



User Interface/User Experience Evaluation of batiksiputri.com with The Principle of Usability Jacob Nielsen

Prihati Prihati¹; Oei Natalia Kristanti²

Sistem dan Teknologi Informasi, Institut Teknologi dan Bisnis Semarang, Indonesia

E-mail: prihatiester@gmail.com¹; tantinatalia061@gmail.com²

Abstract

This research aims to evaluate user interface/user experience issues and measure the usability level of batiksiputri.com. Batik Warna Alam siPutri is a micro, small, and medium enterprise (MSME) that has a website-based e-commerce, namely batiksiputri.com. This research was made using a qualitative descriptive method based on Jacob Nielsen's usability theory in determining what criteria have been applied and which have not been applied from the usability level at batiksiputri.com. The usability criteria used are Jacob Nielsen's usability criteria, namely learnability, efficiency, memorability, errors and satisfaction. The application of Jacob Nielsen usability in the evaluation of user interface design/user experience on batiksiputri.com resulted in the conclusion that the usability criteria applied in batiksiputri.com have implemented the criteria of learnability, efficiency and satisfaction well but have a few shortcomings in the criteria of memorability and error. This batiksiputri.com, requires further development in order to meet all user needs.

Keywords: Usability, User Interface, User Experience

1. INTRODUCTION

According to (Hasibuan et al., 2020) a website is an information system that is presented in the form of voice, text, and other media that is presented in the form of hypertext and stored on a server. A good website design is determined by its ability to display information clearly through an interface so that users do not experience confusion in accessing the information displayed (Rochmawati, 2019).

User interface (UI) and user experience (UX) factors are success factors for a website, in addition to UI/UX which is a factor in the success of a website, coding along with coding standards and access time also support the performance of a website as stated according to (Amalia, 2016). According to (Abdul Naser et al., 2018) User Interface is what is seen in the operation of a program, while User Experience is what the user feels when operating the program.

Batik Warna Alam siPutri is a micro, small, and medium enterprise (MSME) in Semarang, which was pioneered by Mrs. Putri Merdekawati since 2017. *Batik Warna Alam siPutri* used to focus only on offline, but during the COVID-19 Pandemic which lasted two years, it affected their operations. *Batik Warna Alam siPutri* now has a website-based e-commerce, namely batiksiputri.com that has successfully adapted by utilizing online marketing through social media, marketplaces, and e-commerce according to (Laeis, 2023). Batiksiputri.com is a fashion website that attracts market segmentation for all groups. The

appearance of the website batiksiputri.com has a simple impression which is characterized by a limited but harmonious selection of colors, creating a clean but easy-to-read impression, menus/navigation on mobile screens are designed more concisely (see Figure 1). Even though the website runs well, there are several problems, including: some features on the website have not functioned and the font (typography) used does not build the appearance of the website, so it is not displayed properly.

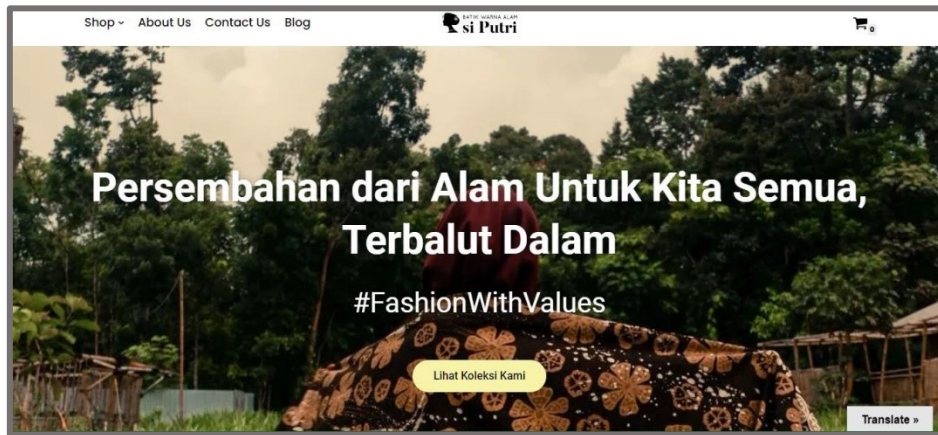


Figure 1: batiksiputri.com
Source: <https://batiksiputri.com> (2019)

The problems found are one of the usability problems based on the guidance of Nielsen's usability criteria, namely learnability, efficiency, memorability, errors and satisfaction (Nielsen, 2003). With the problems in usability found, it is necessary to know the level of usability in batiksiputri.com to explain batiksiputri.com usability at what level it has been seen from the user's perspective and usability problems in the website. This research was made using a qualitative descriptive method based on Jacob Nielsen's usability criteria.

This study aims to evaluate the user interface/user experience and measure the level of usability of batiksiputri.com. From the results of the research, the researcher hopes to provide input/information to batiksiputri.com developers.

2. LITERATURE REVIEW

A. Website

The definition of a website according to (Vermaat et al., 2018) is a collection of interconnected pages in which there are several items such as documents and images stored in a web server. According to (Vossen et al., 2018), since the early 1990s the world wide web or websites have revolutionized personal and professional life.

B. User interface (UI)

The user interface (UI) according to (Robbins, 2018) focuses more on the

functional organization of the page as well as special tools such as buttons, links, and menus, which users use to navigate content or complete their tasks.

C. User experience (UX)

User experience (UX) is about what a person feels when he or she interacts with the system. The system in question can be in the form of websites, software, or computer applications and programs in the modern context which is generally symbolized by the form of human interaction with the computer according to (Gube, 2010).

D. Usability

The definition of usability according to Jacob Nielsen (Nielsen, 2003) is as an experience of users in interacting with an application or website until users can operate the system easily and quickly. The test in this study uses 5 usability criteria conveyed by Jacob Nielsen according to ISO 9241:11, namely (Nielsen, 2003):

1. Learnability
2. Efficiency
3. Memorability
4. Errors and security
5. Satisfaction

E. Batik of Natural Color SiPutri

Batik Warna Alam siPutri is an MSME founded on August 1, 2017 by her mother. Putri Merdekawati who is one of the perpetrators/owners of micro, small and medium enterprises (MSMEs) in Semarang. After this business ran for 1 year, *Batik Warna Alam siPutri* was able to have its own production site and gallery located on Jl. Watusari RT 03 RW 06, Pakintelan Village, Gunung Pati District, Semarang. Two years of facing the COVID-19 pandemic made Putri Merdekawati's mother lose her turnover by up to 80% in April 2020, her business has been offline. According to (Laeis, 2023), Putri Merdekawati's mother must think in order to keep her business running, namely by utilizing online marketing. *batiksiputri.com* is a website-based e-commerce that contains information about the purchase, sale, and marketing of fashion products. *batiksiputri.com* was launched for the first time on May 6, 2021 with the aim of providing solutions in making fashion products that prioritize ethics by paying attention to the environment and the people involved in it and become an effective solution for ecofashion products, batik that uses natural dyes to preserve the environment. *batiksiputri.com* also uses Wordpress for the implementation of the user interface so that it has an attractive and responsive appearance for desktop and mobile PCs (Laeis, 2023).

3. METHODS

A. Research Design

The research design used in this study is qualitative research. Qualitative research methods are qualitative research used to describe or analyze phenomena, events, social activities, attitudes, beliefs, perceptions, and people both individually and in groups, as stated according to (Sukmadinata, 2009).

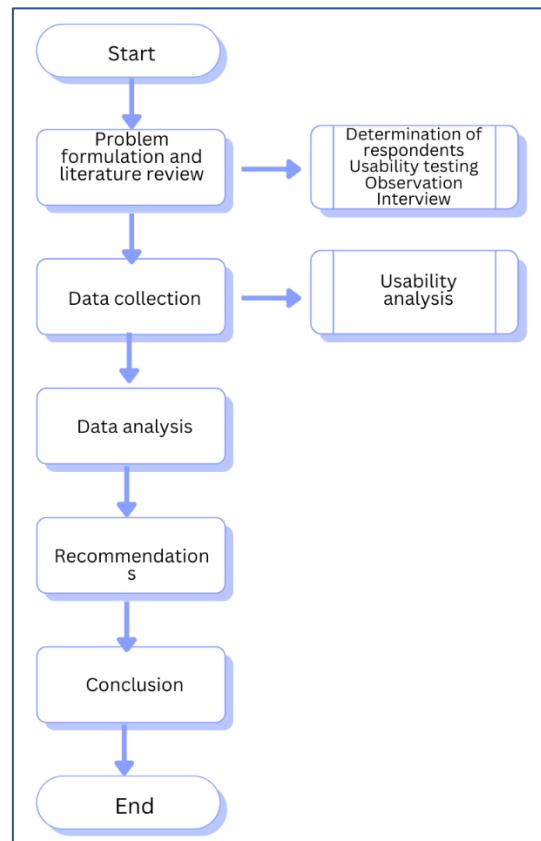


Figure 2: Research design

Source : *Personal document*

B. Problem formulation and literature study

The research begins with the formulation of problems that are used to identify existing problems and it is hoped that this research can be solved, while literature studies are used to obtain references in conducting usability testing, from data collection to the stage of providing recommendations.

C. Data collection

Data collection was carried out by determining 14 respondents, they were old users and new users consisting of 3 old users and 11 new users who used *batiksiputri.com*. At the same time, researchers conducting observations to support data collection. Observation was carried out by looking at the activities of the respondents online through WhatsApp Messenger media. After that, an online interview was conducted through WhatsApp

Messenger media chat against 14 respondents. Interviews are used to determine the respondents' perception of batiksiputri.com. To strengthen the data, the researcher then asked 14 respondents to fill out a questionnaire by answering questions through a Google Form. Filling out this questionnaire uses a Likert scale. According to (Sugiyono, 2008), the likert scale is used to measure the attitudes, opinions and perceptions of individuals or groups of people about social phenomena.

D. Data Analysis Methods

Next is data analysis based on observations, interviews and questionnaires on respondents. At this stage, the researcher will process data and measure the validity and reliability of the questionnaire questions using Ms.Excel and SPSS Statistics 24 software. The following questions in the questionnaire are shown in the following tables:

Table 1: Questionnaire Questions

Learnability Analysis	
1.	Is the navigation/menu on the website easy to understand?
2.	Is the language used on the website easy to understand?
Efficiency Analysis (Efficiency)	
1.	Is the display in the website simple and efficient?
2.	Is the layout of the features on the website right?
Memorability Analysis	
1.	Do you easily remember the various menus and locations on the website ?
2.	Are you easy to remember the step-by-step you have to follow on the website?
Security Analysis and Errors	
1.	How often do users make errors/mistakes when using the website? Are the causes such as confusing steps, too long, or symbols that users don't recognize?
2.	If you make a mistake, make it easy for you to find where the mistake is You do?
3.	If in the future you use the batiksiputri website, do you think you're still going to make mistakes?
Satisfaction Analysis	
1.	Are you satisfied with the website service ?
2.	How far does this website help you to get quality batik? Is it helpful or not?
3.	Is there a desire for changes to this website based on the user's perspective?
4.	Do you find this website helpful?

Source: data processed in 2024

4. RESULTS

A. Learnability analysis results

1. Language facilities in batiksiputri.com.

Table 2: Language Facilities

Research question/answer	Result	Percentage
Is the language used on the website easy to understand?		
a. Strongly Agree	4	28,6%
b. Agree	8	57,1%
c. Neutral	2	14,3%
d. Disagree	0	0%
e. Strongly Disagree	0	0%
Sum	14	100%

These results show that batiksiputri.com language is easy to use because among the 14 users not a single person stated that the batiksiputri.com language is difficult to use.

2. Ease of navigation/batiksiputri.com menu.

Table 3: Ease of navigation /menu

Research question/answer	Result	Percentage
Is the navigation/menu on the website easy to understand?		
a. Strongly Agree	3	21,4%
b. Agree	7	50,0%
c. Neutral	4	28,6%
d. Disagree	0	0%
e. Strongly Disagree	0	0%
Sum	14	100%

These results show that the navigation/menu on this website is easy to understand because among the 14 users, not a single person stated that the navigation/menu on this website is difficult to understand.

B. Efficiency analysis results

1. Display efficiency batiksiputri.com

Table 4: Display efficiency

Research question/answer	Result	Percentage
Is the display in the website simple and efficient?		
a. Strongly Agree	3	21,4%
b. Agree	8	57,1%
c. Neutral	3	21,4%
d. Disagree	0	0%
e. Strongly Disagree	0	0%
Sum	14	100%

Some users answered simply because the display did not have too much text and the navigation button icon was in an easy-to-reach position.

2. The efficiency of the layout is batiksiputri.com.

Table 5: Layout efficiency

Research question/answer	Result	Percentage
Is the layout of the features on the website right?		
a. Strongly Agree	5	35,7%
b. Agree	7	50,0%
c. Neutral	2	14,3%
d. Disagree	0	0%
e. Strongly Disagree	0	0%
Sum	14	100%

In conclusion, 14 users stated that the layout of this batiksiputri.com feature is very precise and efficient. No one has claimed that the layout of this website is inappropriate.

C. Results of the memorability analysis

1. Ease of remembering menus

Table 6: Ease of remembering menus

Research question/answer	Result	Percentage
Do you easily remember the various menus and locations on the website?		
a. Strongly Agree	2	14,3%
b. Agree	5	35,7%
c. Neutral	5	35,7%
d. Disagree	2	14,3%
e. Strongly Disagree	0	0,0%
Sum	14	100,0%

Two users who stated that they had difficulty remembering menus were because they had limited memory capacity so it was difficult to remember a lot of information from batiksiputri.com menus.

2. Ease of remembering website steps

Table 7: Ease of remembering website steps

Research question/answer	Result	Percentage
Do you easily remember the step-by-step steps you have to follow on the website?		
a. Strongly Agree	2	14,3%
b. Agree	7	50,0%
c. Neutral	5	35,7%
d. Disagree	0	0,0%
e. Strongly Disagree	0	0,0%
Sum	14	100,0%

No user has expressed difficulty in remembering all the steps that are dibatiksiputri.com.

D. Results of security analysis and errors (Errors)

1. User Error

Table 8: User error

Research question/answer	Result	Percentage
How often do users make errors/mistakes when using the website? Whether the cause is confusing steps, too long, or missing symbols recognized by consumers?		
a. Strongly Agree	1	7,1%
b. Agree	5	35,7%
c. Neutral	6	42,9%
d. Disagree	2	14,3%
e. Strongly Disagree	0	0%
Sum	14	100%

The results showed that 2 users stated that they disagreed because they felt they had never made a mistake as a new user.

2. How to fix errors

Table 9: How to fix errors

Research question/answer	Result	Percentage
If you make a mistake, can you easily find where the mistake is?		
a. Strongly Agree	1	7,1%
b. Agree	7	50,0%
c. Neutral	6	42,9%
d. Disagree	0	0%
e. Strongly Disagree	0	0%
Sum	14	100%

The results showed that there were no users who did not make mistakes, 14 users stated that they had made mistakes and it was easy to find the mistakes that users made.

3. Possible future errors

Table 10: Possible errors

Research question/answer	Result	Percentage
If in the future you use the batiksiputri website, do you think you will still make mistakes?		
a. Strongly Agree	2	14,3%
b. Agree	6	42,9%
c. Neutral	5	35,7%
d. Disagree	1	7%
e. Strongly Disagree	0	0%
Sum	14	100%

In conclusion, some users feel that they may make mistakes in the future because some of them are new users.

E. Results of satisfaction analysis

1. Satisfaction with website facilities

Table 11: Satisfaction with website facilities

Research question/answer	Result	Percentage
How far does this website help you to get quality batik? Whether helpful or not?		
a. Strongly Agree	2	14,3%
b. Agree	8	57,1%
c. Neutral	4	28,6%
d. Disagree	0	0,0%
e. Strongly Disagree	0	0,0%
Sum	14	100,0%

In conclusion, 14 users expressed satisfaction and this website is very helpful for them in getting quality batik.

2. Satisfaction with website services .

Table 12: Satisfaction with website services

Research question/answer	Result	Percentage
Whether Are you satisfied with the website service?		
a. Strongly Agree	2	14,3%
b. Agree	6	42,9%
c. Neutral	5	35,7%
d. Disagree	1	7,1%
e. Strongly Disagree	0	0,0%
Sum	14	100,0%

One user felt disagreed in the satisfaction of the siputri batik website because the user felt that it was the first time to use batiksiputri.com as a new user.

3. Desire for changes to the website

Table 13: Desire for changes to the website

Research question/answer	Result	Percentage
Is there a desire for changes to this website based on the user's perspective?		
a. Strongly Agree	2	14,3%
b. Agree	6	42,9%
c. Neutral	5	35,7%
d. Disagree	1	7,1%
e. Strongly Disagree	0	0,0%
Sum	14	100,0%

One user expressed his disagreement because he had not thought about the desire for change to batiksiputri.com.

4. It is helped by the existence of this website.

Table 14: Helped by the existence of a website

Research question/answer	Result	Percentage
Do you find this website helpful?		
a. Strongly Agree	3	21,4%
b. Agree	8	57,1%
c. Neutral	3	21,4%
d. Disagree	0	0,0%
e. Strongly Disagree	0	0,0%
Sum	14	100,0%

The results stated that 14 users felt helped by this batiksiputri.com and no one expressed disagreement.

Based on the results of the above analysis, there is also an indication that batiksiputri.com has several disadvantages such as the following:

1. batiksiputri.com does not have a help facility that can make it easier for users to correct mistakes.
2. The efficiency of the display batiksiputri.com, some users answered simply.
3. The typeface (typography) used does not build the appearance of the website, so it is not displayed properly.
4. batiksiputri.com has a weakness in terms of ease of remembering the website menu, some users believe that they have difficulty remembering the symbols on the website menu batiksiputri.com.
5. Not all the features in the batiksiputri.com can be used, many features are only written as menus but have no content or cannot be opened.
6. This batiksiputri.com is not accompanied by a guide (user manual) that makes it easier for users to learn how to use the website.
7. batiksiputri.com does not provide online payment facilities (except bank transfers) that can make it easier for users to order products through the website.

5. DISCUSSION

The evaluation of batiksiputri.com based on Jacob Nielsen's usability criteria provides valuable insights into its strengths and areas for improvement. The results show that the website performs well in terms of learnability, efficiency, and satisfaction, indicating that users find the website easy to navigate, visually efficient, and satisfactory in meeting their needs. These findings suggest that batiksiputri.com has successfully implemented fundamental principles of usability, especially for first-time and returning users.

However, the evaluation also highlights notable gaps in memorability and error management. While most users find it straightforward to remember the steps for navigating the website, a significant portion of respondents expressed difficulty recalling menus and locations. This indicates that the website could benefit from more intuitive and consistent design elements to enhance memorability, such as visual cues or structured navigation aids.

The issue of error management also requires attention. Although users find it relatively easy to identify and correct mistakes, a portion of respondents anticipate making errors in the future, especially new users. This points to an opportunity to streamline processes and provide clearer guidance or error prevention mechanisms, such as more descriptive error messages or tooltips.

From the satisfaction perspective, the findings reveal that users appreciate the website's service and its ability to help them access eco-friendly batik products. However, there is also a desire for improvement from some respondents, suggesting that periodic updates and user-centered design iterations are crucial to maintaining user satisfaction and staying relevant.

In summary, while batiksiputri.com has established a strong foundation in usability, addressing the shortcomings in memorability and error management will be critical for its future development. Implementing these improvements will not only meet user needs more comprehensively but also enhance the website's overall user experience, making it a more effective e-commerce platform for promoting eco-friendly batik products.

6. CONCLUSION

Based on the results of the research and discussion that has been carried out, it can be concluded as follows:

1. Usability measurement and analysis can be done by using 5 usability criteria according to Jacob Nielsen, namely learnability, efficiency, memorability, errors and satisfaction.
2. Usability measurement and analysis show that batiksiputri.com website has implemented the criteria of learnability, efficiency and satisfaction well. However, there is a slight flaw in the criteria of memorability and error where some users find it difficult to remember every step that must be taken to achieve the goal and make mistakes from the user. In terms of user satisfaction, it is quite diverse because there are still many batksiputri.com features that are not perfect.
3. batiksiputri.com website needs further development, namely by improving the appearance so that it becomes more attractive.

7. LIMITATION

This study has several limitations that should be acknowledged. First, the evaluation of usability is based solely on Jacob Nielsen's five criteria: learnability, efficiency, memorability, error management, and satisfaction. While these criteria provide a robust framework, they may not capture all dimensions of user experience, such as accessibility, emotional response, or cultural factors that could influence user behavior on an e-commerce platform like *batiksiputri.com*.

Second, the sample size and demographic characteristics of the respondents may limit the generalizability of the findings. The study primarily reflects the perspectives of a specific group of users, potentially excluding insights from diverse user segments, such as individuals with disabilities or those unfamiliar with e-commerce platforms.

Third, the evaluation relies on user feedback and self-reported data, which can be influenced by personal biases, expectations, or situational factors. For example, users' familiarity with similar websites might skew their perceptions of learnability and efficiency, while their individual preferences might affect their satisfaction ratings.

Finally, the study does not include longitudinal analysis or real-time usability testing, which could provide deeper insights into how users interact with the website over time. Future research could address these limitations by incorporating a broader set of evaluation metrics, a more diverse user population, and additional methodologies, such as eye-tracking studies or task-based usability testing, to gain a more comprehensive understanding of the website's usability.

BIBLIOGRAPHY

- Abdul-Naser, D., Syafwandi, M.S., San-Ahdi, S.S. (2018). PERANCANGAN USER INTERFACE DAN USER EXPERIENCE HALAMAN WEBSITE PROGRAM STUDI DESAIN KOMUNIKASI VISUAL UNIVERSITAS NEGERI PADANG. *DEKAVE: Jurnal Desain Komunikasi Visual*, 8(1).
- Amalia, A. (2016). *EVALUASI ANTARMUKA DAN PENGALAMAN PENGGUNA WEBSITE SERTA CODE REFACTORING PADA WEBSITE E-KOSAN*.
- Gube, J. (2010). *What is User Experience Design*.
- Hasibuan, A., Jamaludin, J., Yuliana, Y., Sudirman, A., Wirapraja, A., Kusuma, A.H.P., Simarmata, J. (2020). E-Business: Implementasi, Strategi dan Inovasinya. In *Yayasan Kita Menulis*.

- Laeis, Z. (2023). *Geliat UMKM di Semarang hadapi transformasi digital*. <https://m.antaranews.com/berita/3359142/geliat-umkm-di-semarang-hadapi-transformasi-digital/>
- Nielsen, J. (2003). "Usability 101: Introduction to Usability". *Nielsen Norman Group*. <https://www.nngroup.com/articles/usability-101-introduction-to-usability/>
- Robbins, J.N. (2018). *Learning web design : a beginner's guide to (X)HTML, style sheets, and web graphics*. 6.
- Rochmawati, I. (2019). *ANALISIS USER INTERFACE SITUS WEB IWEARUP.COM*. 7(2), 31–44.
- Sugiyono, D. (2008). *Metode penelitian bisnis*. Bandung: Pusat Bahasa Depdiknas.
- Sukmadinata, N. S. (2009). *Metode Penelitian Pendidikan*. Remaja Rosdakarya.
- Vermaat, M., Sebok, S., Freund, S., Campbell, J., Frydenberg, M. (2018). *Discovering Computer (Digital Technology, Data, and Device)*. Boston: Cengage Learning.
- Vossen, G., Schonhaler, F., Dillon, S. (2018). *The Web at Graduation and Beyond*. Springer Cham.