

User Interface Experience Analysis of PMB Online Buddhi Dharma Using System Usability Scale

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Abstract

In the era of advanced digital technologies, the admission process for new students (PMBs) has become a critical aspect of education. To streamline and expedite this process, educational institutions are increasingly utilizing online enrollment applications. One such application, PMB Online Buddhi Dharma, plays a crucial role in this context. However, the success of these applications is not solely determined by technical ease; user experience, particularly the User Interface (UI), plays a pivotal role in influencing user satisfaction and efficiency. This study employs the System Usability Scale (SUS) method to comprehensively analyze the UI of the PMB Online Buddhi Dharma application, providing insights into usability and user satisfaction. Drawing from previous studies utilizing SUS in similar contexts, the research aims to contribute to the development and enhancement of the application's UI. This research evaluates the effectiveness of Buddhi Dharma University's PMB Online in meeting the digital registration needs of prospective students, emphasizing ease of use and user acceptance. Through the SUS method, the study assesses user satisfaction and ease of use, obtaining an average SUS score of 78 from 30 respondents. This score categorizes Buddhi Dharma University Online PMB as "good," indicating a commendable level of acceptance from users, predominantly prospective students. The research concludes with implications for the application's further improvement and development, emphasizing the importance of user-friendly interfaces in digital admission processes.

I. INTRODUCTION

In an increasingly advanced digital age, the process of admission of new students (PMBs) has become one of the most important aspects in the world of education. Increased use of technology has prompted colleges to develop online new student enrolment applications to simplify and speed up the process. One of the applications used in the online PMB process is PMB Online Buddhi Dharma.

However, the success of an application depends not only on its technical ease of use, but also on an adequate user experience. User Interface (UI) or good user interface is a key factor in affecting user satisfaction and efficiency of using online PMB applications [1]. Therefore, a comprehensive analysis of the user interface of the PMB Online Buddhi Dharma application is required to evaluate the usability and user satisfaction [2].

The System Usability Scale (SUS) method has proven to be effective in measuring user perception of the usability of a system's user interface [3]. SUS gives a clear indication of the level of satisfaction and effectiveness of using an application because the results are 0-100 or can be in the form of a percentage [4]. Therefore, the use of SUS in measuring the usability of the user interface in the Buddhi Dharma Online PMB application will provide valuable insights for the development and improvement of the application.

Several previous studies have used SUS to analyze the usability of user interfaces in the context of similar applications or systems. For example, a study by [5] that analyzed the usability of user interfaces in new student

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enrolment applications at a leading college. Another study conducted by [6] which uses SUS to measure usability and user satisfaction in a website. And also research from [7] to improve the user experience on an app.

Using these researches and adopting the same methods, the study aims to analyze the UI of the PMB Online Buddhi Dharma application using the System Usability Scale. (SUS). By applying the System Usability Scale (SUS) method, this research is expected to provide a better understanding of the usability and user satisfaction as was the case with previous research [3] in using the Buddhi Dharma Online PMB application, as well as providing concrete recommendations for improvements to improve the user interface.

II. LITERATURE REVIEW

In this chapter we will discuss theoretically material related to this research. The discussion will discuss a variety of theories that are relevant to research topics.

A. Analysis

The KBBI states that analysis is "an investigation of an event (action) to find out the actual circumstances in which the disaggregation of a substance on its various parts to obtain an accurate understanding and comprehension of the meaning of the whole".

According to [8] analysis is the process of placing a thing into a smaller, more specific part so that it can be identified as a whole, starting from characteristics, relationships, and roles.

B. User Experience

According to ISO 9241-210, user experience is a view given by a user of a product (system or service) based on the experience of the user himself [9].

An UX architect and strategist [10] tried to simplify the concept of user experience. From this simplification, Frank Guo divides UX into four fundamental elements:

- a. Value
- b. Usability
- c. Desirability
- d. Adoptability

C. User Interface

The user interface is the most important part of a computer system, where the user interface can be a bridge for the user to communicate with the computer. The purpose of the user interface is to make it easier for users to engage in computer-related activities [11].

According to [12] the user interface is a visual display that bridges the interaction between the user and the computer. Imitated as a doctor who gives his patient a cure so that he can recover, the user interface provides ease for the user in running the computer. To see more detailed differences regarding UI and UX can be seen in Fig 1.

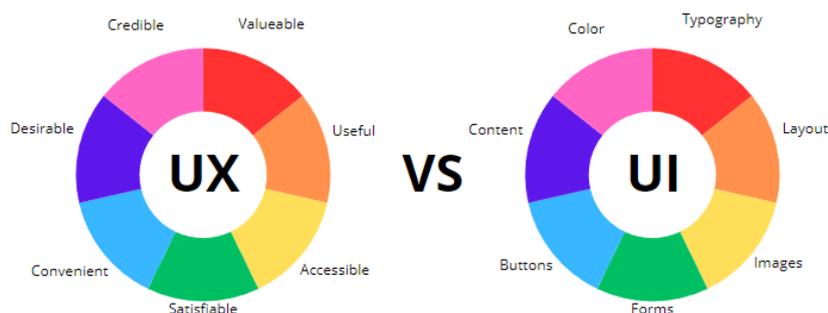


Fig 1. UI and UX Differences

D. System Usability Scale

The System Usability Scale (SUS) is a method commonly used to quickly measure the percentage of usability of a computer system for a user and to measure computer system usability from a subjective user's point of view [3], [13]. SUS was created in 1986 by John Brooke, and SUS has proven to be a reliable method of evaluating the usefulness and alternation between one system and the other [14].

SUS has a total of 10 questions in the form of a questionnaire in it, where 5 points scale the choice of answers from Strongly Disagree to Strungly Agree, with a total score from 1 to 100 [15].

The advantages of the SUS method include:

- a. SUS methods are experts in measuring the usefulness of various products and services effectively.
- b. The SUS method has proven reliable in distinguishing between systems that can and cannot be used.
- c. SUS method is 100% free and valid.

E. PMB Online

With a lot of competition between universities in filtering new students, new breakthroughs are created to make a difference. Admission of New Students online has become one of many influential breakthroughs, with the use of information technology, promotions and university visits being high due to its wide reach [16].

The use of technology in the admission of new students brings a lot of positive influences. Everyone becomes easier to access the necessary needs, with a wide range [17].

III. METHODS

A. Research Design

This research uses a quantitative research approach. The required data is collected through online surveys using the Google Form platform. The Google Form platform is used because of its popularity and has been used by many users to conduct surveys, thus minimizing difficulties when filling out surveys.

B. Data collection and analysis

Data can be collected through online surveys given to students. The survey contained questions about the new student admission system (PMB) ranging from whether familiar with the PMB system, whether the system is easy to use, and other important factors in the PMP system. The questions were given as many as 10 Questions where the choices were given from scale 1 to scale 5, to indicate "Very Disagree", "Disagree", "Neutral", "Agreed", "Well Agree" on the questions given from the PMB system. The data collected will be calculated using the system usability scale (SUS) method for each respondent's answer.

C. Planning Methods

The method of developing a new student admission system is the User-Centered Design method. (UCD). UCD methods can ensure that the design of the system is made based on the demands of the user. The steps used in the UCD method, are as follows:

1) User Understanding

In the UCD method, the first step is to understand the user well. It involves user research that covers the collection of data about system needs, purposes, behavior, preferences, and context of system usage.

2) Determination of Objectives and Success Criteria

These purposes should take into account user needs, business objectives, and relevant usage contexts.

3) Development of Early Concepts

Create initial design concepts based on user understanding and a set goal. Using techniques like brainstorming, competitor analysis, or rough sketches, produce some possible alternative concepts to meet user needs.

4) Prototyping

Prototypes can be interactive interface displays, physical prototypes, or a more complex functional prototype. Make a prototype based on an early concept that has been developed.

5) Testing and Evaluation

Testing and evaluating prototypes with appropriate users. These tests may involve live observations, interviews, or the use of questionnaires or other usability assessment methods.

6) Iterate and Fix

Based on user feedback, modify or upgrade the design, and repeat testing and evaluation to validate the improvements that have been made.

7) Implementation and Advanced Evaluation

Once the design is considered to meet the needs of the user and the established success criteria, carry out a full implementation of the system, product, or service. Next, perform an advanced evaluation to measure performance and user satisfaction in actual use.

D. System Usability Scale Method (SUS)

The System Usability Scale (SUS) is a measurement tool used to assess the level of usability of a system. This tool was developed by John Brooke in 1986 and can be used to measure the usefulness of a variety of products, such as hardware, software, mobile applications, and websites.

Some advantages of using the System Usability Scale include:

1) Easy to use and accepted by respondents:

The System Usability Scale is designed to be easy to understand and use by the respondents. It ensures that users can respond without experiencing difficulties or confusion.

2) Suitable for small research samples with accurate results:

The System Usability Scale is effectively used even with small study samples, but still produces accurate outcomes. This makes it easier for researchers to gather data and evaluate the system's usefulness.

3) *Proved validity in determining the level of system usability:*

The System Usability Scale has been proven valid in assessing whether a system can already be used properly by the user. This method has been tested and used extensively in various utility studies of the system.

The System Usability Scale uses a Likert scale with a range of values from one to five. The scale consists of: 1 (very disagree), 2 (not agree), 3 (neutral), 4 (agreed), and 5 (very agreed). Usability Scale Questions and How to Calculate Measurement Results:

- 1) *I feel like using this system on a routine basis.*
- 2) *I feel this system is too complex unnecessarily.*
- 3) *I think this system is easy to use.*
- 4) *I feel like I need the help of someone who's skilled in technology to be able to use this system.*
- 5) *I feel the various functions in this system are well integrated.*
- 6) *I feel there's too much inconsistency in this system.*
- 7) *I think most people will learn to use this system very quickly.*
- 8) *I feel this system is very cumbersome to use.*
- 9) *I feel very confident using this system.*
- 10) *I feel like I need to learn a lot before I can use this system.*

The system usability scale is calculated as follows:

1. Decrease the value of the question by a strange number by one. For example, if question 1 has a score of 4, decrease 4 by 1 so that question 1 scores 3.
2. Decrease the question value by an integer of five. For example, if question 2 has a score of 1, decrease 5 by 1 so that question 2 scores 4.
3. Add the values of the questions to the exact and odd numbers. Then the sum is multiplied by 2.5.

Although it can't help in identifying factors or features that still have problems in the system, the System Usability Scale can help determine whether the system can be used properly. (usability). The average level of the System Usability Scale is 68. Therefore, if the score is below 68, it indicates a problem that affects the level of system usability.

IV. RESULTS

The test was carried out on 30 respondents, thus the following are the respondents answers on the Buddhist Dharma University Online PMB for each question can be seen in TABLE 1.

TABLE 1
 RESPONDENT RESPONSE RESULTS

Resp	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Resp1	5	1	5	1	5	2	5	1	4	1
Resp2	5	3	5	3	5	3	5	3	3	3
Resp3	4	2	4	1	3	2	3	2	4	2
Resp4	5	3	5	3	5	2	5	3	5	3
Resp5	4	2	4	1	4	2	4	2	4	2
Resp6	4	2	5	1	5	1	5	2	5	2
Resp7	4	2	4	2	4	2	4	2	3	2
Resp8	5	2	5	2	5	3	5	2	3	2
Resp9	4	2	4	2	5	3	5	2	4	2
Resp10	3	3	3	3	3	2	3	3	3	3
Resp11	4	2	4	2	4	3	4	2	4	2
Resp12	4	2	5	1	4	3	4	2	4	2
Resp13	5	1	5	1	5	1	5	1	4	1
Resp14	4	2	4	2	5	2	5	2	4	2
Resp15	4	2	4	2	4	2	4	2	4	2
Resp16	5	1	5	1	4	1	4	1	4	1
Resp17	4	2	4	2	5	2	5	2	4	2
Resp18	5	2	5	2	5	1	5	2	4	2
Resp19	3	3	5	3	4	2	4	3	4	3
Resp20	5	2	5	2	4	2	4	2	4	2
Resp21	4	2	5	2	4	2	4	2	4	2
Resp22	3	3	3	3	3	2	3	3	3	3
Resp23	4	2	5	2	4	2	4	2	4	2
Resp24	4	2	4	2	4	2	4	2	4	2

Resp25	5	2	5	2	5	1	5	2	4	2
Resp26	3	3	3	3	4	2	4	3	4	3
Resp27	5	1	5	1	5	1	5	1	4	1
Resp28	4	2	4	2	4	3	4	2	4	2
Resp29	5	1	5	1	5	1	5	1	4	1
Resp30	4	2	4	1	4	3	4	2	4	2

Based on the answers of each respondent, it can be concluded that the results of the recapitulation of respondents answers regarding Buddhi Dharma University's Online PMB in the questionnaire that has been distributed can be seen in TABLE 2.

TABLE 2
 SUMMARY OF RESPONDENTS' ANSWERS

Question	Answer					Results
	1 (STS)	2 (TS)	3 (N)	4 (S)	5 (SS)	
Learnability						
1) I feel like using this system on a routine basis	4	2	4	1	3	2
2) I feel this system is too complex unnecessarily.	5	3	5	3	5	2
Efficiency						
3) I think this system is easy to use.	4	2	5	1	5	1
4) I feel like I need the help of someone who's skilled in technology to be able to use this system.	4	2	4	2	4	2
Memorability						
5) I feel the various functions in this system are well integrated.	4	2	4	2	5	3
6) I feel there's too much inconsistency in this system.	3	3	3	3	3	2
Errors						
7) I think most people will learn to use this system very quickly.	4	2	5	1	4	3
8) I feel this system is very cumbersome to use.	5	1	5	1	5	1
Satisfaction						
9) I feel very confident using this system	0	0	5	15	10	30
10) I feel like I need to learn a lot before I can use this system.	5	17	8	0	0	30
Total	35	81	51	66	67	300
Proporsi (%)	11,6%	27%	17%	22%	22,3%	100%

Table 2 explains that 11.6% of respondents chose to strongly disagree, 27% of respondents chose to disagree, 17% of respondents chose to be neutral, 22% of respondents chose to agree, and 22.3% of respondents chose to strongly agree.

In interpreting the results of SUS scores there are several ways that can be used, in this study using two approaches namely by based on the properties and the level of acceptance. The interpretation scale for the SUS score results can be seen in TABLE 3 below:

TABLE 3
 SUS SCORE INTERPRETATION SCALE

SUS	Adjective	Acceptable
84,1 – 100	Best Imaginable	
80,8 – 84	Excellent	
78,9 – 80,7		
77,2 – 78,8		Acceptable
74,1 – 77,1	Good	
72,6 – 74		
71,1 – 72,5		
65 – 71		
62,7 – 64,9	OK	Marginal
51,7 – 62,6		

From table 3 above, it can be seen that interpretation of SUS score results can be done using different approaches. As follows the explanation:

a. Adjective

Raw scores on the System Usability Scale (SUS) can be classified based on four categories, where a score above 84 is considered "Best Imaginable," a score above 80.7 is considered "Excellent," a score above 71 is considered "Good," and a score above 51.6 is considered "OK."

b. Acceptable

Interpretation of System Usability Scale (SUS) scores is carried out by considering the range of values. A score between 71.1 to 100 is considered acceptable, while a score between 51.7 to 71 is considered adequate, covering the range of categories C and D on the rating scale.

With an average calculated value of 78, the final interpretation of the System Usability Scale (SUS) shows that the performance of Buddhi Dharma University Online PMB can be categorized as good, and the level of acceptance is acceptable to users.

V. DISCUSSION

Research shows that Buddhi Dharma University's PMB Online gets an average score of 78 in the SUS, which from these results shows a good level of usability and is acceptable to users. However, it still requires some improvements in order to make improvements in the user interface to increase the ease of use of Buddhi Dharma University Online PMB. Can consider utilizing the latest technology in developing PMB Online. Integration of new features that support the user experience can increase the system's appeal. Increase the number of respondents to test the Buddhi Dharma University Online PMB to maximize its development if the results are not as good as now. Can use performance measurement methods other than SUS, such as Net Promoter Score (NPS) or Customer Satisfaction (CSAT), to gain a more complete understanding of user satisfaction and areas for improvement.

VI. CONCLUSIONS

This research has conclusion the main objective, namely to evaluate the extent to which PMB Online University Buddhi Dharma can meet the needs of prospective students in the digital registration process. The focus is to evaluate the ease of use and acceptance of the system by prospective students/users. This research uses the System Usability Scale (SUS) method, which is a method that is commonly used to measure the usability of a system, where later the SUS method provides a final value that reflects how effectively and efficiently users can use a system, as well as the extent to which the system is acceptable. by users. This research involved 30 respondents who would be the trial sample of the PMB Online University Buddhi Dharma application. where each respondent will fill out the questionnaire that has been distributed and later each question will have its own criteria starting from the aspects of ease of use, complexity, and level of user satisfaction. The test results based on 30 respondents obtained an average score of 78, the results obtained reflect that the objectives of this research can be achieved where the level of user satisfaction with PMB Online University Buddhi Dharma can be concluded as a good system according to the SUS scale. In this case, the 30 respondents tested were generally satisfied with the ease of use of the system, where digital registration could be carried out well and provide a satisfying experience for each user later.

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