# Evaluation of Shopee Food Usability Using Usability Testing Methods and System Usability Scale

[1]Siti Haminah Sagala, [2]Fachrudin Pakaja

[1,2] Faculty of Engineering and Informatics, Gajayana University, Malang, Indonesia

Email: [1] sitihaminah23@gmail.com, [2] fachrudinpakaja@unigamalang.ac.id

*Corresponding Author Email : fachrudinpakaja@unigamalang.ac.id

## Abstract

*This study aims to evaluate the Usability of the Shopee Food application using Usability Testing (UT) and the System Usability Scale (SUS) methods. The backdrop of this research is the significance of information technology in daily life, particularly in the use of mobile applications that facilitate various human activities. Shopee Food, as one of the popular food ordering applications in Indonesia, was chosen as the research object. Despite having a significant market share, the application still faces challenges in terms of navigation and ease of use. The methodology employed in this study includes a qualitative approach through UT conducted on 5 new users and a quantitative approach through SUS questionnaires filled out by 30 experienced Shopee Food application users. UT was conducted to identify issues faced by new users while using the application, whereas the SUS questionnaire was used to measure the satisfaction level of active users. The results indicate significant Usability issues with the Shopee Food application, particularly regarding the addition of vouchers and changing payment methods, which often confuse users. However, in terms of Learnability, Efficiency, Errors, and Satisfaction, the application demonstrates good performance. The Success Rate reached 98.57%, indicating users could complete tasks effectively. The average Time-Based Efficiency was 0.049 goals per second, the Error Rate at 22.8% is considered low, and the SUS score of 70 is above average, indicating a satisfactory level of user satisfaction. The conclusion of this study is that despite some Usability issues, the overall Usability level of the Shopee Food application is good. This research suggests improvements in the voucher addition feature and payment methods, as well as continuous Usability evaluations to ensure the application remains user-friendly and efficient.*

**Keyword**: Usability Testing, System Usability Scale (SUS), Mobile Applications, Usability Evaluation.

## 1. Introduction

The development of digital technology has had a significant impact on the way consumers interact with various services, for example: the use of educational platforms (Pakaja, et al., 2024), learning media (Gan et al., 2015), technology acceptance (Taherdoost, 2018) and the most well-known is the use of e-commerce (Demirkan, 2015) and social media in ordering food (Leung & Loo, 2022); (Liu & Lin, 2020); (Shaeeali et al., 2020). Platform-based food ordering applications such as Shopee Food are one example of an application that is increasingly popular among users (Alail & Pertiwi, 2022); (Wilujeng et al., 2022). Md Saad et al (2023) argue that Shopee Food offers various features, ranging from food ordering, digital payments, to real-time delivery tracking. Although this application is designed to provide convenience for its users (Fersellia et al., 2023), the quality of the user experience (UX) remains an important factor in determining the level of customer satisfaction and loyalty (Badran & Al-Haddad, 2018); (Kujala et al., 2011).

Previous findings have explained the importance of usability measures in a food ordering application in providing services to its consumers (Fakri et al., 2022); (Mitra & Debnath, 2023); (Taimouri et al., 2019). Usability or usefulness of an application is one of the main aspects in the UX assessment (Rusu et al., 2015), which measures how effective, efficient, and satisfying an application is used by its users (Ntoa, 2024). Good usability evaluation can help application developers identify problems that hinder convenience and efficiency of use (Fernandez et al., 2011). One method that is often used to evaluate application usability is Usability Testing (UT) (Ghasemifard et al., 2015), which involves direct testing with users to obtain feedback on the

user experience (Abuaddous et al., 2022). In addition, the System Usability Scale (SUS) is a standard instrument that can provide a quantitative assessment of the level of usability of a system based on user perception (Vlachogianni & Tselios, 2022).

This study aims to evaluate the usability of the Shopee Food application using two main methods, namely Usability Testing and the System Usability Scale (SUS). Through Usability Testing, this study will identify the obstacles faced by users in using the Shopee Food application and gain direct insight into user interaction with the application interface. On the other hand, the use of SUS will provide a numerical measure of overall user satisfaction with the usability of the application, which can be used as a reference for further development. The results of this evaluation are expected to provide useful recommendations for the Shopee Food development team to improve the quality of the application, especially in terms of usability, so that it can improve the user experience and support the sustainability of the application in a highly competitive market.

## 2. The Art of Research

Research on the evaluation of the Usability of food ordering applications has grown rapidly in recent years, focusing on various platforms and measurement methods. One of the prominent studies is the one conducted by Juliá-Nehme & Rosell (2024) entitled "Interaction and Design Barriers for Older Adults in Food Delivery Apps: A Usability Study". This study applies the Nielsen Usability measurement model to evaluate the usability of two Food Delivery Apps (FDAs) for older adults. The results of the study revealed that test participants could perform the task but were not efficient because it took a long time to perform their first task on the application and enter the marketing in the basket. In addition, Learnability and Satisfaction are significant factors that affect Usability. Another study by Mitra & Debnath (2023) in "A Set of Usability Constructs and Indicators for UI/UX Research on Mobile Food Ordering Applications in India" uses the System Usability Scale (SUS) to measure the level of usability of fast food ordering applications. The result shows that UX/UI usability constructs along with a set of indicators that define each of them specifically for MFOAs, are proposed, tested, and validated for use in usability testing. UX/UI can serve as a general guideline for designing user interfaces.
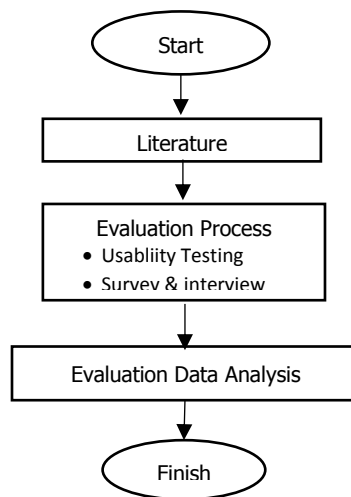


Figure 1 Research Flow Diagram

These studies show the importance of Learnability and Satisfaction factors in determining the Usability of food ordering applications, while other factors such as Efficiency, Memorability, and Errors require further research to determine their significant impact. However, there are still gaps in this research, especially in the evaluation of the Usability of the Shopee Food application which has not been widely explored. This study aims to fill the gap by identifying Usability problems in the Shopee Food application and evaluating the level of Usability using the System Usability Scale (SUS) and Usability Testing methods. This study will focus on four main components of Usability: Learnability, Efficiency, Errors, and Satisfaction.

In developing the research hypothesis, we consider the results of previous studies that show that Learnability and Satisfaction are significant factors. The hypothesis in this study is formulated as follows:

**H1**: There are no usability problems with the Shopee Food application

**H2**: The usability level of the Shopee Food application is above average

## 3. Method

The steps of the research methodology (see Figure 1) start from literature study, evaluation implementation, evaluation data analysis, to drawing conclusions and recommendations for further research. This study uses a library research method that utilizes various sources of information available in the library, such as books, previous theses, journals, articles, and websites that are relevant to the research topic. This method allows researchers to collect initial data that is useful as a basis for further research, especially in the Usability Evaluation of the Shopee Food application. The data collected consists of qualitative and quantitative data which are then analyzed in depth to gain a better understanding of the user experience of the application. Usability Testing is the main tool in this study to identify usability problems that may arise and to measure the level of user ease in completing tasks, speed of information access, and user error rates when using the application. According to Lin et al (1997) state that usability Testing is an evaluation method used to measure ease of use in interacting with an information system. This test was conducted on five new users who had no previous experience with the Shopee Food application. According to Nielsen (Gonzalez-Holland et al., 2017), Involving more than 5 participants can waste unnecessary time and energy. This is because participants tend to find similar problems with other participants repeatedly. Data obtained through direct observation and interaction with users aims to provide deeper insight into the user experience and features that require improvement or enhancement in the design and functionality of the Shopee Food application.

Before conducting Usability Testing, pre-testing interviews were conducted to select test participants who met the specified requirements. According to Nielsen (2012), there are several requirements for test participants that are generally applied, namely (1) representative demographics, (2) physical conditions that allow for the use of the application without obstacles, (3) daily use of hardware and software, (4) goals that are relevant to the use of the application. After selecting participants, a goal-based or task-based task scenario is given to participants to identify usability problems and measure the level of ease of users in completing tasks.

During the implementation of Usability Testing, researchers minimize intervention to maintain the validity of the data. Participants are not given specific steps to complete the task and are not allowed to ask about specific steps during testing. User activity was recorded using the Screen Recorder application for further analysis. After completing the task, a post-testing interview was conducted to obtain relevant data regarding issues that arose during the use of the application. This data helps identify issues experienced by users and provides an overview of the Learnability, Efficiency, and Error aspects.

In addition to Usability Testing, the SUS (System Usability Scale) questionnaire was used to measure the level of user satisfaction with the Shopee Food application. This questionnaire was distributed online using Google Form to 30 active Shopee Food users. The data collected included demographic information of respondents and statements related to user satisfaction. User satisfaction statements consist of 10 statements. This questionnaire uses a Likert scale assessment with a value of 1-5 for each statement, namely (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree. Data analysis was carried out using the SUS Score calculation which provides insight into the level of user satisfaction from various aspects. Table 1 is a questionnaire given to respondents.

**Table 1 List of SUS Questionnaire Statements**

| No | Declaration |
|----|-------------|
| 1 | I think I will use this app again |
| 2 | I find this app complicated to use |
| 3 | I find this app easy to use |
| 4 | I need help from another person or technician in using this application |
| 5 | I feel like the features of this app work as they should |
| 6 | I feel like there are a lot of things that are inconsistent (don't match up with this app) |
| 7 | I feel like other people will understand how to use this app quickly |
| 8 | I find this app confusing |

| 9 | I feel there is no barrier in using this application |
| 10 | I need to get used to it first before using this application |

After obtaining data from usability testing, interviews, and questionnaires, the data is processed and analyzed to obtain evaluation results. The analysis carried out from the evaluation results is qualitative and quantitative analysis. The data used to conduct qualitative analysis is usability testing data and interview data conducted on test participants who carry out usability testing. The results of the interviews will be identified to explore problems in the application. The data will be analyzed by creating a description of the problem. Quantitative data is obtained from usability testing and questionnaires. On the data from the test, calculations will be made on the Learnability, Efficiency, and Error components. While on the questionnaire data, calculations will be made on the satisfaction component. From the results of the evaluation analysis, it will be concluded by adjusting the problem formulation with the results obtained. Furthermore, providing suggestions to improve the shortcomings of the research and providing considerations if further research will be carried out.

## 4. Result

The data generated is in the form of Usability problems in the Shopee Food application and the Usability level of the Shopee Food application.

A. Usability Problems

Usability issues identified in the Shopee Food application through a series of interviews conducted after testing with test participants (see table 2). The majority of respondents felt comfortable when they first used the Shopee Food application, although some experienced confusion in the section on adding vouchers and changing payment methods. Although the workflow for purchasing or ordering food is smooth and fast, the process of adding vouchers and changing payment methods often slows users down. Some respondents even experienced errors or confusion related to both features. This problem is most likely caused by an unintuitive and unfamiliar interface. The lack of clear instructions makes users feel lost or unsure about the steps to take. A solution that can be implemented is to provide clearer and more accessible guides or tutorials in the application. Step-by-step guides will provide more concrete directions to users. In addition, the difficulty in adding vouchers and changing payment methods is caused by poorly defined steps and important buttons that are not easy to find. The solution is to update the user interface design by placing important features such as adding vouchers or changing payment methods in more accessible and recognizable locations. This will help reduce confusion and improve the overall user experience.

Table 2 Description of Usability Problems of the Shopee Food Application

| Category | Problem Description |
|---|---|
| Learnability | Feelings when using the Shopee Food application for the first time<br>• The majority of respondents felt comfortable when using the application for the first time. However, some felt a little confused because of the new interface<br>Parts that are confusing or difficult to understand<br>• Some respondents experienced confusion when adding Vouchers and changing payment methods. |
| Efficiency | Workflow for completing a purchase or food order<br>• Most respondents felt that the app provided a smooth and fast workflow for purchasing or ordering food. However, some felt that the process of adding Vouchers and changing payment methods could be slow.<br>Features or processes that slow down tasks<br>• The process of adding Vouchers and changing payment methods were mentioned as areas of slowdown by several respondents. |
| Errors | Errors or confusion when using the application<br>• Some respondents experienced errors or confusion, especially related to payment methods and adding Vouchers.<br>Areas prone to user errors and suggestions for improvement<br>• The areas of adding Vouchers and changing payment methods were considered prone to errors. Suggestions for improvement included providing clearer guides or instructions and updating the user interface to be more intuitive and informative. |

B. Usability Level

In the sub-chapter of usability level analysis, the analysis method is explained to measure the usability level of the Shopee Food application. This analysis includes the ease of users completing tasks (Learnability), the speed of finding information (Efficiency), and the number of errors when using the application (Error). The analysis process involves calculating the Success Rate for Learnability, Time-Based Efficiency for Efficiency, and Error Rate for Error, according to the method explained earlier. This approach provides an understanding of how well the Shopee Food application is used by users to meet their needs and achieve their goals.

1. Measurement of Learnability components

The data used to measure this component are tasks that have been successfully completed correctly by participants. Analysis to measure the level of user ease in completing tasks is done using the Success Rate calculation. Success Rate is a method used to analyze tasks that have been successfully completed by users (Nielsen, 2012). Table 3 shows the success of each participant in completing the task.

Table 3 Success Rate Calculation

| Peserta Uji | T1 | T2 | T3 | T4 | T5 | T6 | T7 |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| P1 | S | S | S | S | S | S | S |
| P2 | S | S | S | S | PS | S | S |
| P3 | S | S | S | S | S | S | S |
| P4 | S | S | S | S | S | S | S |
| P5 | S | S | S | S | S | S | S |

Information:

S = Success, this means that the respondents did not make any mistakes at all in completing the task.
PS = Patrial Success, this means that the respondent did the task but made mistakes.

$$Success\ Rate = \frac{Success\ Task\ +\ (Partial\ Success\ Task\ \times\ 0.5)}{Total\ Task}$$

$$= \frac{34 + (1\ x\ 0{,}5)}{35}\ x\ 100$$

$$= 98{,}57\%$$

Based on the calculations that have been done, the Success Rate from the evaluation results on the Shopee Food application is 98.57%. According to a study conducted by Jeff Sauro, the average task completion rate reached 78% (based on an analysis of 1,100 tasks). (Hornbæk, 2006). From these results, it can be concluded that the Success Rate value of the Shopee Food application is above average, indicating that users are generally able to complete the tasks given in the application well.

2. Measurement of Efficiency components

The data used to measure this component is the time required for participants from the beginning until the task is completed or failed to be completed. The efficiency component is calculated using time-based efficiency (Hornbæk, 2006). Time-Based Efficiency represents the speed of users in finding the information needed in the application (see table 4).

Table 4 Time Based Efficiency Calculation

| Test Participants | Task Time (seconds) | | | | | | | |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| | T1 | T2 | T3 | T4 | T5 | T6 | T7 | Total |
| P1 | 10 | 38 | 41 | 3 | 26 | 41 | 21 | 180 |
| P2 | 9 | 24 | 24 | 41 | 88 | 11 | 21 | 218 |
| P3 | 11 | 56 | 7 | 4 | 104 | 18 | 32 | 232 |

Author: Sagala., & Pakaja.
Email Corresponding: fachrudinpakaja@unigamalang.ac.id

Vol. 01, Issue. 01, PP. 8–15

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P4 | 16 | 58 | 7 | 7 | 26 | 33 | 30 | 177 |
| P5 | 32 | 50 | 8 | 3 | 17 | 45 | 19 | 174 |

Information:
N = Task Total
R = Number of users
N$ij$ = The result of the user's task I dance, if successful then N$ij$ = 1, and if it fails N$ij$ = 0
Tij = The time taken by user j to complete task i

$$Time\ Based\ Efficiency\ (T1)\ = \frac{\sum_{j=1}^{R} \sum_{i=1}^{N} \frac{N_{ij}}{T_{ij}}}{NR}$$

$$T1 = \frac{\frac{1}{10} + \frac{1}{9} + \frac{1}{11} + \frac{1}{16} + \frac{1}{32}}{7X5}$$

$$= \frac{0.1 + 0.1111 + 0.0909 + 0.0625 + 0.03125}{35}$$

Similar to the Time Based Efficiency calculation at T1, the results for T2, T3, T4, T5, T6, and T7 are shown in Table 5.

Table 5 Results of Time Based Efficiency calculations

| Order | Time Based Effeciency |
|---|---|
| T1 | 0,011 goals/sec |
| T2 | 0.003 goals/sec |
| T3 | 0,013 goals/sec |
| T4 | 0.031 goals/sec |
| T5 | 0.004 goals/sec |
| T6 | 0,223 goals/sec |
| T7 | 0,004 goals/sec |
| **Average** | **0,049 goals/sec** |

From the measurement results of Time-Based Efficiency in table 5, the average goals per second is 0.049, which means that test participants can complete 0.049 tasks per second when using the Shopee Food application. This shows how quickly users complete tasks. The higher the goals per second value, the more efficiently the task is performed. According to Hornbæk (2006), there is no specific benchmark for the Time-Based Efficiency value in usability studies. Usually, this value is compared to the results of other users or previous versions of the same system to determine whether there is an increase or decrease in efficiency. If the Time-Based Efficiency value is higher compared to a similar system or previous version, then the system is considered more efficient in helping users complete their tasks.

Table 6 Number of Task Errors from Each Test Participant

| Test Participants | Number of Errors | | | | | | |
|---|---|---|---|---|---|---|---|
| | T1 | T2 | T3 | T4 | T5 | T6 | T7 |
| P1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| P2 | 0 | 1 | 0 | 3 | 1 | 0 | 0 |
| P3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| P4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| P5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

3. Error component measurement

Measuring this component requires data in the form of the number of errors or attempts made more than once by participants. Before taking measurements, tasks need to be prepared that allow participants to make mistakes while completing the task. The Error component is calculated using the Error Rate which represents the level of user error in the application. This is in accordance with Hornbaek's statement (2006), which states that calculating the Error Rate can be done by using the number of errors made by users when performing one activity, the number of errors during the entire task, and the number of activities that can be done correctly. Table 6 is the opportunity on the task. After defining the opportunity, the next step is to calculate the number of errors made by participants and add up the total errors from all participants. Table 7 shows the number of errors made by participants.

$$Error\ Rate = \frac{Total\ Defects}{Oppurtunities\ x\ Total\ Participant)}$$
$$= \frac{8}{7\ x\ 5}$$
$$= 0.228$$

Based on the calculations that have been carried out, the Error Rate from the evaluation results on the Shopee Food application reached 0.228, which means that there were 22.8% errors made by test participants when conducting Usability Testing. According to (Andreasen, 2007), the average number of errors when completing a task is 0.70. This means that the Error Rate experienced by test participants in using the Shopee Food application is still relatively small or below average.

4. Measurement of satisfaction components

The data needed to measure this component is a questionnaire distributed to 30 active users of the Shopee Food application. The first thing to do is to calculate the score value for each statement from each respondent. This calculation uses the SUS calculation equation.

Score R = ((Q1-1) + (5-Q2) + (Q3-1) + (5-Q4) + (Q5-1) + (5-Q6) + (Q7-1) + (5-Q8) + (Q9-1) + (5-Q10)) x 2.5

Next, the average score of the SUS questionnaire is calculated from the total score of all respondents, which is then divided by the number of respondents who provided responses.

$$\textbf{SUS Average Score } = \sum_{i-1}^{n} \frac{xi}{n}$$

Information:
x1 = Total score for each respondent
n = Number of respondents

After calculating the value of each respondent and calculating the average, the result obtained was 70. Furthermore, the average SUS score was analyzed from the perspective of Acceptability Ranges, Grade Scale and Adjective Rating based on Jeff Sauoro's assessment rate. Acceptability is used to evaluate the level of user acceptance of a system. In this study, the System Usability Scale (SUS) score obtained was 70, which means that the Acceptability value is in the "Acceptable" category. This indicates that the Shopee Food application has met or even exceeded the expected standards, and can be considered good by users.

Table 7 SUS Score Results Based on Usability Aspects

| SUS Scoring | Usability Aspect | Result |
|:---:|:---:|:---:|
| | *Acceptability ranges* | *Acceptable* |
| 70 | *Grade Scale* | B |
| | *Adjective ratings* | *Ok* |

The Grade Scale in the System Usability Scale (SUS) provides a qualitative assessment based on quantitative scores from usability testing. In the case of the Shopee Food application, the Grade Scale received a grade of "B", indicating a good level of usability. However, there are several aspects that need to be improved to improve the overall user experience.

Adjective Ratings in SUS provide a subjective assessment of the usability of the system being tested. By referring to the SUS score, the Adjective Ratings obtained are "Ok", indicating that the system is quite acceptable to users, but there are several usability issues that need to be noted.

Overall, the evaluation of the Usability level of satisfaction of Shopee Food shows that the Shopee Food application has met the expected standards, and can be accepted by users. However, it still needs improvement to improve the overall user experience.

## 5. Discussion

Based on the results of the study, it shows that there are significant Usability problems in the Shopee Food application and this is caused by the majority of respondents experiencing confusion, especially when adding Vouchers and changing payment methods. And even some new users need quite a long time to complete the task. Juliá-Nehme& Rosell (2024) explains about the various features offered by the online food ordering application, sometimes the appearance and interface design can be confusing for new users. Furthermore, according to the Isomursu et al (2008) that reported that some users felt the ordering process on the food ordering application felt long and full of unnecessary steps.

Other findings in this study for testing the usability aspect found several results, for example: One) Shopee Food has a high level of learnability because most new users can understand the application interface quickly, without the need for complicated guides or tutorials. Two) the Shopee Food application shows very good efficiency because the majority of respondents are able to complete several commands in the application in a short time. Three) the Shopee Food application shows a low error rate which indicates that most users do not experience fatal errors when using the application. Four) Shopee Food user satisfaction is at a high level. Most respondents are satisfied with the application as a whole, citing ease of use, variety of food choices, and speed of delivery as the main factors supporting this level of satisfaction

There are several practical implications that we can provide from the results of the study, including: One) Based on the usability findings in this study, application developers can identify features that are less effective or confusing (for example, ordering food) to be improved or simplified to make them easier to use by various user groups. Two) This study can help the Shopee Food application development team understand the difficulties faced by users, so that they can redesign the interface or simplify the ordering process to create a smoother and more intuitive user experience.

In addition, there are several suggestions that we can convey from this study, First) Usability problems in the Shopee Food application are more related to interface design factors that are not entirely intuitive for certain users, it is necessary to simplify the ordering process. Two) management needs to improve application performance, improve integration between features, and pay attention to the overall user experience can help overcome this usability problem.

## 6. Conclusion

Based on the evaluation results that have been carried out, it can be concluded that there are significant Usability problems in the Shopee Food application. Although the majority of respondents felt comfortable when they first used the application, there was confusion, especially in the section on adding Vouchers and changing payment methods. This process often slows down users and causes errors or confusion. Therefore, the null hypothesis (H0) which states "There are no significant Usability problems in the Shopee Food application" is rejected, and the alternative hypothesis (H1) is accepted. Furthermore, the evaluation results of the Learnability, Efficiency, Errors, and Satisfaction aspects show that the Shopee Food application has a good level of Usability. A Success Rate of 98.57% indicates that users are able to complete tasks well. Efficiency of use is indicated by an average of goals per second of 0.049, which indicates good efficiency. A low Error Rate of 0.228 indicates a small error rate. A SUS score of 70 indicates a level of user satisfaction that is above average. Therefore, the null hypothesis (H0) stating "The Usability Level of the Shopee Food application is below average" is rejected, and the alternative hypothesis (H1) is accepted. This indicates that although there are some Usability issues that need to be considered, overall, the Shopee Food application

can still be considered to have an adequate level of Usability. By rejecting the null hypothesis, this study shows that the use of the Shopee Food application has a level of Usability that at least meets or even exceeds user expectations. Therefore, it is important for developers to continue to pay attention to feedback from users to continue to improve the user experience with this application.

## Acknowledgments

Write the acknowledgment here if any

## References

1. Abuaddous, H. Y., Saleh, A. M., Enaizan, O., Ghabban, F., & Al-Badareen, A. B. (2022). Automated User Experience (UX) Testing for Mobile Application: Strengths and Limitations. International Journal of Interactive Mobile Technologies, 16(4).

2. Alail, I. J., & Pertiwi, A. (2022). View of Evaluating User Experience of Online Food Delivery 'ShopeeFood'using User Experience Questionnaire and Heuristic Evaluation. International Research Journal of Advanced Engineering and Science, 7(4), 49-54.

3. Andreasen, M. S., Nielsen, H. V., Schrøder, S. O., & Stage, J. (2007, April). What happened to remote usability testing? An empirical study of three methods. In Proceedings of the SIGCHI conference on Human factors in computing systems (pp. 1405-1414).

4. Badran, O., & Al-Haddad, S. (2018). The impact of software user experience on customer satisfaction. Journal of Management Information and Decision Sciences, 21(1), 1-20.

5. Demirkan, H. (2015). Enhancing e-commerce outcomes with IT service innovations. International Journal of Electronic Commerce, 19(3), 2-6. https://doi.org/10.1080/10864415.2015.1000214.

6. Fakri, N. Z. A., Ismail, A., & Lokman, A. M. (2022). User Requirements and Usability Testing on a Mobile Application for Food Ordering Canteens. Malaysian Journal of Medicine & Health Sciences, 18.

7. Fernandez, A., Insfran, E., & Abrahão, S. (2011). Usability evaluation methods for the web: A systematic mapping study. Information and software Technology, 53(8), 789-817.

8. Fersellia, F., Utami, E., & Yaqin, A. (2023). Sentiment analysis of shopee food application user satisfaction using the c4. 5 decision tree method. Sinkron: jurnal dan penelitian teknik informatika, 7(3), 1554-1563.

9. Gan, B., Menkhoff, T., & Smith, R. (2015). Enhancing students' learning process through interactive digital media: New opportunities for collaborative learning. Computers in Human Behavior, 51, 652-663. https://doi.org/10.1016/j.chb.2014.12.048.

10. Ghasemifard, N., Shamsi, M., Kenari, A. R. R., & Ahmadi, V. (2015). A new view at usability test methods of interfaces for human computer interaction. Global Journal of Computer Science and Technology, 15(1), 17-24.

11. Gonzalez-Holland, E., Whitmer, D., Moralez, L., & Mouloua, M. (2017, September). Examination of the use of Nielsen's 10 usability heuristics & outlooks for the future. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting (Vol. 61, No. 1, pp. 1472-1475). Sage CA: Los Angeles, CA: SAGE Publications.

12. Hornbæk, K. (2006). Current practice in measuring usability: Challenges to usability studies and research. International journal of human-computer studies, 64(2), 79-102.

13. Isomursu, M., Häikiö, J., Wallin, A., & Ailisto, H. (2008). Experiences from a Touch-Based Interaction and Digitally Enhanced Meal-Delivery Service for the Elderly. Advances in Human-Computer Interaction, 2008(1), 931701.

14. Juliá-Nehme, B., & Rosell, J. (2024). Interaction and Design Barriers for Older Adults in Food Delivery Apps: A Usability Study. International Journal of Human–Computer Interaction, 1-18. https://doi.org/10.1080/10447318.2024.2365484.

15. Kujala, S., Roto, V., Väänänen-Vainio-Mattila, K., Karapanos, E., & Sinnelä, A. (2011). UX Curve: A method for evaluating long-term user experience. Interacting with computers, 23(5), 473-483. https://doi.org/10.1016/j.intcom.2011.06.005.

16. Leung, R., & Loo, P. T. (2022). Co-creating interactive dining experiences via interconnected and interoperable smart technology. Asian Journal of Technology Innovation, 30(1), 45-67. https://doi.org/10.1080/19761597.2020.1822748.

17. Lin, H. X., Choong, Y. Y., & Salvendy, G. (1997). A proposed index of usability: a method for comparing the relative usability of different software systems. Behaviour & information technology, 16(4-5), 267-277.

18. Liu, C. F., & Lin, C. H. (2020). Online food shopping: a conceptual analysis for research propositions. Frontiers in Psychology, 11, 583768.

19. Md Saad, N. H., Mei Nie, F., & Yaacob, Z. (2023). Exploring sentiment analysis of online food delivery services post COVID-19 pandemic: grabfood and foodpanda. Journal of Foodservice Business Research, 1-25.

20. Mitra, A., & Debnath, S. (2023, May). A Set of Usability Constructs and Indicators for UI/UX Research on Mobile Food Ordering Applications in India. In International Conference on Data Analytics and Insights (pp. 431-441). Singapore: Springer Nature Singapore.

21. Nielsen, 2012. "Usability 101: Introduction to Usability.". [Online]. Link Online: https://www.nngroup.com/articles/usability-101-introduction-to-usability.

22. Ntoa, S. (2024). Usability and User Experience Evaluation in Intelligent Environments: A Review and Reappraisal. International Journal of Human–Computer Interaction, 1-30. https://doi.org/10.1080/10447318.2024.2394724.

23. Pakaja, F Panjiranatha, G, D., Rahman, M, A, HM Amir HM. Adoption of Technology Acceptance and Interfaces for Academic Information System Applications. 2024. Qeios. https://doi.org/10.32388/TYZLOL.

24. Rusu, C., Rusu, V., Roncagliolo, S., & González, C. (2015). Usability and user experience: What should we care about?. International Journal of Information Technologies and Systems Approach (IJITSA), 8(2), 1-12.

25. Shaeeali, N. S., Mohamed, A., & Mutalib, S. (2020). Customer reviews analytics on food delivery services in social media: A review. IAES Int. J. Artif. Intell, 9(4), 691.

26. Taherdoost, H. (2018). Development of an adoption model to assess user acceptance of e-service technology: E-Service Technology Acceptance Model. Behaviour & Information Technology, 37(2), 173-197. https://doi.org/10.1080/0144929X.2018.1427793.

27. Taimouri, A., Emamisaleh, K., & Mohammadi, D. (2019). Assessing the usability of online food ordering websites using a new fuzzy kano method: Implications for improvement. International Journal of Business and Management, 14(10).

28. Vlachogianni, P., & Tselios, N. (2022). Perceived usability evaluation of educational technology using the System Usability Scale (SUS): A systematic review. Journal of Research on Technology in Education, 54(3), 392-409. https://doi.org/10.1080/15391523.2020.1867938.

29. Wilujeng S. SP., Yahya, T. Y., Pratama, W. M., Hardiana, D., Andy Putr, V. W., & Naibaho, T. M. (2022). Shopee (ShopeeFood) Application Quality Factors and Their Impact on Loyalty through Consumer Satisfaction. Central Asia & the Caucasus (14046091), 23(1).