An Exploration Web Based on Building Performance Interface Design

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ABSTRACT
One-Web development based on building performance optimization was needed as a tool to help architects work accurately. At the same time, the web interface design for the web-based on building performance optimization should be designed according to the architects' needs and their character as users. The identification effort is obtained by basic analysis of user needs through a review of user-friendly web interface design precedents and conducting questionnaires to obtain data on the web interface. The purposes of exploration for web-based on the building performance optimization can be an informative medium in bridging architects' needs in designing according to optimization parameters for building performance with a user-friendly web interface design, to produce web interface design recommendations that suit the needs and requirements of the building the character of the architects as users. The expected result in this exploration is an alternative web interface design based on building performance optimization that was following the parameters of building performance optimization, is user-friendly, and brings out the character of its users.

Keywords: *Architect, Design, Web interface, Exploration, User friendly.*

1. INTRODUCTION

Currently, the need for a web platform to support internal performance is increasing. This need is of course also accompanied by the need for a web interface design that not only prioritizes the aesthetics, so that it can attract attention to users, but also makes it easy for users to use it [1]. Moreover, web-based performance optimization of building performance with the target users are designers and architects, but does not rule out the possibility that it can also be used by the public. The main function of web-based on performance optimization on the performance of this building is to assess whether the existing design or building meets the expected building standards, for example, buildings that have implemented *Net Zero Healthy Building*. In this study, we will focus on exploring the aspects needed for a web page design based on performance optimization of building performance that has been developed by the Universitas Ciputra Surabaya research team with the title DEFINE in order to fulfill not only aesthetics but also easy application [2] (Figure 1).

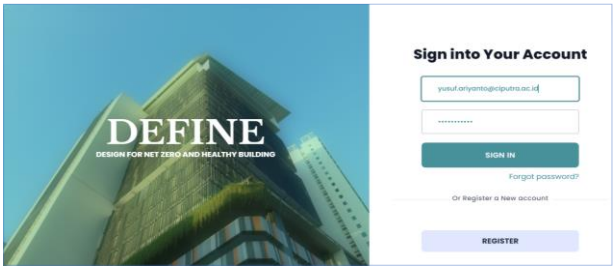

Figure 1 DEFINE website as a case study.

In exploratory activities on web based on performance optimization on building performance interface design, we will pay more attention to the aesthetics of the display, proper web usability according to the objectives and the balance between these two aspects. In essence, the aesthetic principle has a fairly broad spectrum, but the discussion about aesthetics in this web interface design will certainly lead to a visual aspect. The main principle in designing a web page is to pay attention to the design principles: balance, harmony, rhythm, contrast and repetition.

Instead, web usability tells about how the web interface can be functional and easy to use it, such as web navigation, menu, symbols, roadmap and so on. Moreover, the balancing aesthetic and usability aspects are important for us to be able to balance between two fundamental aspects to communicate usability at each stage, because on the one hand, the functional aspect relates to the input and processing of data and workflows of the web so as to produce the desired output. However, it is also possible that the aesthetic aspect plays an important role other than usability aspect, because the user is expected to be a designer or architect who is sensitive to aesthetic [3].

2. RESEARCH METHODOLOGY

The methods used to explore web page design based on performance optimization on building performance with this DEFINE case study is a quantitative method that applies conjoint analysis which will be presented through questionnaire data [1]. The questionnaire was given to students who were randomly selected and these students will try to use the web-based performance optimization on the performance of DEFINE buildings. After that, they filled out the questionnaire shortly after using the website containing questions including impressions the web page, a question regarding prompts to find out whether one of the commands could be understood clearly and used correctly and their recommendations after using the web. The questionnaire material contains the parameters of heuristic evaluation aspects [4] (Figure 2).

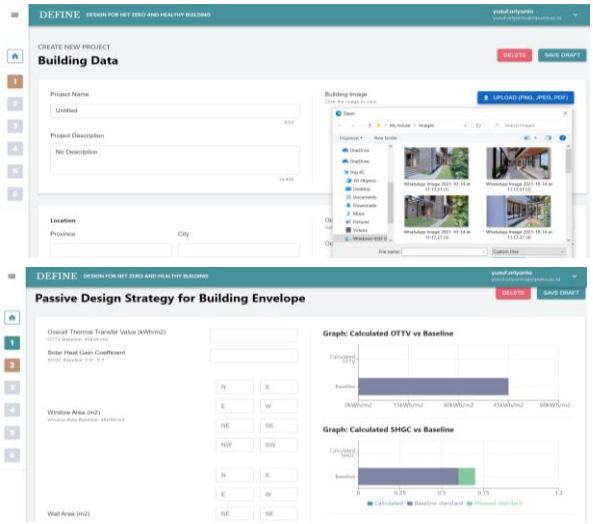

Figure 2 DEFINE website interactive.

Evaluation Heuristics are guidelines, general principles, or rules that can guide design decisions or be used to criticize a decision that has been taken. Heuristic evaluation is used as a design evaluation technique, because it is easier to find or determine usability problems that arise. There are ten principles for heuristic evaluation, but the exploration of the web page display design in this study will be narrowed down to be discussed in more detail. The aesthetic aspects of its appearance and the clarity of the information are contained in the web page [5] (Figure 3), the principles are:

2.1. Match between System and the Real World

A web interface design has the characteristics of a variety of menus and displays that make it easy for users, such as language, symbols and commonly used terms. Each component must have a meaning and function in accordance with the function of the website.

2.2. Aesthetical Design

A web interface design and intent is the purpose of the website's function as well as the appropriate contextual realm. The display design shows consistency with the design principles of balance, harmony, rhythm, contrast and repetition. The website display design also shows the consistency of the colors used, the colors being in accordance with the function and show the character of the website's performance.

2.3. Help Users Recognize, Dialogue, and Recovers from Errors

The web interface design should present a clear menu of actions and options for unexpected moments (errors), in order for users to optimally use the website. Users do not have to return to the initial page to be able to continue with further instructions, in other words, information is available on the navigation on each page and is clearly visible.

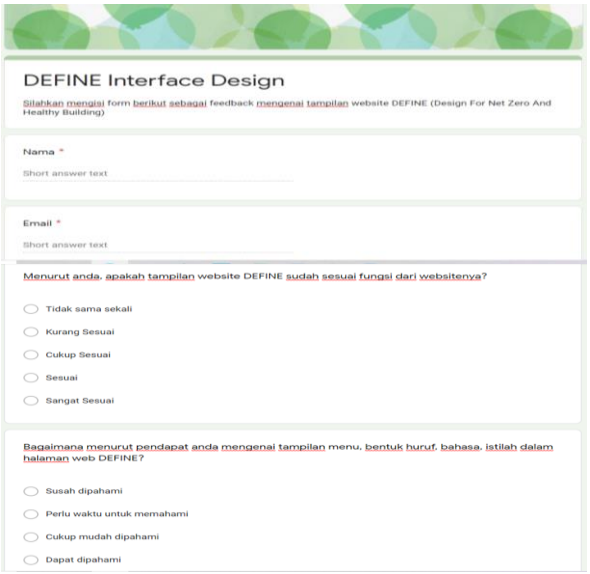

Figure 3 Questionnaire about heuristic evaluation aspects.

3, RESULTS AND DISCUSSION

The survey results and questionnaires containing questions that summarize the criteria of heuristic evaluation associated with design and usability principles was distributed randomly to 25 architecture students and 5 practitioners. The results are as follows:

3.1. Match between System and the Real World

Regarding the DEFINE web interface design, 65.5% of responses show that the display of menu components is easy to understand and is in accordance with the function of the website. However, when it is run, there are terms that may not be commonly understood, so it takes time to be able to fill out each step or a guide (manual sheet) is needed to understand the workflow of this DEFINE website (Figure 4).

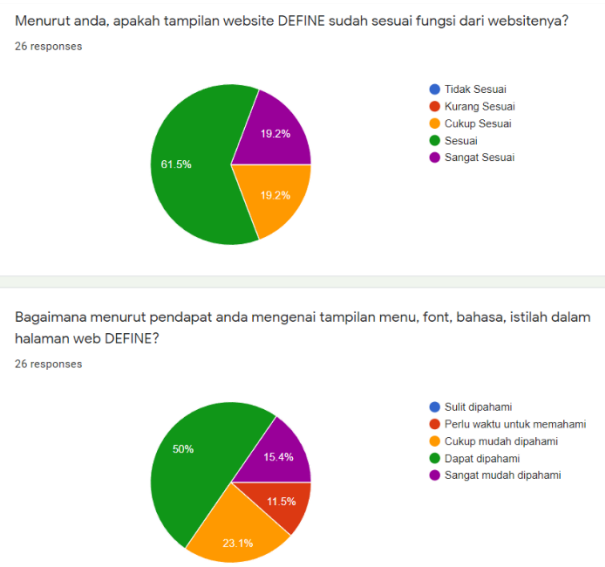

Figure 4 Questionnaire about aesthetical aspects result.

3.2. Aesthetical Design

As many as 48.3% of respondents feel that the appearance of this web page display design has met the aesthetic principles, namely, the balance, harmony, rhythm, contrast and repetition. 13.8% responded that it was very fulfilling, and the rest responded that it did not show the rules of aesthetic principles (Figure 5).

3.3. Help Users Recognize, Dialogue, and Recovers from Errors The

With the DEFINE web interface overall design, respondents stated that the actions and options on the menu were clear, but most also stated that there are several terms in each step that must be clarified with additional information explanations without destroying the appearance of the screen. the website.

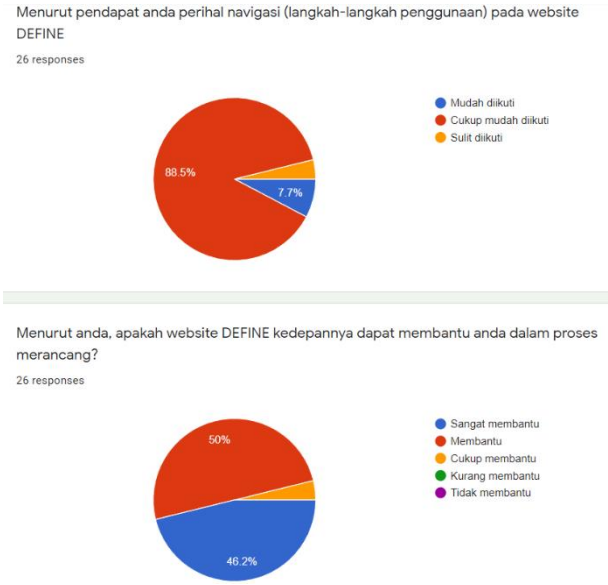

Figure 5 Questionnaire about functional aspects result.

The web based on performance optimization of building performance interface design that has been developed by the Universitas Ciputra Surabaya research team with the title DEFINE is explored from the aesthetic aspect through design principles and user usability. The results of this study were tested through a survey of randomly selected student respondents and practitioners through quantitative methods developed with heuristic evaluation in the field of architecture. Most of them responded that the DEFINE web page display design was easy to understand and had applied aesthetic principles, but most of the respondents also stated that there are some terms that need to be clarified and there should even be guidelines before using this website.

4. CONCLUSION

The web based on performance optimization of building performance interface design that has been developed by the Universitas Ciputra Surabaya research team with the title DEFINE is explored from the aesthetic aspect through design principles and user usability. The results of this study were tested through a survey of randomly selected student respondents and practitioners through quantitative methods developed with heuristic evaluation in the field of architecture. That will be narrowed down to be 3 principles that detailing in aesthetic aspects of its appearance and the clarity of the information are contained in the web interface, the principles are match between system and the real word, aesthetical design, and help users recognize, dialogue and recovers from errors. Most of them responded that the DEFINE web page display design was easy to understand and had applied aesthetic

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