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Optimazing Instagram Direct Message Using the User-Centered Design Method

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Abstract. Instagram is a social media platform that allows users to share various photos, videos, and messages online. In the digital era, communication through social media has become a means for users to interact. The Direct Message (DM) feature on Instagram plays an important role in facilitating communication. However, based on observations and questionnaire results, users reported that the interface and user experience of this feature are less than optimal, particularly regarding feature functionality, less efficient message management, and difficulties in marking important messages. Based on these issues, this study focuses on understanding user needs to improve the DM feature. Instagram DM serves as an interface that delivers information to users. The purpose of this research is to increase efficiency, create a more interactive user experience, and enhance user satisfaction when using the Direct Message feature on Instagram. This study adopts the User-Centered Design (UCD) method for a design development process oriented to user needs, involving four stages: user analysis, solution analysis, design, and testing. Prototype design testing uses the System Usability Scale (SUS) method to measure system usability. The SUS test results from 37 respondents yielded a score of 71%, indicating a good level of usability and acceptance by users.

Keywords: *Direct Message Feature, Instagram, Optimazing, SUS, UCD*

BACKGROUND

Social media has become an integral part of modern society's daily life, with Instagram being one of the most popular platforms**.** Instagram is an application available for iPhone, iPad, and iPod that allows users to capture, edit, and share their photos with other users (Rasyid & Purwanti, 2020). In today's technological era, communication through social media platforms has become one of the primary means for users to interact.

One of the most frequently used features on Instagram for user-to-user communication is the Direct Message (DM). The Direct Message is an in-app

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messaging feature that allows users to privately share and exchange text, photos, reels, and posts with one or more recipients. As the intensity of social media use as a daily communication tool continues to grow, users' needs for more flexible and efficient message management are also evolving. However, to this day, the DM feature on Instagram still has several limitations, such as the absence of options to pin important messages, star specific messages for future reference, or selectively delete messages to maintain privacy and keep conversations organized.

This condition often creates difficulties for users, especially those who use Direct Messages (DM) for professional, academic, or large-scale information management purposes. Users are often required to scroll through long conversations just to find a single important piece of information, or they lack a way to mark messages that need follow-up. The absence of message management features presents a gap that can reduce the effectiveness and convenience of using DM. This development is expected to provide a solution to user needs in managing communication in a more organized, efficient manner, and in line with the habits of modern digital communication.

To improve the usability of Instagram's Direct Message (DM) feature, it is essential to first identify the problems and needs experienced by users during interaction. Initial observations revealed that users often face challenges in organizing or managing important messages, which can impact the effectiveness of communication. This insight prompted the researchers to further explore user needs through a survey.

Based on these findings, this study adopts a User-Centered Design (UCD) approach as the foundation for the design process. In general, the goal of UCD is more than just creating a useful product; it involves translating user participation and focusing on the user experience throughout the development process as the key factor.(Ayu *et al*., 2024). The user-centered interface design focuses on usability, features, users, task environments, or workflows (Anfa'ul Fitri *et al*., 2021). UCD places users at the center of attention throughout the entire design process, from understanding their needs to evaluation. This method serves as an effective approach to analyzing UI/UX on websites. UCD helps gain a better understanding of users and their needs(Ghozali *et al*., 2023). UCD addresses user challenges when operating a system by providing a user-

centered design that meets their needs, making the application easier to use.(Titania et al., 2024)

Previous studies that adopted the User-Centered Design (UCD) method include research titled *"Systematic User-Centered Design of a Prototype Clinical Decision Support System for Glaucoma"*, which discusses how UCD is used to develop a prototype Clinical Decision Support System (CDS) for doctors (Stagg *et al*., 2023). The use of other UCD methods includes the UI/UX design of an e-commerce platform for fish trading, where the development is expected to focus on user needs (Maulana Alja et al., 2024). UI/UX design was also implemented in the *Safe for Children and Women* application to provide protection for children and women from violence and harassment by applying a UCD approach in the design process (Purwati et al., 2024). Additionally, UCD was used in the analysis and redesign of the user interface for a library information system (Turnip *et al*., 2024). Another study discusses UCD in the UI/UX design of the *Sampahocity* application for developing digital waste bank features (Luthfi & Arfiani, 2024). Furthermore, UCD was applied as an approach in redesigning the *Kita Lulus* portal interface, prioritizing user needs in its development (Rahayu & Indrati, 2024). UCD has also been implemented in product development, such as in the UI/UX design of the *Fithub* application for financial technology integration (Rachman et al., 2024). Lastly, UCD was used in redesigning the *MRT Jakarta* mobile application, actively involving users in the design development process (Rahma Fahriyah *et al*., 2024). Based on the explanations above, this study aims to enhance the development of the Direct Message feature on Instagram to better meet user needs.

THEORETICAL REVIEW

The theoretical study in this research employs a scientific approach to understand user experiences and feedback on the application. Meanwhile, the product development method used in designing, developing, and building or updating the product follows the User-Centered Design method.

a. User Centered Design Methods

The User Centered Design (UCD) is a design methodology that focuses on user needs. In the context of information systems, UCD is part of the SDLC (System Development Life Cycle), ensuring that applications developed through UCD are optimized and centered on end-user needs. This approach allows users to interact with

the application without having to change their behavior (Ayu Amizhora & Sutabri, 2023).

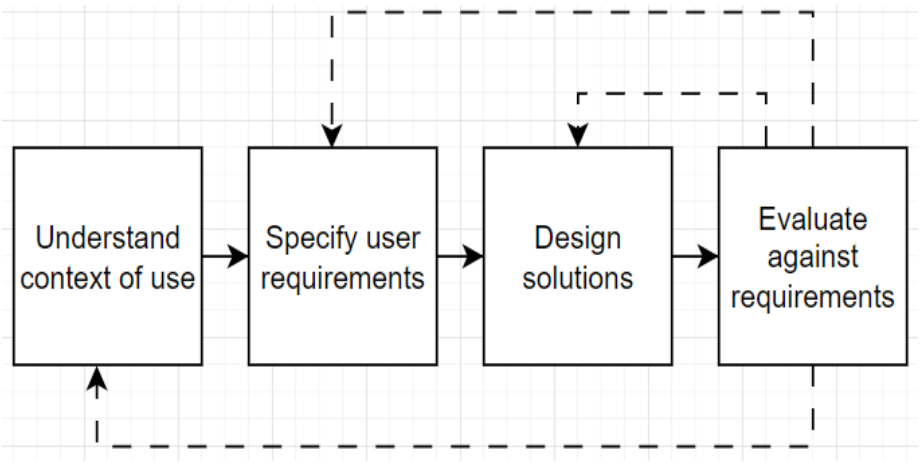

Figure 1. UCD Stages

1. Understand Context of Use is system designers must understand the context in which the system will be used, including who will use the application, for what purpose, and under what conditions.
2. Specify User Requirements is designers can then proceed to the next step, defining user requirements. In this stage, designers must identify business needs and application objectives. This phase determines both user and organizational requirements for the system to be developed, aiming to enhance efficiency, effectiveness, and user satisfaction.
3. Design Solutions Process is next, solutions will be designed to address the user needs identified in the previous stage. This design process includes several phases, from initial ideas and prototyping to the final design. Similar to heuristic evaluations of initial designs, the evaluation of design solutions is conducted. The results indicate that heuristic issues require further refinement.
4. Evaluation Against Requirements is by involving actual users, the design evaluation from the previous stage is conducted to ensure that the system meets the specified requirements.

b. System Usability Scale

The System Usability Scale (SUS) method is based on data collected from respondents' responses to a survey using a Likert Scale. SUS is a questionnaire designed

to measure how easy a system is to use from the user's perspective. The SUS framework consists of ten statements and five response options on a Likert scale (Tri *et al*., 2023).

Subsequently, respondents are asked to select the most appropriate response based on their conditions regarding the given statements, ranging from point 1 to 5, where 1 represents 'Strongly Disagree' (STS). The testing instrument using the SUS framework is presented in Table 1 (Puspita Eugenia *et al*., 2022).

Table 1. List of SUS Questionnaire Quentions

No	Question
1	I think I would use this system again.
2	I find this system complicated to use.
3	I find this system easy to use.
4	I need help from others or a technician to use this system.
5	I feel that the system features function as expected.
6	I believe others will quickly understand how to use this system.
7	I find many inconsistencies in this system.
8	I find this system confusing.
9	I experience no obstacles in using this system.
10	I need to familiarize myself before using this system.

The average score of each statement in each dimension will be calculated to process the collected response data. The SUS testing results are calculated as follows:

a) The score of odd-numbered instrument statements is subtracted by 1 (xi−1)(x_i - 1)(xi−1).
b) The score of even-numbered instrument statements is calculated using the formula: 5 minus the instrument response (5−xi)(5 - x_i)(5−xi).
c) Sum all response values and then multiply by 2.5.
d) Calculate the average score for each statement from all respondents.

Three evaluation perspectives are used to determine the SUS score calculation results: acceptability, grade scale, and adjective rating. Acceptability indicates the level of user acceptance of the software, grade scale represents the software's grading level, and adjective rating reflects the software's rating (Puspita Eugenia et al., 2022).

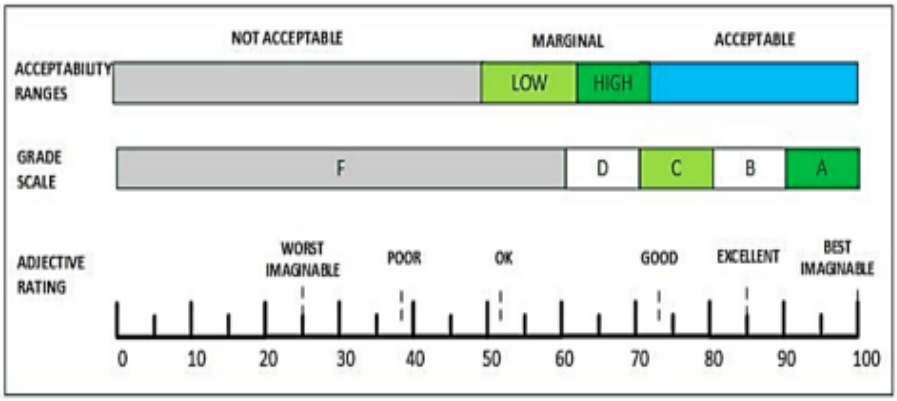

Figure 2. SUS Assessment Categories

RESEARCH METHODS

The research method aims to explain the stages carried out in conducting the study according to the proposed methodology. These stages include several processes to ensure that the research results are more structured, accurate, and reliable, as shown in Figure 3.

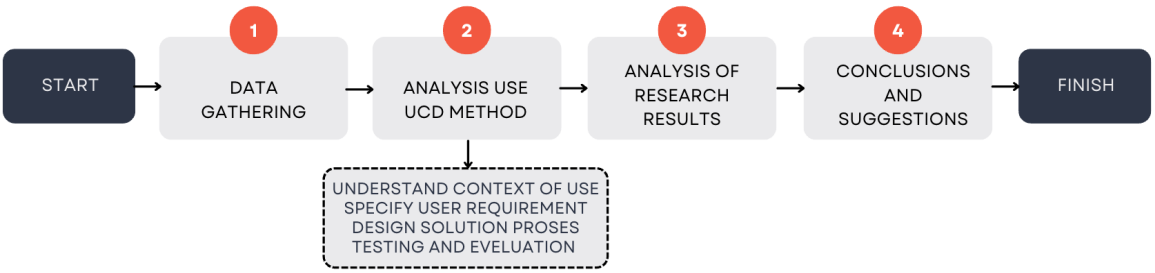

Figure 3. Research Methods

The research method in Figure 3 details the following processes:

1. Data Gathering is Consists of primary and secondary data collection. Primary data is gathered through surveys and interviews involving Instagram application users, while secondary data is based on previous design works and information analyzed from online sources such as articles, journals, and relevant literature.
2. Problem Formulation is Identifies relevant and significant issues related to the Instagram DM application. By understanding user experiences, challenges encountered during application usage can be clearly identified.

3. Analysis Using the UCD Method is The application design follows the UCD method to ensure the final design aligns with user needs. The analysis process involves four stages: is understanding users, analyzing user needs, creating prototypes, and testing the application design use SUS method.
4. Research Results Analysis is rovides an overview of the research findings to determine whether the results meet the intended objectives.

RESULTS AND DISCUSSION

a. User Understanding

This stage focuses on understanding how the developed product aligns with user needs by distributing a questionnaire to 37 respondents. Among the 25 analyzed respondents, 56% were male and 44% were female, as shown in Figure 3. This relatively balanced composition suggests that the additional DM features should be designed to be intuitive and accessible for all genders, without bias in user experience or functionality. In terms of age, the majority of respondents were between 18–24 years old (48%) and 25–34 years old (44%), meaning that 92% belong to the young adult demographic. This group is known for being active in digital communication, capable of multitasking, and having high expectations for efficient and functional features. Regarding occupation, 56% were private sector employees, 32% were students, 8% belonged to other categories, and 4% were government employees. This indicates that most users utilize DM not only for social purposes but also for professional communication.

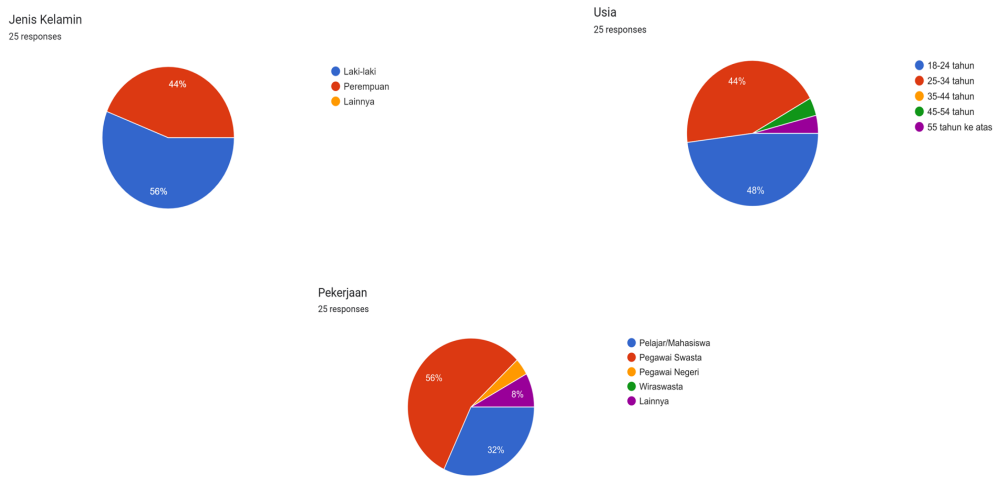

Figure 4. User Demographics

b. Identifiying User Reqeuirements

User requirements are determined through observation and questionnaire distribution. Information from 37 respondents is presented in Figure 5.

Figure 5. Define Information

The information obtained from 37 respondents was analyzed to identify the following issues: the lack of completeness in the DM feature, nnable to pin important messages, mark important messages, and selectively delete messages to maintain privacy and conversation tidiness. From this the need for a context menu feature to make DM usage more interactive, and improvements in the interface design.

c. Design Solution

User Flow illustrates the path users take to achieve their goals. It represents the steps users need to go through from start to finish to execute a function or feature. The following is the user flow for the development of the Instagram POP DM feature, as shown in Figure 6.

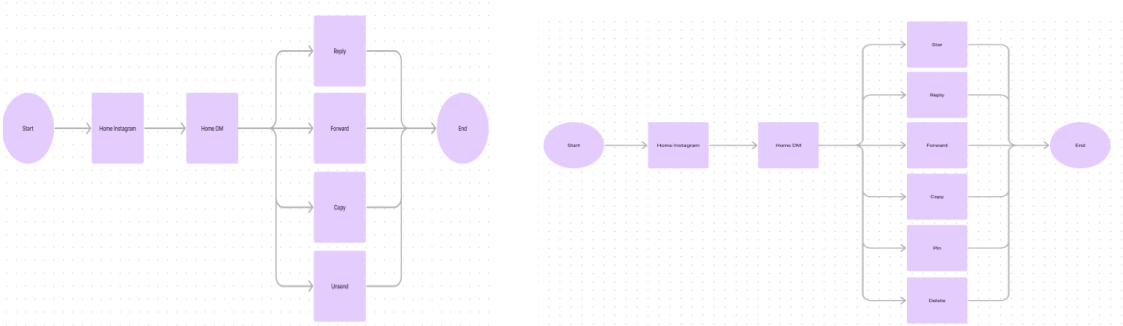

Figure 6. User Flow of Instagram Feature DM

d. Prototype

A prototype is the process of designing a system interface as an example to develop a product, providing users with a direct representation. The types presented include wireframes, mockups, and prototypes. In this stage, the author introduces an additional feature that was previously unavailable in the DM interface—the "star" feature. The first image shows the initial design without the star feature. The purpose of adding this feature is to allow users to mark messages for easy retrieval in the future, as shown in Figure 7.

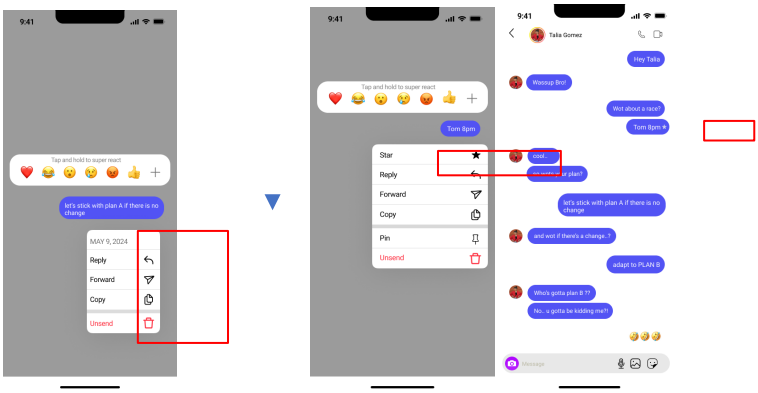

Figure 7. Star Feature

At this stage, the author adds the pin feature to Instagram DM. The function and purpose of this feature are to help users pin their messages in Instagram DM, allowing them to easily prioritize important messages, as shown in Figure 8.

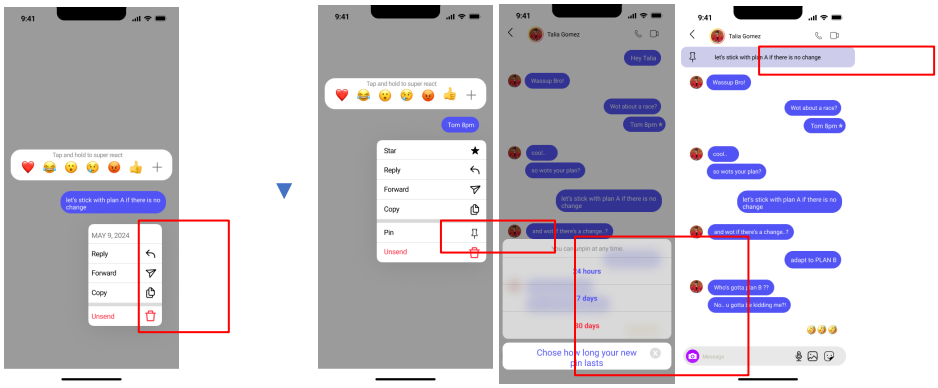

Figure 8. Pin Feature

At this stage, a delete message feature was added to the text message interface, which was not available previously. This feature allows users to delete individual messages without having to remove the entire conversation, providing greater flexibility and better control in message management, as shown in Figure 9.

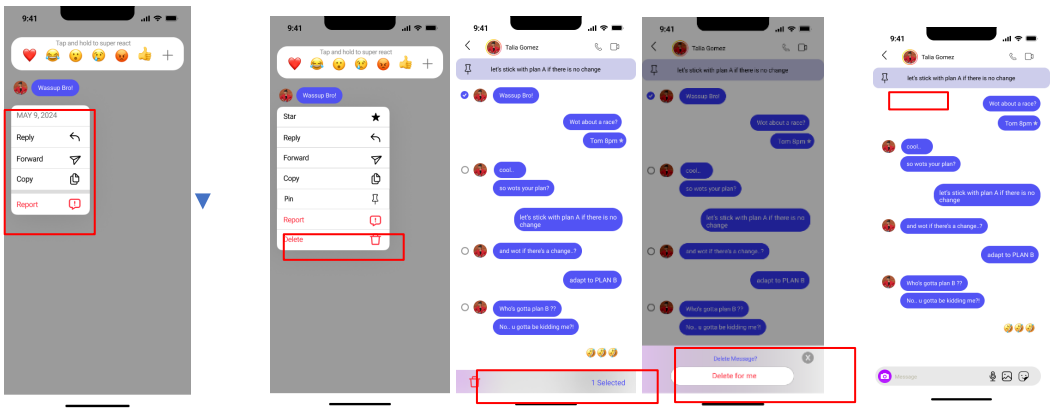

Figure 9. Delete Feature

The following is the complete prototype that will be tested on the general public who actively use Instagram, as shown in Figure 10.

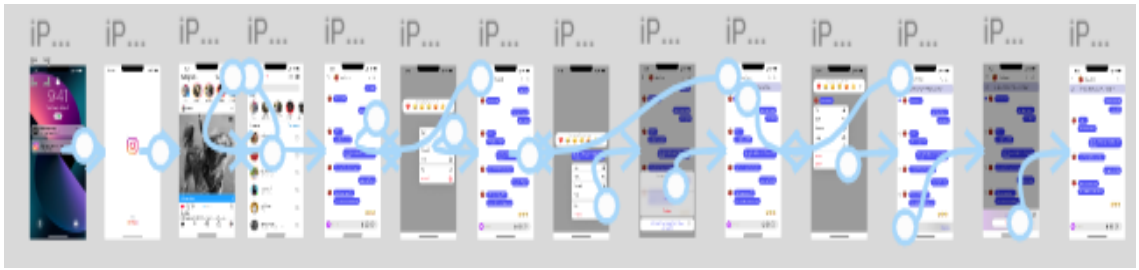

Figure 10. Prototype

e. Design Evaluation

Design evaluation is a structure created to produce an unbiased assessment of a program's benefits. The decision to choose an evaluation design depends on the

evaluation questions and effectiveness standards but also on the available resources and the required level of accuracy.

Table 2. Skor SUS

Respondent	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total	Final Score
R1	3	1	4	0	3	1	3	1	3	1	20	50
...	...	...	...	...	...	...	...	...	...	...	...	...
R37	3	1	3	3	3	3	3	3	3	1	26	65
SUS Score												71

CONCLUSIONS AND SUGGESTIONS

The system usability scale (SUS) method is used as a tool to help assess the prototype so that the assessment can be measured and structured accurately. The evaluation results show that the prototype produces a usability score of 71%, which is in the "Good" category. This indicates that the design and features developed can be well received by users and show the potential to increase efficiency and convenience when communicating via Instagram DM. Although the results obtained are quite positive, this study still has several limitations, such as the relatively limited number of respondents. Therefore, it is recommended that further research involve a wider range of participants. In addition, it is also necessary to consider the development of additional features such as message search, starred message filters, and special notifications, which can further enrich the user experience in using the Direct Message (DM) service on Instagram.

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