Analysis and Design of the Mentor On-Demand Service Interface Using the Design Thinking Method

Khalid Rijaluddin
Computer Science Faculty
UPN "Veteran" East Java
Surabaya, Indonesia
20082010182@student.upnjatim.ac.id

Eristya Maya Safitri
Computer Science Faculty
UPN "Veteran" East Java
Surabaya, Indonesia
maya.si@upnjatim.ac.id

***Abstract*—Skilvul is a technology education platform that provides digital skills learning content by applying blended learning methods in online and offline forms. The skilled platform will develop a feature, namely mentor on demand, where the mentee can provide guidance and solve problems faced by being accompanied by a mentor privately. In general, online learning is carried out concurrently so the large ratio of mentors to students in a virtual class causes limited mentor communication with each student. This makes students feel that they are not fully guided by mentors because of the large number of students in one virtual class. The interface design process for the mentor-on-demand feature uses the design thinking method. This method has 5 stages, namely empathize, define, ideate, prototype, and testing. Testing is carried out on prototypes that have been generated using the SEQ metric. The average value of SEQ is at number 6 on a scale of 1 to 7. This can be interpreted that the prototype made can be easily understood by users so that problems related to online learning can be resolved.**

Keywords—online learning; skilvul; design thinking; mentor on-demand;

I. INTRODUCTION

Online learning is distance learning in essence. The distance learning system is a system that has existed since the mid-18th century. From the beginning, distance learning has always used technology in its implementation, ranging from the simple to the most recent. So, online learning is a teaching and learning process that is carried out with the help of the internet network [1]. In addition, online learning has several ways that can be done, one of which is mentoring. Mentoring is an activity to identify and develop overall abilities ranging from academic to professional skills [2]. In the mentoring process, there are the terms mentor and mentee, a mentor is a person who helps direct and develop the potential of the mentee, while the mentee is a person who needs direction and guidance from someone who is more experienced to develop existing potential [3].

Skilvul is a technology education platform that provides digital skills learning content by applying the "blended learning" method in online and offline forms. This platform also provides many programs such as boot camps, scholarships, virtual classes, webinars, and other services related to technology education. The use of the online "blended learning" learning method at Skilvul is an alternative step at this time because online learning is considered more efficient in terms of time and effort than offline learning. However, apart from the various benefits and conveniences provided, of course, there will be some drawbacks or problems that arise. One of the drawbacks of online learning is that the large ratio of mentors to students in a virtual class causes limited mentor communication with each student. This makes students feel that they are not fully guided by mentors because of the large number of students in one virtual class [4].

Based on the problems described, it is necessary to develop the right solution ideas to support solving the problems experienced by users. The solution idea can be in the form of a user interface design [5]. Therefore, the researcher decided to design the Mentor on Demand service interface on the Skilvul online learning platform, which hopes to make it easier for students (mentees) to carry out the mentoring process with mentors privately [6].

Design Thinking is a process by which designers try to understand users, challenge assumptions, and redefine problems iteratively to identify alternative strategies and the best solutions that may not be immediately apparent with an initial level of understanding. The stages in Design Thinking are Empathize, Define, Ideate, Prototype, and Testing [7].

This research hopes that it can support solving problems experienced by students when doing online learning on the Skills platform and provide recommendations for user interface designs that can provide comfortable, easy, effective, and efficient interactions according to the wishes of students or mentors [5].

II. METHODOLOGY

The research method used in designing the Mentor on Demand service user interface is the Design Thinking method. This method has several stages consisting of Empathize, Define, Ideate, Prototype, and Testing.

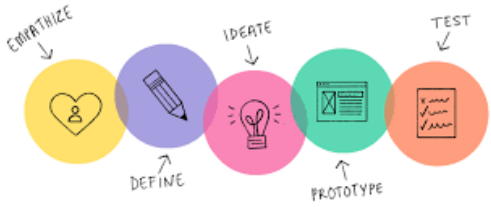

Fig. 1. Metode Design Thinking

A. *Empathize*

This stage is the initial basis of the design process. This stage is carried out to understand the problems, experiences, and motivations of users through observation and empathy for users [7]. This is usually done with surveys, observations, interviews, and other activities that allow for obtaining accurate data from users [8].

B. *Define*

This stage is carried out by defining and specifying the information obtained such as user needs and problems which are the results of the previous stage [7].

C. *Ideate*

Ideate is the stage of creating ideas for innovative solutions [7]. The idea was obtained from observations at the empathize stage and a collection of information that was formulated at the define stage.

D. *Prototype*

This stage is carried out to implement the ideas obtained into a test product. Prototypes are also useful for team evaluation material regarding new ideas or deficiencies in the prototype itself. So, the team can improve and make a better product [8].

E. *Testing*

At this stage testing of solutions or prototypes that have been made to find out how well it is in overcoming the problems that have been defined previously[8].

III. Results and Discussion

The research results obtained are based on the analysis that has been carried out using the design thinking approach. Furthermore, usability testing was carried out on the prototype that had been made using the single ease question method to one respondent.

A. *Empathize*

At this stage, an interview process was carried out with one of the respondents with certain criteria to be able to understand the user's point of view, needs, and desires. The following table results of interviews with respondents.

TABLE I. Interview Results

No	Findings
1.	Mentors are less responsive in responding to student or mentee questions
2.	Users tend to be displeased when the mentor takes too long to respond to questions
3.	Users do not mind being charged for mentoring sessions as long as there is good feedback
4.	Changes to the mentoring schedule are less effective when time is limited

Table 1 is the result of the Empathize stage conducting interviews with one respondent who has participated in mentoring. After this stage is completed and has succeeded in obtaining some of the core results of the problem, it will then be used as a reference to be processed at the Define stage.

B. *Define*

At this stage, the Define Process will be carried out in two stages, namely Pain Points and How Might we Thus, the information obtained from the empathize stage will then be formulated into Pain Points and will be classified into How Might We [6].

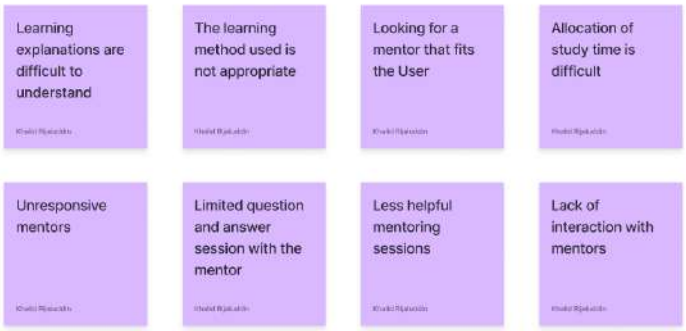

Fig. 2. Pain Points

Figure 2 above is a formulation of Pain Points obtained based on information or results at the Empathize stage. Pain Points are specific constraints or problems experienced by users from various aspects [6].

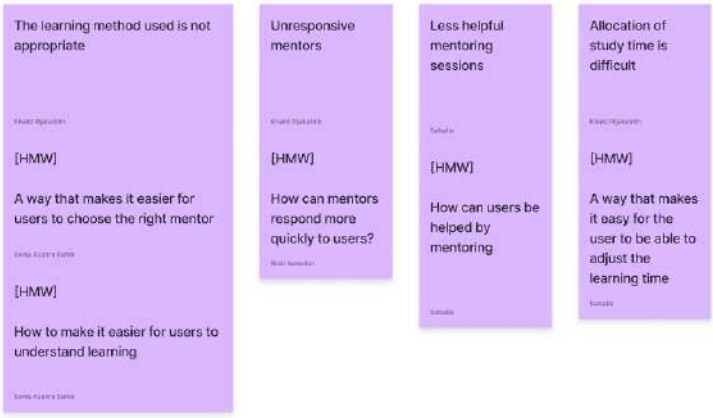

Fig. 3. How Might We

Figure 3 above is the result of the How Might We process, how might we itself is a short question that triggers the brainstorming process [9]. From the several How Might We above, the researcher found that the core of How Might We for the Mentor on Demand service is:

- A way that makes it easier for users to select the right mentor
- A way that makes it easier for users to understand learning in mentoring sessions both in terms of the methods or materials used

C. Ideate

The Ideate stage itself has two processes in it, namely, idea solution and idea prioritization. A solution idea is an idea brainstorming process that aims to generate the right solution idea based on How Might We [9]. At this stage, a user flow and wireframe will also be created which will become the basis for making the design of the features made.

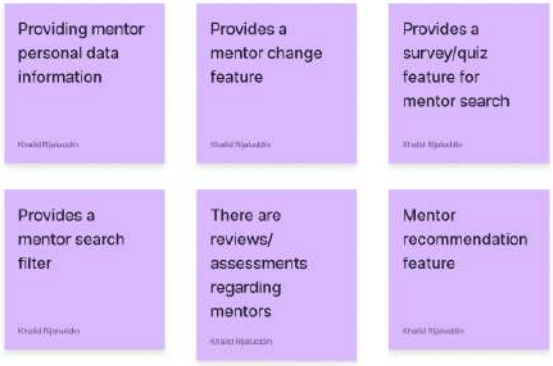

Fig. 4. Solution Idea

Figure 4 above is one of the solution ideas from How Might We "a way that makes it easier for users to choose the right mentor", which the researcher has previously analyzed to help overcome the problems that have been identified at the Define stage. After going through the idea brainstorming process, then proceed with the idea prioritization process. This process aims to prioritize solution ideas that have been defined into different quadrants, of which there are four quadrants, namely, yes do it now, do next, do later, and do last [9].

Fig. 5. Affinity Diagram

Figure 5 above is an affinity diagram for grouping ideas based on the level of user value and the effort needed to realize the idea. The process of grouping ideas is done by brainstorming between the design team and programmers [9]. Then, at this stage user flow and wireframe design are also carried out. User flow itself is the flow of users using websites or applications to complete certain tasks [9].

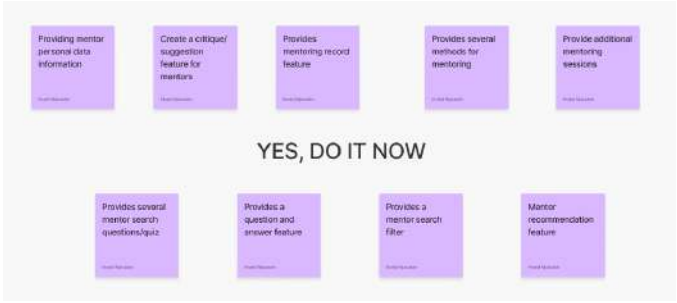

Fig. 6. Prioritization Idea

Figure 6 above is an ideal point that is in the yes do it now quadrant, meaning that the ideas above are the main priorities needed to overcome existing problems. Then, at this stage user flow and wireframe design are also carried out. User flow itself is the flow of users using websites or applications to complete certain tasks.

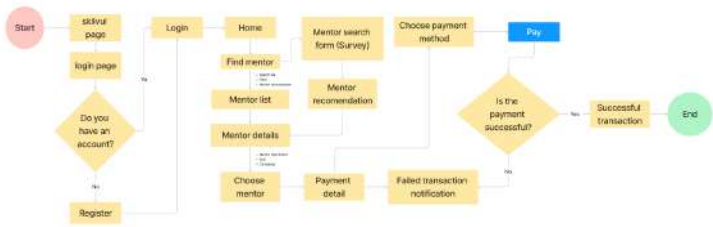

Fig. 7. User flow Mentor Booking Transaction

User flows that have been successfully created include registration and account login, mentor booking transactions, mentoring sessions, additional mentoring sessions, and mentor registration. The user flow of Mentor Order Transactions in Figure 6 above is the flow where users will search for mentors up to the payment stage.

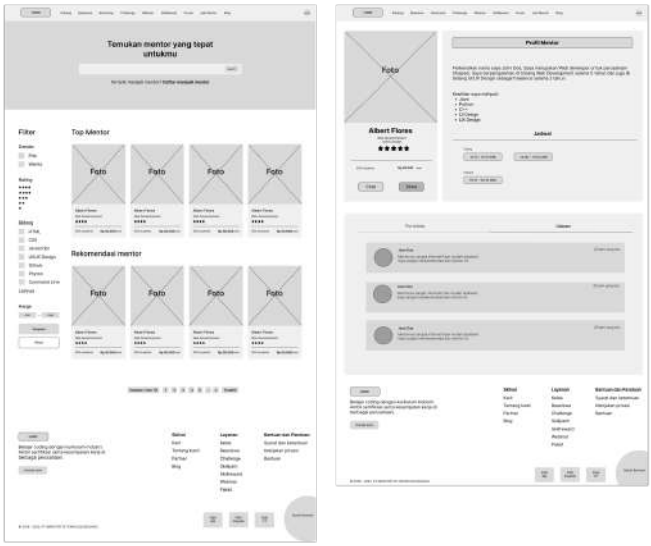

Fig. 8. Mentor Search Page and Mentor Profile Wireframe

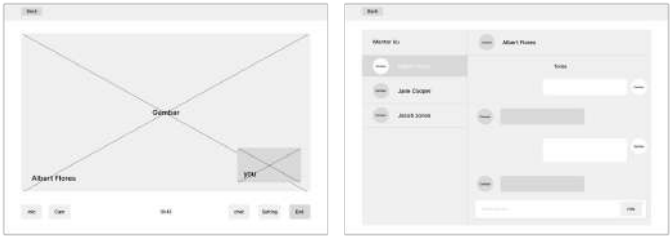

Fig. 9. Wireframe Live Video and Chat Pages

The wireframe is a framework for setting the layout of an item on a website or application page [9]. The picture above is a wireframe for the Mentor on Demand service which will be developed into a clickable prototype, several layouts have been successfully designed concerning the previously created user flow.

D. Prototype

This stage is the stage for creating a UI Style Guide and High Fidelity UI which will be developed into a clickable prototype. The prototype is a picture to the user or an example of a product that has not been implemented into a real product. The purpose of making a prototype is so that the product is made according to the wishes and needs of the user [9].

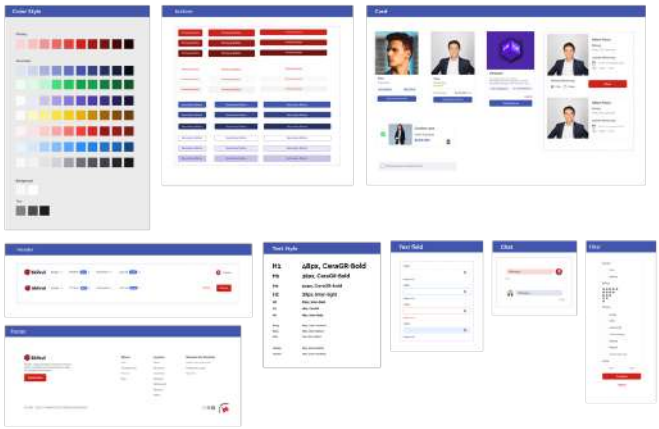

Fig. 10. UI Style Guide

The picture above shows some of the style components that were successfully created, such as Color style, Text style, Input field, Button, Card, Header, and others. The purpose of creating a UI Style Guide is to facilitate the design process so that it becomes more consistent and more efficient in terms of time [10].

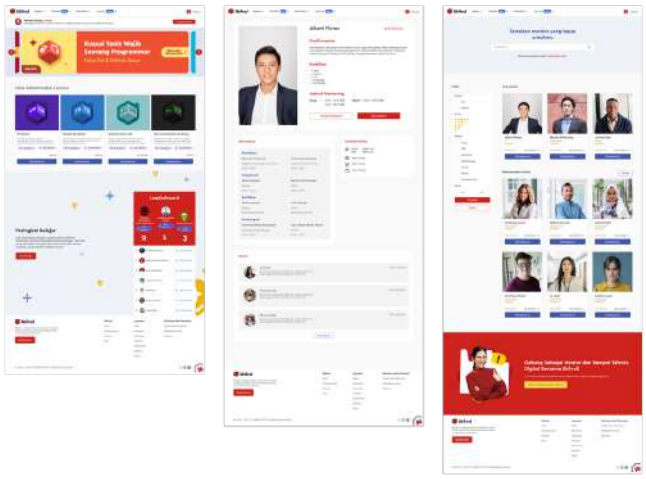

Fig. 11. HiFi UI Mentor On Demand Service 1

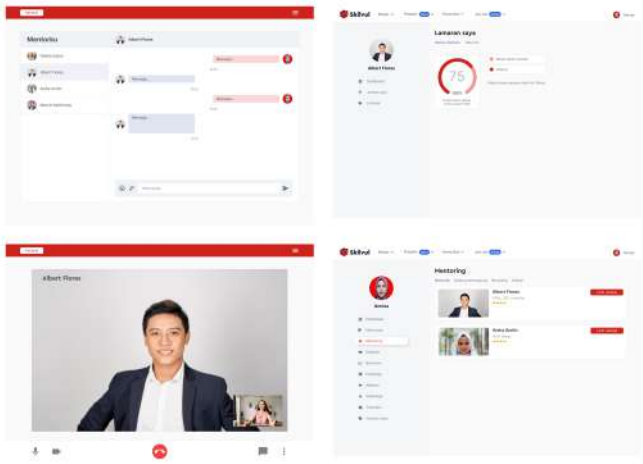

Fig. 12. HiFi UI Mentor On Demand Service 2

Figures 11 and 12 are the results of the Mentor on Demand service user interface design, these pages are the result of the development of a previously made wireframe. There are several pages created such as Mentor Search Page, Mentor Details, Payment Menu, Mentoring Session, Student, Mentor Dashboard, and many more.

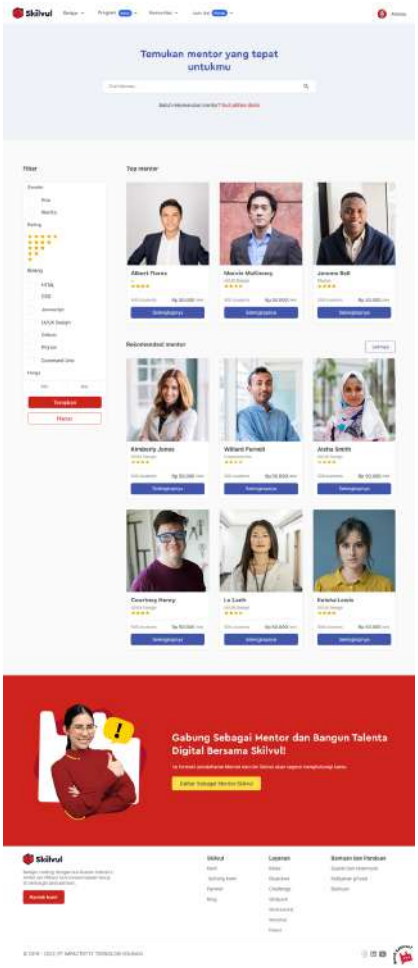

Fig. 13. Mentor Search Page

The mentor search page is one of the implementations of the solution ideas in the previous stage, this page provides search bar features, mentor search filters, and mentor recommendations. These features are made to assist students or users in finding the right mentor according to the wishes of the user.

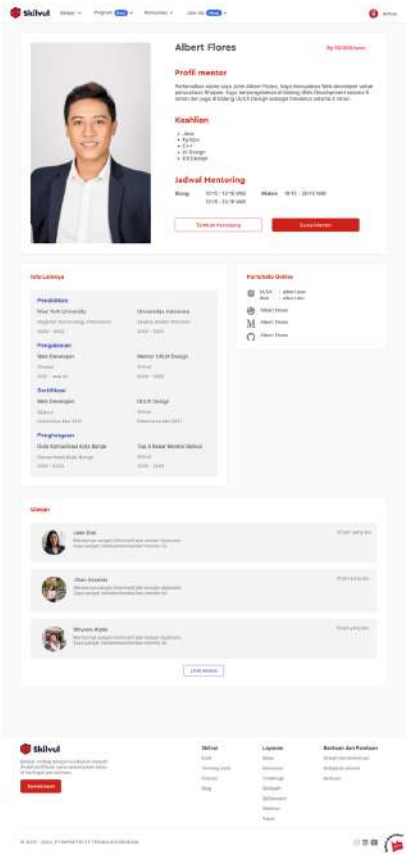

Fig. 14. Mentor Details Page

There is also a mentor detail page which is also an implementation of related solution ideas in a way that makes it easier for users to select the right mentor. This page contains information about the mentor's data, expertise, mentoring schedule, and other information such as student reviews of the mentor.

E. Testing

After all the solution ideas are implemented into the interface design, the next stage is testing to find out how easy it is for users to use the Mentor on Demand service prototype. In addition, this test also aims to get feedback from users related to the designs made [6]. This test was carried out online, namely by providing a prototype link from the Figma application to one respondent via the Zoom Meeting application so that respondents could carry out prototype testing without having to meet in person with the facilitator. The respondents were asked to run the prototype and complete the five task schemes that had to be carried out. The measurement method used in this test is the single-ease question (SEQ) method. The single ease

question is a questionnaire method that is used after the respondent carries out a task in a test. The rating scale given after completing a task is 1-7, and if the SEQ value <= 5 then the task has a low level of ease. So it has a value below the average [11].

TABLE II. USABILITY TEST RESULTS

Task	Question	SEQ
1. Registration and account login	How easy is it when users register and log in to accounts?	7
2. Mentor booking transactions	How easy is it when users make mentor booking transactions?	5
3. Mentoring session	How easy is it when users conduct mentoring sessions?	6
4. Additional mentoring sessions	How easy is it when users do additional mentoring sessions?	6
5. Mentors registration	How easy is it when users do mentor registration?	6

All tasks given to respondents totaled 5 tasks with an average SEQ value for each task that was > 5 so the results obtained indicated that the prototype of the Mentor on Demand service in this study had a good level of usability and was easy to use.

IV. CONCLUSION AND SUGGESTION

Based on research on the design of the Mentor on Demand service user interface, it can be concluded that the results of designing the user interface using the Design Thinking method can make it easy for students or mentees to carry out the mentoring process privately with the mentor. This is evidenced by the usability test process using the single ease question (SEQ) measurement method which was carried out by respondents directly through the Figma application. The test results show that the resulting average SEQ value is at number 6 on a rating scale of 1-7. This can be interpreted that the prototype made can be easily understood by users so that problems related to online learning can be resolved. Feedback from users obtained when testing prototypes has not yet been realized in writing this article, so further development is needed so that in the future it can meet user needs and expectations.

REFERENCES

[1] T. Belawati, 2019., "Pembelajaran Online". Edisi Kedua. Banten: Universitas Terbuka Kementerian Riset, Teknologi, dan Pendidikan Tinggi.

[2] K. A. A. Gamage, D. A. S. Perera, and M. A. D. N. Wijewardena., 2021. "Mentoring and coaching as a learning technique in higher education: The impact of learning context on student engagement in online learning". *Educ Sci (Basel)*, vol. 11, no. 10, Oct. 2021, doi: 10.3390/educsci11100574.

[3] C. L. Andersen and R. E. West, 2020., "Improving mentoring in higher education in undergraduate education and exploring implications for online learning", *Revista de Educación a Distancia*, vol. 20, no. 64, Sep. 2020, DOI: 10.6018/RED.408671.

[4] Skilvul, 2019. *Skilvul: UI/UX Challenge Partner*, Available at : https://skilvul.com/challenges/skilvul-uiux-challenge Accessed 11 Desember 2022.

[5] A. Mursyidah, I. Aknuranda, and H. Muslimah Az-Zahra, 2019., "Perancangan Antarmuka Pengguna Sistem Informasi Prosedur Pelayanan Umum Menggunakan Metode Design Thinking (Studi Kasus: Fakultas Ilmu Komputer Universitas Brawijaya)", *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*. Available: http://j-ptiik.ub.ac.id.

[6] V. K. Reynaldi and N. Setiyawati, 2022., "Perancangan UI/UX Fitur Mentor on Demand Menggunakan Metode Design Thinking Pada Platform Pendidikan Teknologi", *JIPI (Jurnal Ilmiah Penelitian dan Pembelajaran Informatika),* Vol. 07, No 03, Sep 2022: 835–849.

[7] R. Dam and T. Siang, 2018., What is Design Thinking and Why Is It So Popular?, *Interaction Design Foundation,* pp. 1-6.

[8] R. W. Purwitasari, P. Dileon, Y. Nainggolan, N. Rahmawati, F. Dharma Adhinata, and G. Ramadhan, 2021., "Perancangan UI/UX Webinar Booking Terhadap Kepuasan Pengguna Menggunakan Metode Design Thinking", *Jurnal Riset Komputer*, vol. 8, no. 6, pp. 2407–389, doi: 10.30865/jurikom.v8i6.3700.

[9] R. Fahrudin and R. Ilyasa, 2021., "Perancangan Aplikasi 'Nugas' Menggunakan Metode Design Thinking dan Agile Development", *Jurnal Ilmiah Teknologi Informasi Terapan.* Vol. 8, No. 1, pp. 15.

[10] E. C. Shirvanadi, 2021., "Perancangan Ulang UI/UX Situs E-Learning Amikom Center Dengan Metode Design Thinking (Studi Kasus: Amikom Center)", S.Kom: Universitas Islam Indonesia.

[11] D. Hasnan Hariri, H. Hannie, I. Purnamasari, and U. Singaperbangsa Karawang Abstract, 2022., "Analisis User Experience pada Website Waste4change Menggunakan Metode Single Ease Question", *Jurnal Ilmiah Wahana Pendidikan*, vol. 2022, no. 13, pp. 95–108, doi: 10.5281/zenodo.6961319.