Analysis of User Experience Online Mentoring Platform with User-Centered Design Approach at Giza Design Lab

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ABSTRACT

Learning or virtual learning platforms are becoming more and more widespread in education during the COVID-19 epidemic since digital learning eliminates the time and distance barriers. Online learning through internet media is growing rapidly. There are several online learning applications during the pandemic. Giza online mentoring is one of the online platforms based on mentor systems. This study creates a Giza online coaching platform for UX design using the User Centered Design (UCD) methodology. The process included user research to build the empathize, design a prototype, and usability testing of the mentoring platform to validate the solution based on a user-centered approach. The prototype is tested with usability testing. Usability testing is used to evaluate the prototype. Twenty-eight people participated in the initial usability test with a maze design, and the findings showed that 25% of users bounced, 75% of users succeeded indirectly, and 0 individuals succeeded immediately. On the other hand, the second test demonstrates that the improvement results have a respectable impact on user experience, with 82.9 percent user indirect success, 17.1 percent bounce, and 0 users experiencing immediate success.

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1. INTRODUCTION

Learning or virtual learning platforms become increasingly common in education when digital learning breaks the barrier of distance, time, and the horizon of every person's knowledge. Most of us have an internet connection on our device, either on our smartphone or another device we have. The learning platform aims to connect technology and knowledge [1], [2]. The online learning platform has even diversified, so if we want to learn new things, we can learn them on the internet. Much online learning has been born into the internet, especially in Indonesia. We have Ruang Guru for high school students and also Decoding, a programming education platform that helps a student who wants to increase their skill efficiently with technology[3][4][5]. The application of the online learning system is also affected by the emergence of the COVID-19 pandemic, which does not allow classes to be opened offline [6].

Giza online mentoring is the one who wants to join the field, but differently, their mission is to fulfill the gap for people who want to learn about research and design with a private mentor. Their mission is to give chance to student fine their mentor UX field which is hard to find the right private mentor in nowadays who want talk one on one. The first need for a replicated user experience or User Experience is to meet the needs of the right customer, without hassle or repair[7].

User-centered design (UCD) is a development methodology, that emphasizes usability goals, user characteristics, and context of use during all stages of the design process. In, UCD is defined as the active involvement of users for a clear understanding of user and task requirements, iterative design and evaluation, and a multidisciplinary approach. The lack of planning can be one of the critical triggering factors to the use of User-Centred Design, which should be focused and integrated into all phases of the system life cycle[8][9]. Testing and operational validation during each of the stages of the design process (requirements identification, proof of concept development, prototype development, final product development) is

absolutely necessary, as it is often very difficult for the designers of a product to understand intuitively [10][11].

Furthermore, even if the analyses of the students' interactions generate useful insights regarding the learning processes, the information needs to be properly interpreted and used as an input to introduce a well-scaffold activitiy [12]. This implies that learning environments provide vast amounts of data about students, that can be analyzed and used to build learners' profiles, personalize the learning experience, automate the assessment, and provide dynamic feedback on the learning progress [13].

Giza online mentoring is the one who wants to join the field, but in a different way, their mission is to fulfill the gap for people who want to learn about research and design with a private mentor, their mission is to give chance to student fine their mentor UX field which is hard to find the right private mentor in nowadays who want talk one on one. In Giza Mentoring platform user is the main focused on their service, how user interact with the service and also how user interacting with mentor in another place. The user-centered design framework can thus be characterized as a multistage problem-solving iterative design process[14]. The user-centered design principles state that designers must analyze and foresee how users are likely to use a product and that they should also test the validity of the initial assumptions with regard to the projected user behavior in real-world operational tests with actual users at each stage of the design process. User centered design is learning about user behavior when learning in UX[15] and connect with mentor in Giza Learning Platform.

Based on the background described above, the formulation of the problem obtained is about testing and analysis of user experience based on user needs in an online mentoring platform with a user-centered design approach, create the prototype based on the research, then testing the prototype to validates the solution.

2. METHOD

User-centered design approach in the first design stage is observe build the empathize to a user the real world design research understand them by user interview, watch they work, then reflect the research findings by synchronize and synthesize the research findings and make the platform to learn the user interact with the platform with usability testing

For this study I use two phase of usability testing, the moderate testing which is me as a observer and moderator and the second phase with Maze Design which able to measure the usability score and overview the behavior of interaction of the platform[16]. The result of testing is synthesize to get a clear problem of the solution the iterate the for the second testing.

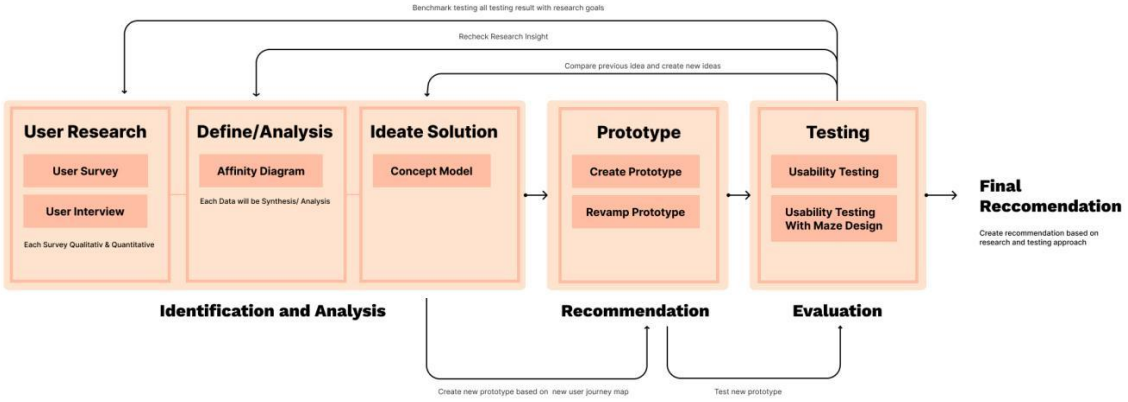

Fig 1. User Centered Design Process

2.1. Identification and Analysis

In this stage of emphasize, are trying to learn about user deeper, looking for their need and motivation and also their pain point based on their experience about online learning course in the user-centered design approach this stage is important to be a foundation of research, analysis and decision making because the data are from the user.

I conducted a user surveys for screening potential users, and also include interviewing the potential user to learn about the users. Create a research questions It aims to explore an existing uncertainty in an area of concern and points to a need for deliberate investigation. In this research writer define the research question that will be the foundation of this research is:

Table 1. Research question

No	Research Question
1	How does a student order the course?
2	How does a student use a learning course platform?
3	How is easy student learning in current Giza Mentoring Platform?

The purpose of this research is to validate the Design of Giza Mentoring Platform base on user research such as surveys interview and usability testing, the insight we get will be the foundation for the improvement of the platform. The previous research about the landing page also will be the data of this research.

A user survey we a user survey will be the first stage to selection and screening a general profile user to specific user criteria which mean to decrease the difficulty to recruit participant in common profile into a specific profile which the criteria will be include:

Table 2. Participant criteria

No	Participant Category	Amount	Data type
1	The participant who has joined an online design course in Indonesia.	10-30 Participant who have background in design or tech roles	Quantitative
2	The participant who has joined an online course in Indonesia.	10-30 Participant who have background in design or tech roles	Quantitative

From the survey total respondent filled the survey question is 29 respondent with the survey will be the screen-er for next interview, I conduct the user interview for 5 user that the best criteria in the survey data, I asked question that refer to the experience about design course.

2.2. Define and Analysis

After build an empathize with user research, then analyze and synthesize what we've learned from users, in this case I use the Affinity Diagram method to analyze the user problem based on their similarity from the interview answers this method help me to get dive the insight from the user research, I found six groups from the synthesize with this method.

From the Affinity Diagram itself I found six insight for every group which created to the opportunity that help us to take a decision for feature will be develop such as (i) Create learning progress for students who learn to learn (ii) Create conditions for assignments before continuing material (iii) Provide mentors for students who want to learn (iii) Create a feature set the mentoring schedule.

2.3. Ideate Solution

The ideate stage is the stage that to generate ideas and solution based on user research in this stage the concept model and user persona will be included to be a foundation of the system solution based on the user journey map. A conceptual model for online learning platform in Giza lab should supported by data of user research to get the information of user in online design course mental model, then the mental model will be foundation of the concept model. The output of concept model will be the foundation of building experience in the online learning platform, this is how to build a conceptual model.

For understanding, a user needs as well as understanding the mental model of the user, in this case, the group is a mental model of the user who has never tried a mentoring system on an online course but on the results of the interview related to the question of how important a mentor when learning can provide an overview of mental models users about the mentoring system, such as: learning between 2 people who are discussing in real terms with each other.

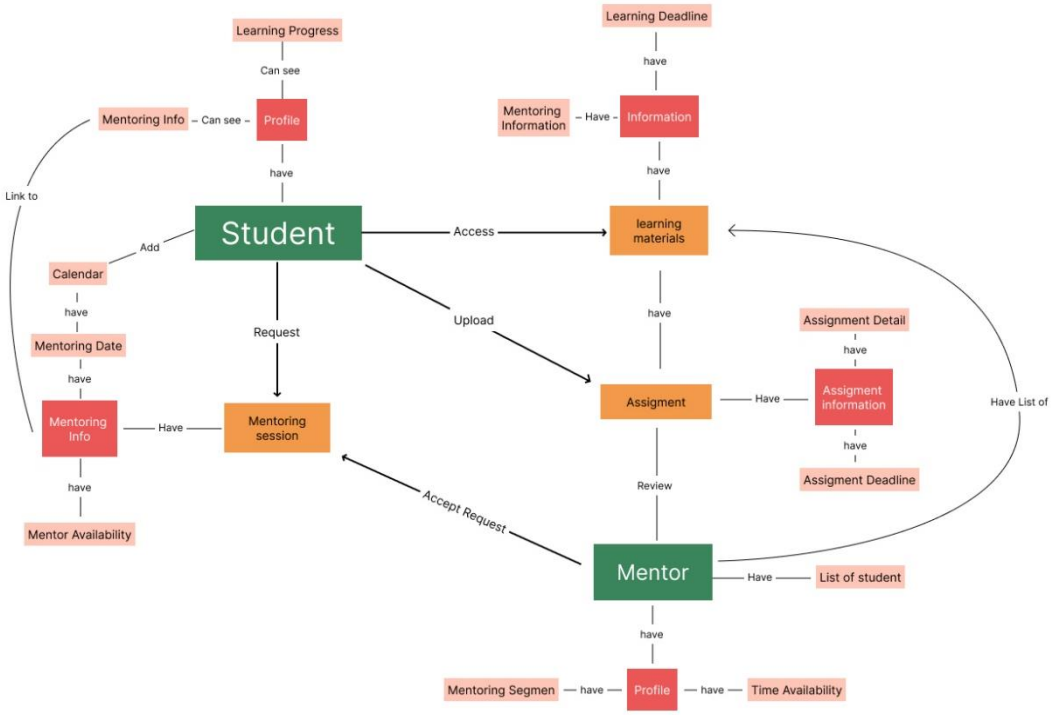

Fig 2. Concept Model Giza Mentoring Platform

3. RESULTS AND DISCUSSION

After all the initial analysis and design, the time has come to make end-to-end products that will be used by users in the prototype design. This time there is a prototype that designed by the Giza Lab team which will later be validated to see the results of the solution whether it has answered the user's problem.

The recommendation focused on rapid prototype and usability testing, the usability testing has two step the first test is usability testing with moderate method which is me moderation the session of the testing, this type of testing is to collect the user statement from the interface and the second type of usability testing is for tracking user behavior with Maze Design to collect the usability score.

3.1. Prototype

This time there is a prototype that has been previously designed by the Giza Lab team which will later be validated to see the results of the solution whether it has answered the user's problem.In this stage is a crucial stage because we started to directly make an interface of the platform that directly interact with the user, so there is some point we have to consider when starting designing an interface that will connect to the user

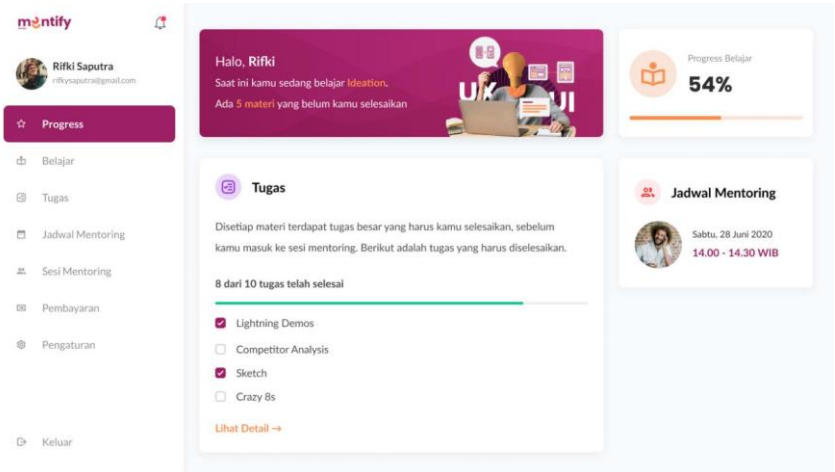

Fig 3. Giza Mentoring Platform Prototype

3.2. Interaction

The interaction provided the task flow of user platform which is describe the user scenario when use the platform, form the task flow made me easy to create a scenario for usability testing and also observe the user when use the platform.

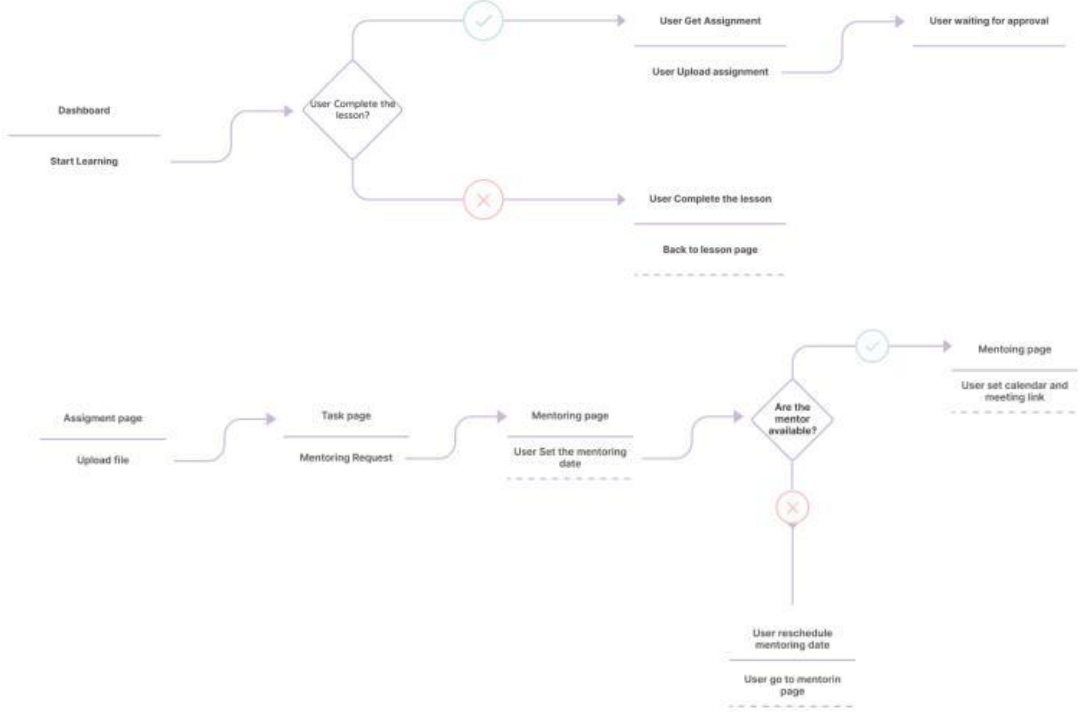

Fig 4. Task flow mentoring platform

Figure 4 shows in a particular way shows the task flows for user that from start to learn until submitting an assignment, in this case, a user before submitting an assignment user must be complete the lesson first then user able to submit an assignment, this case related to the main feature in ideate opportunity that learned in user research.

And the task flow shows the process of user start to join the mentoring session after completing the lesson and submit an assignment user has a feature to request a mentoring session to a mentor, the mentoring process in this case system will check the availability of mentor then user able to request a session, if not a user will change another time availability to a mentor

3.3. Analysis and Evaluation Results

From the previous stage this stage is focused from the data and testing results that are conducted. In this test using 2 approaches namely qualitative and quantitative in which the data for qualitative contains 5 respondents and quantitative contains 28 respondents in this experiment the qualifications are lacking because according to Jacob Nielson's research entitled Why You Only Need to Test with 5 Users stated 5 users in the usability testing a suitable number to prove the problem in the field and also to save resources during usability testing. Then in quantitative testing, the minimum number of problems to be detected is at least 20 users, this refers to the recommendations of Maze Design.

For the Maze design testing to see and support more detailed usability testing observation data such as how long the user stayed on 1 page I used Maze.design for user testing with the following results with formula I use:

$$SCUS = MAX(0,100 - (DOR* dW) - (MCR*mW) - (MIN(10,MAX(0,(AVGD5)/2)))) \quad (1)$$

I tried to breakdown every screen that respondent reach for the testing in the screen no 1 have the biggest bounce rate, which is it's normal because its the starter path for the user, that shows user try to explore the screen to another screens, for screen no 2 which is the lesson page shows good SCUS score in 86 with average time 6s for some reason this is normal because in the rapid prototype there no video user can

play, for the critical issues in the mentoring page and assignment page, because those 2 screen is the way user interact to the mentor.

Table 3. Participant criteria

Participant experience			**Participant experience in UX field around 1-2 years experience**	
No	**Task**	**Time**	**Observation Notes**	**Condition (Success/Fail)**
1	User learn subject on the platform	1:05 minutes and 70s	Mistakes User in this testing skip for the lesson and directly go to submit assignment Click-paths Reaction No reaction on while testing in this task user only focus on the task	Fail
2	User Submit Task	1:05 minutes and 70s	User look familiar while submit the assignment Click-paths Home--Assignment pages--Assignment list --submit Assignment Reaction No reaction on while testing in this task user only focus on the task, and from the expression of the respondent is looks good	Success
3	User set for mentoring session	18 seconds	The participants looks well while doing the task Click-paths Mentoring-schedule-date button - mentoring pop ups - OK button Reaction - I want when finish it I don't need to just click it	Success

Table 4. Usability Breakdown

Total Tester	**Mission's paths**	**Missions**			
		MISCLICK RATE (%)	**AVG DURATION (s)**	**AVG SUCCESS (%)**	**AVG BOUNCE (%)**
28	As a student on this platform you want to hold mentoring on (Wednesday June 11 at 08:00) but you are required to complete learning and submit assignments, now how do you complete these goals?	5.7	3.3	0.0	25.0

For the table 4 I tried to breakdown every screen that respondent reach for the testing in the screen no 1 have the biggest bounce rate, which is it's normal because its the starter path for the user, that shows user try to explore the screen to another screens, for screen no 2 which is the lesson page shows good SCUS score in 86 with average time 6s for some reason this is normal because in the rapid prototype there no video user can play, for the critical issues in the mentoring page and assignment page, because those 2 screen is the way user interact to the mentor

3.4. Final Recommendation Results

From the analysis the data are synthesized based on the qualitative testing and the quantitative testing are used for benchmark the design solution to the final recommendation the final recommendation are following. In this stage, I tried to back again to the next iteration, which means in the design thinking process it possible to back again to what stage the design have a problem, for this case I tried to analyzed again the problem based on the qualitative data and quantitative data then will try to benchmark again with usability testing to the respondent with Maze Design.

Table 5. Usability Breakdown

Total Tester	Mission's paths	Tester Path		
		Direct success (%)	Indirect success (%)	Give-Up/ Bounce (%)
35	As a student on this platform you want to hold mentoring on (Wednesday June 11 at 08:00) but you are required to complete learning and submit assignments, now how do you complete these goals?	0	82.9	17.1

4. CONCLUSION

This paper adapt the user centered design approach which involved the user in the design process the purpose observe the real world problem for the product or technology it's build an empathize to the users with user research, reflect the research findings by synthesize the data and make a prototype based on user need in the real world.

Recommendation to Giza Lab team is in the form of insight test results and prototype solutions that have been proven by the test in the second iteration that have provided insight data that will be use by the Giza Lab team for future development and research.

The solution prototype are tested with usability testing the results of the first usability testing with maze design get 75% user indirect success 25% user bounce and then 0 users who have direct success from a total of 28 users compared to the second testing that is 82.9% user indirect success then 17.1% bounce and 0 user direct success show that the improvement results have a pretty good impact on user experience.

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