UI/UX Design of E-Learning Applications AL MUNADI SMA Case Study With A User Centered Design Approach

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Abstract. *Technology the more develop every the day , Source Power Humans (HR) are required For follow development technology . Sector education is a must too follow development technology , Because education is Foundation main in management knowledge And knowledge .Manual learning and _ _ structured become reject measuring change in world education . So from That need a breakthrough new in field technology education namely with e- Learning design that can be done encourage teachers and student can Study And understand technology with walk side by side . For an e- Learning is required User Interface (UI) And User Experience (UX) so that a e- Learning display becomes more interesting And become Power pull alone i.*

Keywords: UI/UX Design, User Centered Design, e-learning

A. INTRODUCTION

School And education is the most important foundation in cycle life man . Education No only aim For build A place Study but also build source Power literate human _ And competent technology . Recently This government in field education triggers _ movement "Freedom to Learn ". Freedom to Learn development technology influence in all sector , including in _ sector education , Freedom to Learn is a program policy from Ministry Education And Culture Republic of Indonesia (Kemendikbud RI) with objective form source Power advanced humans , source _ Power man superior , ethical , moral , controlling field science And technology .

e-Learning is abbreviation from *electronic learning* , namely the learning process who use electronic media specifically internet as system the learning . *e - Learning* is base And consequence from development technology information And communication . Bullen and Janes (2007) defines e-Learning as learning that happened when internet technology is used For facilitate , deliver , and enable the learning process with distance which is far away .

Every element in the education sector must have technological skills, designing this *e-Learning application* encourages all aspects in the education sector to be able to contribute. It is hoped that the attractive appearance and ease of carrying out operations will attract students and teachers in using this application.

User Experience (UX) is the process of designing a product through a product user approach with good UX design that will create a pleasant experience for users when using the product. Users find it easy and comfortable when using the product. Meanwhile, this UX component

includes the features provided in the product, design structure, product usage navigation, visual design aspects, and all aspects of interaction with users.

User Interface is part of UX in the form of a visual design display of a system. These displays allow users to connect and interact with a product. Apart from functioning as a connector, the User Interface also functions to beautify the appearance so that it can increase user satisfaction. However, not only does it have to be beautiful, the User Interface also has to be easy to use.

Table 1. Difference between User Interface and User Experience

Difference	User Interface (UI)	User Experience (UX)
Objective	Make appearance more products interesting .	Give comfort when wearing product .
Focus	Focused on nice view . _	Focused on user comfort .
Element	Animation , *typography* , color , video , *button* , and others other .	*usability* , navigation , design structure , features , *interaction design* , and others other .
Based on	Design based on research design and concept product	Design based on user research

User Centered Design is a design process repeated where the designer focus on user And need them in every design process phase . At UCD, the team design involve users throughout the design process through various study And technique design , for create very product _ useful And easy accessed .

Figure 1. User Center Design Phase


Source: https://www.interaction-design.org/
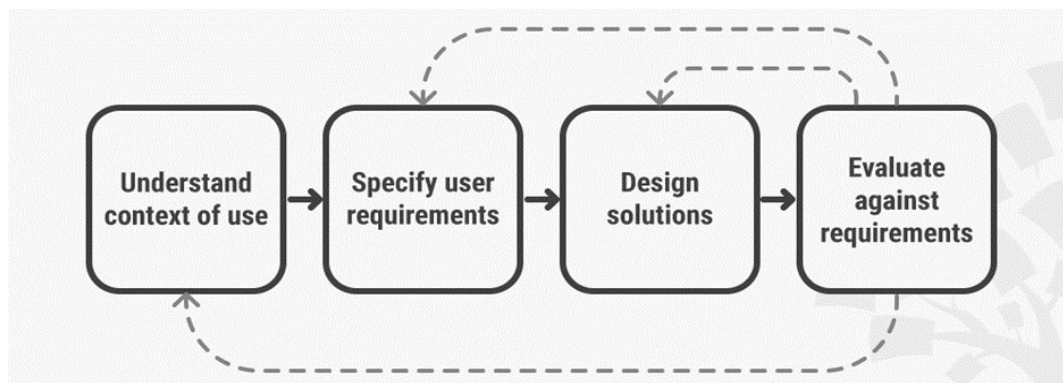
1. *Understand context of use* : This is stage First , where to focus on understanding needs , preferences , and behavior user . By collecting data through various method like interviews , surveys , and observation .

2. *Specity user requirements* : Based on findings research , you determine requirements — problem And constraint what do you want finish for user

3. *Design Solutions* : On stage this , make solution based on need . You make picture frame , mockup , and compliant prototype _ need And problem user .

4. *Evaluate against requirements* : Stage This involve testing designed solution _ with user Actually For identify problem utility and areas of improvement . Various method testing , like testing usability , A/B testing , and evaluation heuristics , can used .

B.   RESEARCH METHODS

The methodology used _ in E-learning UI/UX Design . There are 4 (four) steps taken _ as following :

1. Analysis
2. Design
3. Evaluation
4. Implementation

Process after analysis that is design , evaluation And implementation completely done in a way iteration . After results design get evaluation from user , process implementation done based on evaluation previously , results implementation Then will return evaluated , before enter come back to the design process repeat , this process done until find best UI/UX design in accordance expectation user . that process more easy understood from the flowchart like on figure 2 .
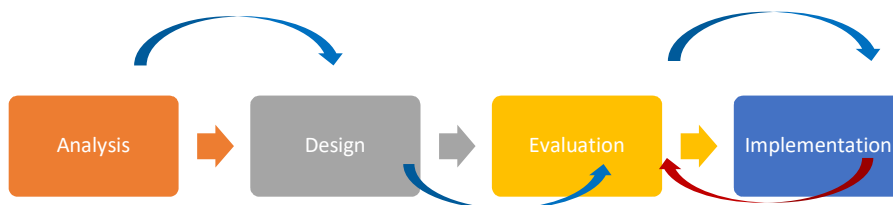
Figure 2. UI/UX design

Source: Personal Documents

C.   RESULTS AND DISCUSSION

1.   Analysis

The analysis process is carried out when the entire design process is first started, this process is very important to get an initial picture in accordance with user expectations. The analysis stages include user personas which aim to understand user needs for e-learning applications.
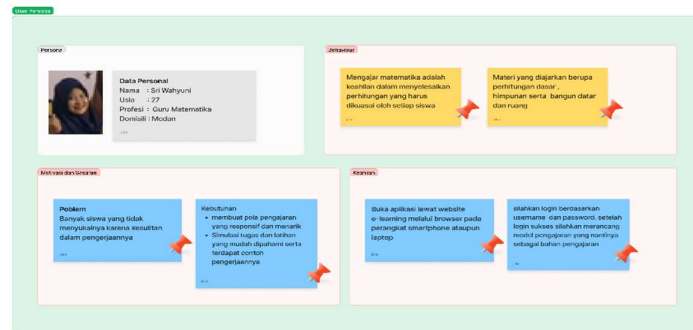

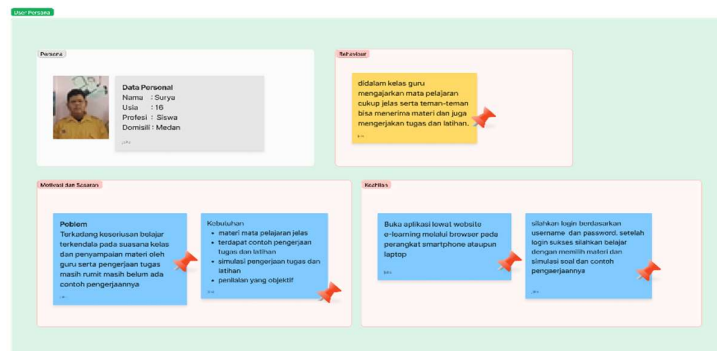**Figure 3. User persona "Teacher"**

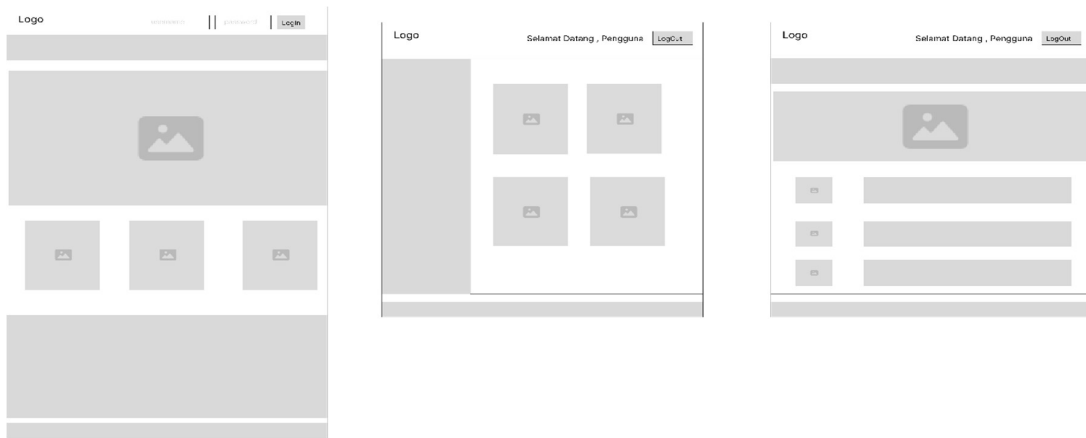Source: Personal documents

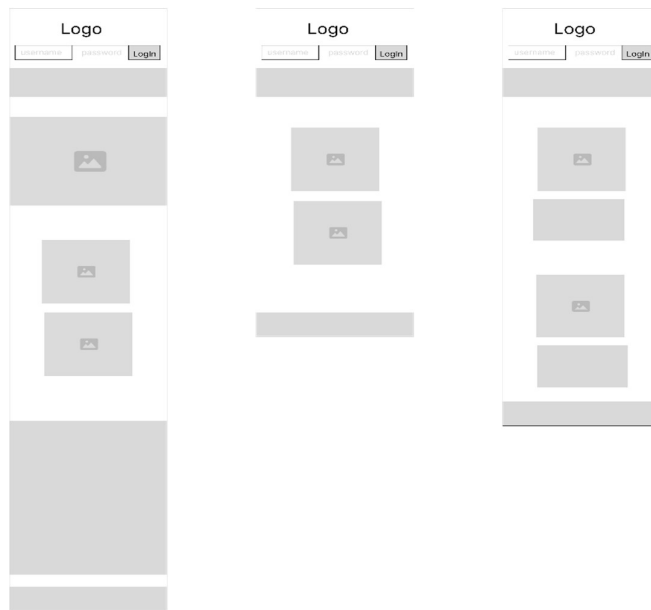**Figure 4. User persona "Student"**

Source: Personal documents

2.   Design

The Design Process is creating idea solutions that are in accordance with the results of user analysis. The design stages include *wireframe , mock-up , color palette* and *typography*

(a)
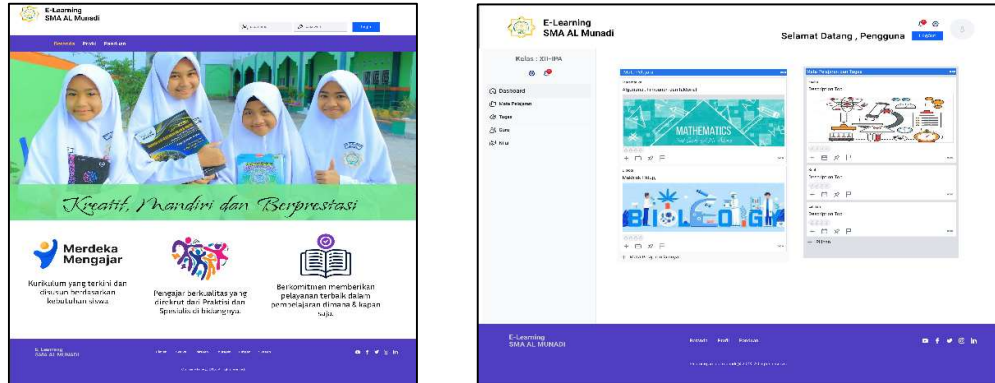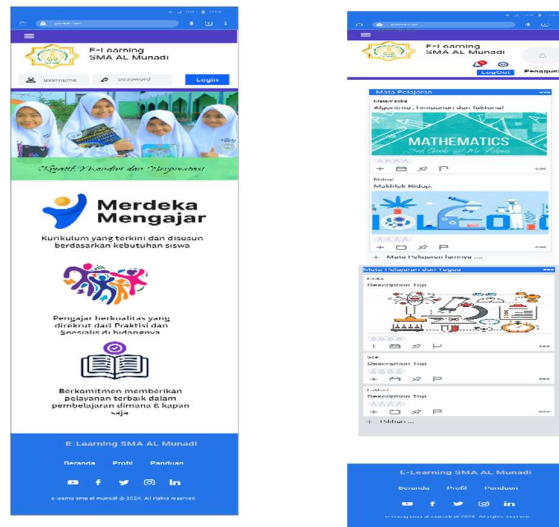

(b)

Figure 4. (a) Desktop Wireframe (b) SmartPhone Wireframe

Source: Personal documents

(a)

(b)

Figure 5. (a) Desktop Mockup (b) SmartPhone Mockup

Source: Personal documents

Color Palette and Typography

Color is an identity, by choosing color in the design the user becomes more comfortable and can interact easily. The meaning of color in a design concept:

1. The color blue gives the impression of stability, spaciousness, coolness, coolness and relaxation. From a health perspective, blue is believed to be able to overcome anxiety, increase concentration, reduce migraine symptoms, high blood pressure and insomnia

2. The gray color shows A seriousness and responsibility and is the color of identity s level of school education.

Figure 6. Color Palette

Source: Personal documents

Typography in general is a technique for arranging letters and text in a visual creation so that it is legible and interesting to look at. These arts are closely related

by selecting the type of letter or what is known as a font. Typography will determine the aesthetics of a graphic design. Therefore, special abilities are needed to

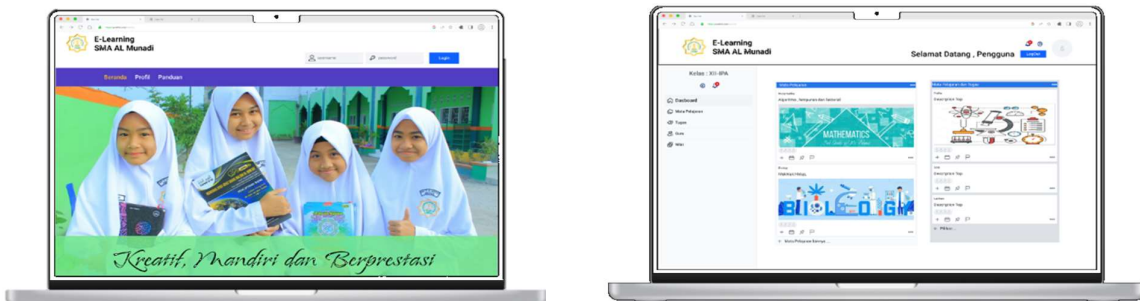can compose typography that is visually attractive and well received by readers.
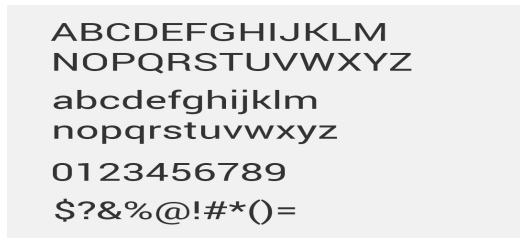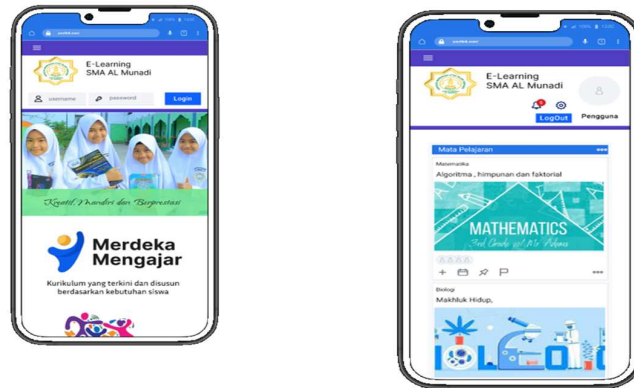

Figure 7. Roboto font

Source: Personal documents

3. **Evaluation**

Evaluation is the process of creating a prototype on a website page like the following image

(a)

(b)

Figure 8. Al Munadi High School e-learning prototype

Source: Personal documents

The evaluation process is carried out randomly on several students who will later be in contact and interact directly with the e-learning website.

Table 2. Design Evaluation Method

No	Method	Explanation
1.	*Fields study*	Observation process use system which is conducted in a way straight in field , the goal is For obtain description for development and also evaluate design previous , incl For obtain difficulties of use .
2.	*Usability Testing*	Method For simulate use system use a *prototype* , user requested do task certain For simulate use systemwithout explain method as well as step generally , session recorded And analyzed based on certain parameters .

4. Implementation

Implementation will take a relatively long time, according to the number of page designs that must be implemented. While the implementation process is still ongoing, there is no harm in carrying out an internal evaluation process which is carried out on each page that has been completed. The internal evaluation process in question is a process carried out by fellow teams or fellow UI/UX designers, to look for discrepancies between the implementation and the design plans that have been created, or look for other implementation errors.

The results of implementing a UI/UX design are sometimes in accordance with the design, many factors influence it, starting from the design process, responsive display on other devices such as smartphones and tablet computers, to when it is implemented in a web browser.

Figure 9. E-learning display on different devices

Source: Personal documents

D. CONCLUSION

Based on the description above, it can be concluded that the use of the UCD method in this case is able to give the user a good impression of the SMA Al Munadi e-learning website, apart from that the user's response when asked to carry out a simulation of the evaluation process for the latest version of the UI/UX design can also be carried out. well, the complaints given were only about several typo parts in the writing.

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