, And Questionnaire On E-Commerce Website. *Sinkron: Jurnal Dan Penelitian Teknik Informatika*, 8(1), 451–460.
- Dharmayanti, D., Bachtiar, A. M., & Wibawa, A. P. (2018). Analysis of user interface and user experience on Comrades application. *IOP Conference Series: Materials Science and Engineering*, 407(1), 12127.
- Fatah, D. A. (2020). Evaluasi Usability dan Perbaikan Desain Aplikasi Mobile Menggunakan Usability Testing dengan Pendekatan Human-Centered Design (HCD). *Rekayasa*, 13(2), 130–143.
- Fauzi, A. A., Kom, S., Kom, M., Budi Harto, S. E., MM, P. I. A., Mulyanto, M. E., Dulame, I. M., Pramuditha, P., Sudipa, I. G. I., & Kom, S. (2023). *PEMANFAATAN TEKNOLOGI INFORMASI DI BERBAGAI SEKTOR PADA MASA SOCIETY 5.0*. PT. Sonpedia Publishing Indonesia.
- Hasibuan, N., & Putri, R. A. (2022). Usability Evaluation of Wedding Administrative Information System using System Usability Scale. *Sinkron: Jurnal Dan Penelitian Teknik Informatika*, 7(4), 2198–2207.
- Indrayani, I. D., Bayupati, I. P. A., & Putra, I. M. S. (2020). Analisis usability Aplikasi Ibadung Menggunakan heuristic evaluation method. *J. Ilm. Merpati (Menara Penelit. Akad. Teknol. Informasi)*, 8(2), 89.
- Iqbal, T., & Bahrani, B. (2019). Evaluasi Usability Test e-Repository dengan menggunakan Metode Nielsen's Attributes of Usability (NAU). *Jurnal JTik (Jurnal Teknologi Informasi Dan Komunikasi)*, 3(2), 40–45.
- Jain, S., & Purandare, P. (2021). Study of the Usability Testing of E-Commerce Applications. *Journal of Physics: Conference Series*, 1964(4), 42059.
- Kumares, S., Haran, R., & Jarret, M. M. (2021). Analytics of e-commerce platforms based on user-experience (UX). In *Intelligent Computing and Innovation on Data Science* (pp. 309–318). Springer.
- Liu, L., Cruz, A. M., & Rincon, A. M. R. (2019). Technology acceptance, adoption, and usability: arriving at consistent terminologies and measurement approaches. In *Everyday technologies in healthcare* (pp. 319–338). CRC Press.
- Malhotra, N. K. (2017). Metodologi Penelitian. In *Gramedia Pustaka Utama, Jakarta*.
- Muhammad Wali, S. T., Efitra, S., Kom, M., Sudipa, I. G. I., Kom, S., Heryani, A., Sos, S., Hendriyani, C., Rakhmadi Rahman, S. T., & Kom, M. (2023). *Penerapan & Implementasi Big Data di Berbagai Sektor (Pembangunan Berkelanjutan Era Industri 4.0 dan Society 5.0)*. PT.

- Sonpedia Publishing Indonesia.
- Ritonummi, S., & Niininen, O. (2021). User experience of an e-commerce website: A case study. In *Contemporary Issues in Digital Marketing* (pp. 61–71). Routledge.
- Schrepp, M., Hinderks, A., & Thomaschewski, J. (2017). Design and evaluation of a short version of the user experience questionnaire (UEQ-S). *International Journal of Interactive Multimedia and Artificial Intelligence*, 4 (6), 103-108.
- Souissay, V. S., Rokhmawati, R. I., & Az-Zahra, H. M. (2019). Perbaikan user interface dan analisis perbandingan hasil pada website Lazada. co. id dengan menggunakan usability testing dan system usability scale (SUS) questionnaire. *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer E-ISSN*, 2548, 964X.
- Sugiyono. (2017). *Metode penelitian: Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta, 2015.