

Designing User Interface and User Experience for Sabrina Hijab Application Using Design Thinking

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ABSTRACT

Smartphones have become indispensable tools in business operations due to their convenience and practicality. It is reflected in the Sabrina Hijab shop, where the owner has relied on smartphones since its establishment. However, challenges emerged, such as the difficulty distinguishing between resellers and regular customers and how administrators manage the online store and the conventional business using a single device. To address these issues, this study adopts the Design Thinking approach, which consists of five stages: empathize, define, ideate, prototype, and testing. The evaluation phase utilized the User Experience Questionnaire (UEQ) and the System Usability Scale (SUS). The SUS test resulted in a final average score categorized as Poor, while the UEQ results indicated a rating of Excellent. Based on these results, it can be concluded that the prototype designed is for user comfort and convenience, has a pretty good value according to the UEQ and SUS score scales, and increases efficiency and visual appeal. This study is expected to serve as a UI/UX design reference for micro, small, and medium enterprises (MSMEs) using the Design Thinking approach. Future development will focus on enhancing the application's simplified interface features.

INTRODUCTION

In the last decade, the adoption of digital technology has become a major factor driving MSMEs to switch from conventional systems to online platforms because digital technology can support more advanced marketing systems in sales [1]. This has been accelerated by the COVID-19 pandemic, which has forced businesses to remain competitive amidst social restrictions and shifts towards digital, such as smartphones. Therefore, smartphones have become one of the technologies widely adopted by MSMEs with the accessibility and ease of use offered by these devices, especially in the ease of using the internet and social media as well as the producer-consumer transaction chain approach that has become a savior for many MSMEs [2][3].

As experienced by the Sabrina Hijab Online Store, an MSME based in Sidoarjo City, this store has relied on smartphones and the internet to manage its business operations. However, the store owner faces difficulties distinguishing orders from regular buyers and resellers, resulting in inefficiencies in the order management. In addition, the absence of a convection ordering feature in the currently used platform is an additional obstacle because convection orders still have to be done offline, which slows down the transaction.

One relevant method in this context is Design Thinking, which emphasizes a deep

understanding of user needs, thereby actively involving users and the solutions based on user feedback [4]. Research by [5], which focuses on village head election applications, shows that Design Thinking can produce applications that are not only functional but also visually appealing, with high UEQ scores on the aspects of attractiveness and clarity. Journal [6] shows that although Design Thinking is effective for designing user interfaces, it has not analyzed the integration of complex additional features such as reseller and convection management in one application.

METHOD

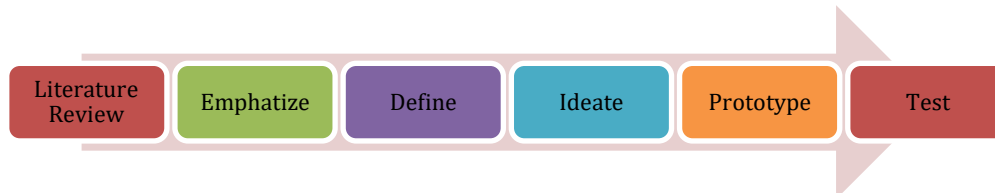


Figure 1. Research Methodology Diagram

Figure 1 explains the Design Thinking method used in designing the User Interface (UI) and User Experience (UX) of the Sabrina Hijab application. The Design Thinking method in this study consists of a literature study; the design thinking stage includes empathizing, defining, ideating, prototyping, and testing; finally, drawing conclusions and providing suggestions. This study uses an implemented approach to design and develop an application prototype for the Sabrina Hijab online store using the Design Thinking method. This method was chosen because of its ability to provide solutions that focus on user needs and its flexibility in designing iterations based on user feedback [7]. This section explains the stages of the methodology used, from research design, research subjects, and data collection techniques to analysis and evaluation methods.

Empathize

The first stage is to explore user needs using the Persona method. The target users for the UI and UX design of the Sabrina Hijab application include administrators, regular buyers, and resellers. Data obtained from questionnaires and interviews serve as a reference for the subsequent stages of the Design Thinking process [8]. In this study, the persona development process is conducted through interviews and questionnaires, and the findings are then synthesized into persona profiles. These profiles are presented in tabular form, highlighting each user's goals and characteristics.

Define

At this stage, the results of interviews and questionnaires are analyzed to compile a list of pain points faced by users. The main problem is defined as How Might We (HMW), a framework for thinking to produce solutions [9]. Examples of pain points and HMW found in this study are the difficulty of distinguishing orders from regular buyers and resellers. HMW is how we can make it easier for shop owners to manage orders from various customers.

Ideate

This stage aims to generate solution ideas based on the previously identified problems. The researchers conducted a brainstorming session to develop a range of alternative solutions, which were then organized and prioritized using an Affinity Diagram to clearly and systematically represent the core issues. Some proposed ideas include implementing a dedicated category feature for resellers, integrating a reward system for loyal customers, and offering an online ordering feature designed for convenience.

Prototype

Based on the results of the Ideate stage, the researcher designed a high-fidelity prototype using the Figma application by adding the visual side of the features so that a Mock-up of the application would be formed. This prototype includes various proposed features, such as a

registration page to become a reseller and a convection ordering feature with product detail input. The real form of the visual or so-called prototype that is made is high-fidelity.

Test

The final stage involves testing the prototype with users. Testing is done using two main evaluation methods: the UEQ, which measures aspects such as attractiveness, efficiency, clarity, and novelty of the application [10], and the SUS, which assesses the perceived ease of use based on user experience [11]. SUS is designed to be quick and easy to administer while maintaining high reliability [12]. The target respondents include shop owners, regular customers, and resellers. The test results are used to evaluate and iterate the application design to suit user needs based on the application's user experience. According to ISO [13], user experience refers to a user's perceptions and responses from using a system, product, or service. Data from interviews, questionnaires, and prototype testing were analyzed descriptively and quantitatively. Descriptive analysis was used to describe the main findings from interviews and observations. In contrast, quantitative analysis was used to measure satisfaction and ease of use based on UEQ and SUS scores in percentages.

RESULTS AND DISCUSSION

Empathize

The Empathize stage identifies the needs and goals of the user persona. The personas defined in the research for the user interface and user experience design of the Sabrina Hijab application include the Sabrina Hijab administrator and buyers. The buyer persona is further categorized into regular buyers and resellers. For this research, interviews, and questionnaires were administered to the Sabrina Hijab store owner and nine buyers (including resellers) using Google Forms and direct interviews. A structured 15-minute interview was conducted exclusively with the seller. Responses from both sellers and buyers were compiled and analyzed using Google Sheets and Microsoft Excel. The goals of each persona are as follows: (1) The Sabrina Hijab Administrator needs to view the order management interface for both regular buyers and resellers and access the convection ordering feature on the online sales platform. (2) Regular buyers expect a user-friendly and intuitive platform interface. And (3) Resellers expect the presence of dedicated reseller features [14][15].

Define

At this stage, pain points and HMW statements are compiled from the responses obtained during the Empathize stage [16][17]. The first pain point identified is that the Sabrina Hijab administrator experiences difficulty managing orders between regular buyers and resellers and notes the absence of a convection ordering feature. The second pain point is that regular buyers expect a user-friendly and intuitive platform interface. The third pain point is that resellers require a dedicated interface tailored to their needs the corresponding How Might We statements are presented in Table 1.

Ideate

From the first HMW statement that was developed, a key HMW was selected: how to assist Sabrina Hijab administrators in managing buyer orders more efficiently. This HMW is the basis for generating potential solution ideas [18]. These solution ideas are subsequently categorized according to their implementation within the application and organized using an Affinity Diagram. The Affinity Diagram systematically presents the identified problems [19]. The initial solution ideas derived from the HMW are then structured within the Affinity Diagram, as presented in Table 1.

Table 1. Define Table, Persona, and Affinity Diagram of Application Users

Empathize		Define		Ideate	Prototype	
Persona	Pain Points	Goals	Affinity Diagram	Crazy 8's	Wireframe	High fidelity
Sabrina Hijab Administrator	Sabrina Hijab Administrator finds it difficult to organize orders between regular buyers and resellers.	Sabrina Hijab Administrator sees the display of regular buyer and reseller order management.	Added categories for regular buyers and resellers.	Figure 2(8)	Figure 3(8)	Figure 4(8)
	Sabrina Hijab Administrator did not find any convection ordering feature on the online sales platform	Sabrina Hijab Administrator sees the convection ordering feature on the online sales platform.	Add a convection ordering feature to sellers.	Figure 2(3)	Figure 3(3)	Figure 4(3)
Regular Buyer	Regular buyers expect a platform display that is easy to understand.	Regular Buyers see an easy-to-understand platform display.	Make the application display simple and easy to understand.	Figure 2(1), Figure 2(2), Figure 2(3), Figure 2(4), Figure 2(5), Figure 2(6), Figure 2(7), and Figure 2(8)	Figure 3(1), Figure 3(2), Figure 3(3), Figure 3(4), Figure 3(5), Figure 3(6), Figure 3(7), and Figure 3(8)	Figure 4(1), Figure 4(2), Figure 4(3), Figure 4(4), Figure 4(5), Figure 4(6), Figure 4(7), and Figure 3(8)
Reseller	Resellers expect a separate Reseller display.	Resellers see Reseller features.	Adding a special category for resellers.	Figure 2(8)	Figure 3(8)	Figure 4(8)

The following is a rough sketch of the application display created using the Crazy 8's method. This method is designed to encourage quick idea generation through rapid sketching. This exercise aims to provide a preliminary overview of the user interface. These rough sketches help visualize the design concepts before further development [20].

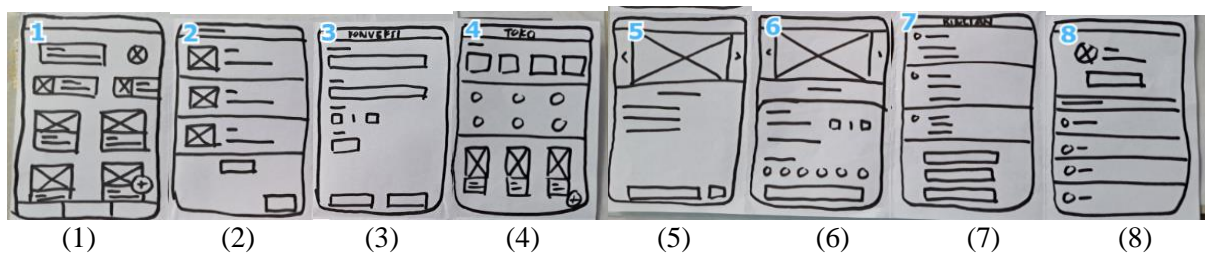


Figure 2. Crazy 8's Result

Figure 2 presents the outcome of the Crazy 8's method, consisting of eight rough interface sketches. The first sketch illustrates the Main Page when users successfully log in to the application, displaying several product images. The second sketch shows the Basket feature, containing a sample list of products added to the basket. The third sketch represents the Convection Order Page, where users can submit orders to the Sabrina Hijab administrator by filling in several input fields detailing the desired products. The fourth sketch shows the Store Page, which displays store-related information such as a description and a catalog of products for sale. The fifth sketch depicts the Product Detail Page, showing detailed information about items in the catalog. The sixth sketch displays the Order Confirmation Page, which appears before an item is officially ordered and added to the basket. The seventh sketch represents the Order Management Page viewed by the Sabrina Hijab administrator, where order details are shown. Finally, the eighth sketch illustrates the User Profile Page, which includes user identity and buyer status within the application.

Prototype

The next stage is to design the ideas created to form a basic framework that becomes a reference for the visual design of a mobile application or website [21]. Several elements or components are included in the wireframe of a design to provide a basic depiction of the visual design, as in Figure 3, with the addition of color elements, icon images, and typography [22]. Figure 3 is the result of the wireframe process, where the first is the Home Page display. The second is displaying the "basket" feature with examples of several product lists already in the basket. The third is the display of convection orders from users to the Sabrina Hijab administrator. The fourth is the display of the store, which displays details of the store, such as store descriptions and product sales catalogs. The fifth is the display of product details sold in the catalog. The sixth is the display of product order details before the order is ordered and entered into the "basket" feature. The seventh is the display of order details received by the Sabrina Hijab administrator. The eighth is the display of the user's profile account.



Figure 3. Low-Fidelity Wireframe Application

After the wireframe is successfully designed, the wireframe will then be made into a real visual design of the application. The real visual form, or a prototype, that is created is high fidelity [23]. The high-fidelity prototype is shown in Figure 4.

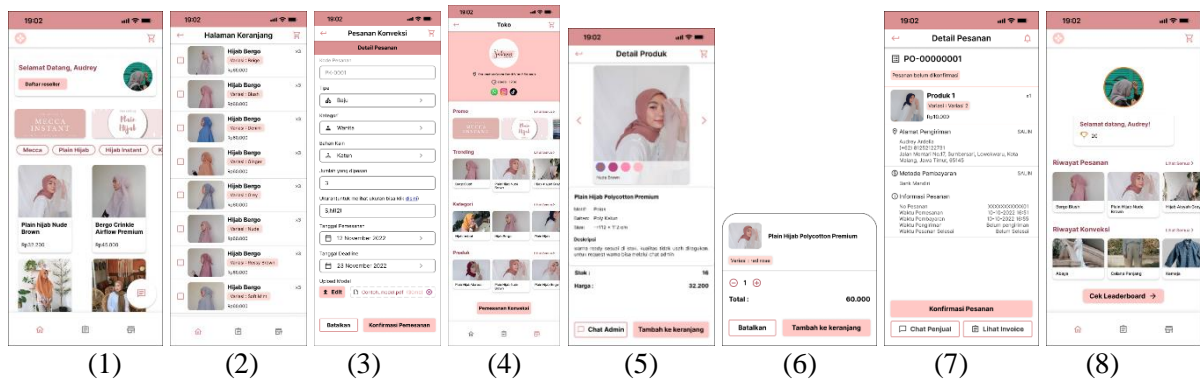


Figure 4. Reseller Registration View

Figure 4 explains the high-fidelity prototype, where the first is the Home Page display. The second is displaying the "basket" feature with examples of several product lists already in the basket. The third is the display of convection orders from users to the Sabrina Hijab administrator. The fourth is the store display, which displays store details, such as store descriptions and product sales catalogs. The fifth is the display of product details sold in the catalog. The sixth is the display of product order details before the order is ordered and entered into the "basket" feature. The seventh is the display of order details received by the Sabrina Hijab administrator. The eighth is the display of the user's profile account. Complete with the visual form of the design.

Test

This testing stage is needed to test the success of using the application features in the form of assessments from several users [24]. User assessment and feedback are required for future application development [25]. Testing begins with the user testing the application with several Task Scenarios. Then, the user will fill out the UEQ and SUS questionnaires based on the application usage assessment. The questionnaire results will be subjected to reliability and data validation according to Figure 5, where the valid value is up to 83.3%.

Case Processing Summary

		N	%
Cases	Valid	10	83.3
	Excluded ^a	2	16.7
	Total	12	100.0

Figure 5. Reliability Test Results and Data Validation

User Experience Questionnaire (UEQ)

The UEQ was administered to 10 respondents. This questionnaire aims to evaluate several key aspects of the user experience. Specifically, it assesses attractiveness, clarity, efficiency, accuracy, stimulation, and novelty. The data collected from the respondents were analyzed to provide insights into the overall user experience.

Items																										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
3	7	1	1	1	7	7	7	1	1	7	1	7	7	7	7	1	1	1	7	1	7	1	1	1	7	
5	6	4	2	3	5	5	5	3	4	5	1	6	6	5	6	1	2	3	6	2	6	3	3	1	5	
4	3	1	1	1	1	2	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	
1	1	2	1	2	1	2	1	1	2	1	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	
4	1	1	3	5	4	4	4	4	4	4	2	4	4	4	4	4	4	4	4	2	4	4	2	4	4	
5	6	5	6	5	6	5	6	5	6	5	5	6	5	6	6	5	6	5	6	5	6	5	6	6	5	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
4	4	4	2	2	4	4	4	2	4	2	2	4	4	4	2	2	2	4	4	2	4	2	4	4	4	
1	1	1	4	3	4	1	4	4	3	6	2	4	4	5	4	4	2	4	4	4	4	3	2	4	4	

Figure 6. UEQ Filling Results

Figure 6 presents the results of the UEQ was ten respondents participated in the survey. Once the responses were collected, the mean and variance of the data were calculated. These statistical measures provide an overview of the respondent's experience with the application.

UEQ Scales (Mean and Variance)		
Attraction	↑ 3.517	2.06
Clarity	↑ 3.525	2.49
Efficiency	↑ 3.725	2.44
Accuracy	↑ 3.725	2.10
Stimulation	↑ 3.600	2.29
Novelty	↑ 3.775	2.05

Figure 7. UEQ Scale (Mean and Variance)

Figure 7 shows the mean results of each of the six UEQ scales. The green arrow indicator indicates that the mean value obtained is positive. The highest mean scale was achieved by Novelty with a value of 3.775. Then continued with Efficiency and Accuracy with a value of 3.725. Then Stimulation with a value of 3.600. Clarity scale with a value of 3.525 and Attractiveness with a value of 3.517.

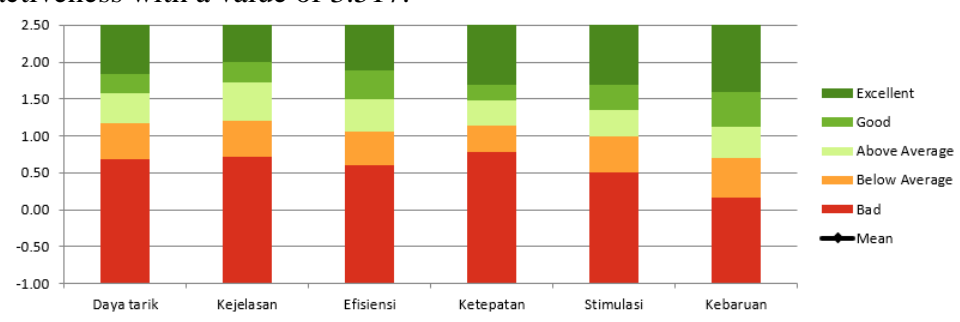


Figure 8. UEQ Results Diagram

Scale	Mean	Comparison to benchmark	Interpretation
Attraction	3.52	Excellent	In the range of the 10% best results
Clarity	3.53	Excellent	In the range of the 10% best results
Efficiency	3.73	Excellent	In the range of the 10% best results
Accuracy	3.73	Excellent	In the range of the 10% best results
Stimulation	3.60	Excellent	In the range of the 10% best results
Novelty	3.78	Excellent	In the range of the 10% best results

Figure 9. Overall Benchmark UEQ Score

Figure 8 and Figure 9 above are diagrams that determine the UEQ benchmark for the Sabrina Hijab application, whether it meets the criteria for an application with good user experience or not. Based on Figures 8 and 9, the prototype produced in this study meets the UEQ scale with a value above 0.8 [5], which proves that this prototype has a positive value. It can be seen from the Figure above that Attraction has received an "Excellent" value, Clarity has received an "Excellent" value, Efficiency has received an "Excellent" value, Stimulation has received an "Excellent" value, and Novelty has received an "Excellent" value.

System Usability Scale

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SUS Raw Score Total	SUS Final Score
3	1	2	1	2	1	1	1	1	1	24	60
2	2	2	1	2	2	1	2	3	2	21	52,5
2	1	2	1	4	1	1	2	2	1	25	62,5
5	2	5	1	2	1	2	1	2	1	30	75
5	5	5	2	5	2	2	3	4	3	28	65
5	4	5	4	4	5	5	4	5	4	23	57,5
4	2	3	3	2	3	3	3	3	3	21	52,5
4	2	3	1	2	2	2	2	4	2	26	65
4	2	5	2	2	2	2	2	5	3	27	67,5
3	4	4	4	2	4	3	4	3	4	15	37,5
Average Score(Final Result)											59,5

Figure 10. SUS Calculation Values

The SUS measures the application's ease of use based on user experience. The raw SUS values are calculated using a formula in Microsoft Excel based on responses to ten questions. These values are then multiplied by 2.5 to obtain the Final SUS values, as illustrated in Figure 10. The average of these final values results in a Final Average SUS score of 59.5, which, according to the SUS score scale [5], is classified in the F category, indicating poor usability, as shown in Table 2.

Table 2. SUS Scale Table

SUS Score Range	Grade	Qualitative Interpretation	General Description
90 – 100	A	Excellent	Very satisfying; users are very satisfied
80 – 89	B	Good	Satisfactory; users feel comfortable
70 – 79	C	OK / Acceptable	Good enough; still acceptable
60 – 69	D	Marginal / Poor	Needs improvement; not entirely adequate
< 60	F	Not Acceptable / Awful	Bad; users feel frustrated

CONCLUSION

The UI/UX design of the Sabrina Hijab application, developed using the Design Thinking approach, successfully identified the needs and goals of distinct user types: administrators, regular buyers, and resellers. Findings from the Empathize stage showed that users sought efficient order management, clear displays, and features supporting reseller activities. The UEQ evaluation revealed positive feedback, with users finding the prototype functional, easy to use, and pleasant. However, testing using the SUS approach classified the prototype in the F category, indicating poor usability due to unmet navigation and task execution needs.

Overall, this research contributes to developing digital-based sales applications with a user-centered approach. This design has increased the product's sales by 25%. This design model can also be applied to other MSMEs with similar needs, such as clothing or accessories conventions. It is hoped that the results of this design can continue to be improved through continuous feedback collection so that the Sabrina Hijab application can provide an increasingly optimal and relevant user experience in the future.

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