User Experience 1

Report

UX design process of a mobile service following a structured user centered design process

Simon, SR, Rödig
Student and Tutor, Ludwig Maximilian University of Munich, simon.roedig@campus.lmu.de

1 Introduction

As part of the main exam in "UX1" in my third semester at the Ludwig Maximilian University of Munich we must write a report depicting the UX design process of a mobile service. Throughout this semester we were challenged to design a mobile app and build a digital prototype as a group. We decided to go we a social matching app that brings people together based on interest for a mutual activity. The mobile app got the name "Meet" right from the beginning.

The main idea of the app is that users can create their own activities and share them to be seen by others. Interested users can send the creator a request which the originator can decline or accept so the participants are able to chat and discuss about the procedure of the activity. We managed to go from this simple idea to a fully functional and working prototype. In this report the whole path will be described following a structured user centered design process reflecting on the UX tools and methods that were applied in this process.

1.1 The user centered design process

Before going into the individual steps that comprise a user centered design process, I want to clarify why a user centered approach is important. One memorable sentence that was mentioned in this lecture was "Designers aren't the users". I think it's certainly important for a UX-Designer to always keep that in mind. When you are creating some sort of application or service you can easily forget that you are not the person that utilizes it at last. The designer is commonly quite experienced and skilled with the product or service he is creating and might neglect that the user probably isn't and can't approach it with the same intention that the designer had in mind. Additionally, the user knows best what his needs, goals and preferences with the service, product or system are. Good designers may be able to think like the user but are still scarcely able to cover all possible outcomes and approaches that real users will attempt. Therefore, a user centered approach is inevitably advantageous. Meaning, including the user in the iterative steps of the design process and adapt and improve according to the user's needs.

1.2 A new mobile service idea

Since the design of the mobile service "Meet" was created as part of the "UX1" lecture it was more important to eventually achieve a good prototype and iterate through the user centered process steps than really use time and research beforehand on whether the mobile service is relevant, new, and marketable for real users. Yet before coming up with a real new mobile service idea or executing its development there should go a lot of thought, time, and research into that. Mentioning that, this report will now focus on the path that the design process of the "Meet" prototype took while elaborating the user centered tools and methods that were used. For better comprehension I will occasionally explain the content of the application but mostly focus on the process itself for replicability reasons.

2 Brainstorming and sketching

Gathering ideas was the first step our mobile service took. Without writing something down we verbally discussed the basic idea behind our application and concluded that we wanted to create an app that joins different people based on the same interest for an activity. The activity could be anything. An alone person who is looking for other people to have dinner with, a couple new in town looking for like-minded people to join them bouldering or students seeking a math study group. Basically, anything you could stick on a real bulleting board but digital and more intended for social interaction. Thus, the name "Meet". After that we discussed further and started writing down what functions the application should realize. Anything that the app should be able to do and any idea that popped into our heads was written down. We continued by starting to draw out some of the apps' screens next to our writing to better visualize the ideas. Probably every mobile service will have a graphical user interface, so it is obvious to draw some screens and gestures at an early stage of the design process.

Hence, the next step was to proceed by properly drawing the application's screens and visualizing it. This step is called sketching and is a crucial aspect for efficiently communicating design before deciding on one. It is very useful to think through the ideas and forces you to visualize how things come together. We worked out a few of the application's main screens and already started wireframing them by hand. The following step was putting it all together into a design brief. As the name already suggests it's a short summary of the whole concept that depicts important information and features of the project, its goal, target audience, and available materials, in our case the early sketches of some screens.

3 Wireframing

3.1 Establishing a platform and prospect to prototyping

Wireframing demonstrates the relationship between screens via connected arrows which clarifies how they are linked together. For low fidelity wireframing it is also possible to connect your handmade sketches to visualize their relationship. In fact, you could proceed quite far just by using a pen and paper.

There is even something called paper prototyping where you could create a low fidelity prototype with high resolution due to its possible great amount of detail. A lot of designers believe in the benefits of paper prototyping like being inexpensive and quick. [1] I'm of the opinion that it is not necessary to proceed too long with handmade concepts, wireframes, and sketches, especially for the creation of mobile services and products. There are a ton of tools and software available for wireframing and prototyping and eventually the whole concept must be designed and realized on the computer anyway. Designers may argue that paper prototyping will "prevent the designer from becoming overly attached to the first possible solution." [1] Yet with most software it's easy to recreate and redesign a concept and unless you want to come up with a completely novel solution [2] switching quite early in the process to a computer might give you better perception on how the final product will turn out in the end.

3.2 Miro

Therefore, we merely sketched out four screen designs on paper which were included in our design brief and then switched quite early to digital wireframing with the software Miro.

Miro is a whiteboard platform where members can collaboratively work together. We used it mainly for designing the interface of our screens and wireframing them logically. It is also very convenient for brainstorming, sketching and mind mapping together. Having that said and after working with this software for a few weeks, I would probably discard the idea of having every team member writing ideas down and sketching on their own paper in the initial steps that we used and rather switch from the beginning to a software like Miro when designing a service or product in a team again. Using a shareable interface makes it enormously easier to simultaneously gather input from all group members with a more equitable participation approach. Due to the software's whiteboard concept sketching would be also possible and more forgiving than writing and drawing on an arguably hot media like paper.

We worked out almost all screens and transitions between them. We merely decided not to put too much thought into the interface design like colors, borders, fonts, and final icons. At this stage none of our team members new how the next step, prototyping, is implemented nor which software we were going to use or if all our ideas from our Miro-Board are even able to be implemented in the prototyping software.

4 Digital Prototyping

4.1 What is prototyping

"We define a prototype as a concrete representation of part or all of an interactive system. A prototype is a tangible artifact, […] that requires interpretation. Designers, as well as managers, developers, customers, and end users, can use these artifacts to envision and reflect on the final system." [1] In the context of our mobile service we were to create a higher fidelity prototype that looks and feels like a real application but without a single written line of code or backend implementation. All necessary screens as well as their interactions and transition should be working at a level at which eventually a usability study can be executed to evaluate and improve the prototype. Crude prototypes probably perform worse when evaluating, so it's important to refine the prototype, causing the involvement of real users in the evaluation to be more revealing.

If time is an issue or there are other reasons for not being able to develop a properly refined prototype at this stage, I think the 80-20 rule is especially valuable.

4.1.1 The 80/20 Rule.

In general, "the 80/20 rule asserts that approximately 80 percent of the effects generated by any large system are caused by 20 percent of the variables in that system." [3] For a UX-Designer regarding a mobile service this concludes that most users will use 20 percent of all available features 80 percent of the time. This rule comes in very convenient when creating a protype following a user centered design process. Meaning that only approximately 20 percent, consequently the main functions of the application, can be elaborated in the prototype. User testing tasks can be restricted to them, and the results and feedback will still be revealing and constructive enough for improvement.

4.2 Tools

This section will focus on digital prototyping tools. The concept of paper prototyping was discussed in section 3.2. "Meet" was created using Adobe's prototyping software AdobeXD. There is other similar relevant software like InVision, Figma or JustInMind but having a media design background and working with Adobe's Photoshop, Premiere Pro and After Effects for several years, I decided to propose the use of AdobeXD to the group.

4.2.1 AdobeXD.

I excepted the transition from Adobe's other software to AdobeXD to be more intuitive. I think that the user interface can't be deduced effortlessly from their other products. For example, when adjusting the font size, instead of being able to click the icon and horizontally drag to increase or lower the size like in their other software, AdobeXD requires to manually enter the number with the keyboard. Therefore, it took some time to learn the program and most features. Also, a lot of features can't be implemented with AdobeXD yet. For example, you can't use the overlay transition type on an artboard that already functions as an overlay artboard (nested overlays) [4]. Furthermore, you can't use two different "drag triggers" when interacting with a component. Therefore, a left and right drag animation when accepting or declining an activity (card swipe user interface which most people know from Tinder) isn't technically possible with AdobeXD. While researching how to use AdobeXD I quite frequently stumbled upon Adobe's website section where you can submit new, not yet implemented features. [4]

Yet our team managed to create a good prototype that differed only slightly from the screen transitions in Miro. We replaced the card swipe user interface with a completely other approach which turned out to be even more fitting and inventive for our app's needs. The final step was to evaluate our prototype.

5 Evaluation

5.1 Heuristic evaluation

Heuristic Evaluation comprises of principles for Interaction Design that help the designer find usability problems and correct them to iteratively improve the design in the process. The lecture featured Ten Fundamental Usability Heuristic Evaluation Principles like the "Visibility Of System Status", "Error Prevention" and "Help And Documentation". We were asked to evaluate our prototype with the "Xerox System Checklist" which depicts the Ten Principles among others and lets you mark "Yes", "No", or "N/A" for multiple subpoints to every Heuristic Principle. One subpoint for example was "7.17 Are optional data entry fields clearly marked?" as part of the seventh heuristic principle "Recognition Rather Than Recall" in the checklist, which was marked with "No" for our prototype and was fixed by adding asterisks to highlight required input fields.

After working attentively through this system checklist, I have to say that it is not completely necessary to carry out this checklist to be able to evaluate with the usability heuristics. A lot of subpoints had to be marked with "N/A" because they simply didn't apply to a mobile interface. Having a profound understanding of the heuristic principles and working through them while evaluating is sufficient to apply them and improve the product in my opinion. Yet, for a larger, maybe newer concept a checklist might be beneficial. I could also imagine developing a new individual checklist that is customized for a certain type of concept instead of a general usability checklist.

5.2 Usability Testing

The next and final iterative step was executing a user study to evaluate the usability of our app and improve it based on the participated user's feedback. Every team member was challenged to conduct a user study on one person, meaning we gathered feedback from seven different users in the end. Our study procedure consisted of gathering initial information about the participant's age, occupation, and knowledge, then explaining the app and further letting the user perform two predefined tasks. I informed the user about the "Think Aloud Technique". Having him verbalize some of his thoughts while moving through the interface revealed insights on the participant's line of thinking and approaches on the path of performing a task. We proceeded with a semi-structured interview and concluded with the "System Usability Scale" questionnaire. After analyzing all team members' different results, we iterated on our prototype once again and made essential usability improvements which we wouldn't have discovered if we hadn't conducted a user testing.

6 Reflection on the lecture

User Experience or Interaction Design was fairly new for me at the beginning of this semester. Having a bit of media design background, I had stumbled upon acronyms like "UxD" or "IxD" on several occasions but until attending this lecture, could never quite grasp a profound understanding of the terms, their importance, and their distinction. The subject's content was insightful and well structured. I think attending the tutorial simultaneously to the lecture, where we were guided in the creation of a prototype, was key to thoroughly understanding the lecture's matter. I am going to create a new personal website/portfolio soon and I'm glad to have learned all the design processes that I've written about in this report and being able to apply them. In fact, as it stands now, I want to continue working or researching in this field after my bachelor's degree.

REFERENCES

[1] Beaudouin-Lafon M. & Mackay W. (2009). Prototyping tools and techniques (pp. 1007-1008). CRC Press.

[2] Interaction Design Foundation – IxDF. (2019, September 17). What is Paper Prototyping? [Video]. YouTube. https://www.youtube.com/watch?v=4ZRzJTczMCE

[3] Lidwell W., Holden K. & Butler J. (2010). Universal Principles of Design Revised and Updated (p. 14). Rockport Publishers.

[4] Request details. (2018, June 27). Nested Overlays. Adobexd.uservoice. https://adobexd.uservoice.com/forums/353007-adobe-xd-featurerequests/suggestions/34676875-nested-overlays