User Experience: Theory and Practice

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INTRODUCTION

In the following file, my personal development on the subject of User Experience (UX) design will be described. The process is guided by the course User Experience Theory and Practice, but also includes development outside of this course.

This portfolio will include defining UX based on different theories that are available in this field. As well as discuss relevant aspects, such as theories and available tools. Finally, I will describe how UX design fits in my vision as a designer, reflect on my previous projects through the lens of UX and explain how I plan to use my obtained knowledge in the future.

POSITIONING TOWARDS UX

I always felt UX was a vague topic. Mentioned often but one I never really knew the specifics of. I started out thinking it was all about interfaces and guiding the user through your system or prototype. However, I have come to see it to be more about the experience and understanding the psychology and emotions of the user, in order to make them feel a certain way when using your design. That is my current understanding, but I am curious to learn more and get a deeper understanding of the different aspects that help a designer understand the users experience.

I have learned about themes that play a role in UX: behaviour change techniques, theories of human-technology interaction, the technical aspects of the brain and how to care for the attention of a user [1]. Through this course, I hope to combine my knowledge from these fields with the theory of this course. As well as practice techniques to hone the skill of consciously and specifically designing for the user experience.

Goals

- Learn to link knowledge I currently have, mostly on behaviour change and HTI, to what I will learn in this course about UX design.
- Understand and apply at least three of the techniques presented in this course in my research project
- Create a clear overview for myself for future projects so I can become fluent enough in the techniques and methods presented to consciously apply them in future projects. This means I can explain the choices I made in UX terms.

DEFINING UX

How the process of UX is described differs a lot between sources. It depends if you ask a designer, a researcher or a manager in a company. I think this is the case because UX is a very broad field, and different definitions focus on different parts. Some are more about business and brands, while others are more about the aesthetic and the emotions.

If we take a look at three definitions currently used we can see the shift from the focus on the user with just the product, to the user as a customer of a company:

Starting with the Interaction Design Foundation. Their definition is very user-focussed. Look and feel play a key role. The quote *"The user experience (UX) is what a user of a particular product experiences when using that product."* In combination with an image showing: "*User Experience is look + feel + usability"* [12] shows their focus on the experience of the interaction between just the user and the device.

A broader view is stated by the Nielsen Norman Group:*""User experience" encompasses all aspects of the end-user's interaction with the company, its services, and its products."* [21]. They include the company and their brand into the mix of the user's experience.

Similarly, the Oxford Journal Interacting With Computers includes business in their definition but also adds the loyalty of the customer to a company: "*The goal of UX design in business is to "improve customer satisfaction and loyalty through the utility, ease of use, and pleasure provided in the interaction with a product.""*" [15]

Finally, Don Norman, famous for first using the term User Experience in his book "The Design of Everyday Things" [20] has a well-known quote on UX:

> *No product is an island. A product is more than the product. It is a cohesive, integrated set of experiences. Think through all of the stages of a product or service – from initial intentions through*

final reflections, from first usage to help, service, and maintenance. Make them all work together seamlessly.

This quote is a bit more academic, though it cleverly encompasses all the aspects mentioned in the other quotes. They are not explicitly mentioned, but company and brand can be part of the experience through the anticipation and maintenance of a product or service.

Through these quotes along with the theories discussed, I formed the following understanding of UX design: UX Design is a process of designing the users experience of a product, from before acquiring it, to having to repair or replace it. It is understanding every step of the way for the customer and then designing the technology, service or brand to provide them with the desired experience.

UNDERSTANDING UX

Understanding and caring for the user is a key element in UX. Several aspects play a part in creating this understanding. In the following chapter, I will discuss the 'theory of experiencing', theories to set up a plan to design an experience and talk about the influences of behaviour and empathy on this process.

Experience

Theory

Experiences are subjective, situated, dynamic, holistic and meaningful [9,10] and they happen in the 'now'. They form a continuous stream from one to another [22,23]. Figure 1 illustrates such a stream using a rollar coaster as an example, showing anticipation, the anticipated experience, and the reflection on the experience, which are all in itself experiences.

Previous experience can influence the 'current' experience: if it is your first time on the roller-coaster it may be scary. The situation is also a factor: if it had started raining while you are in the roller-coaster, the ride would have been experienced very differently.

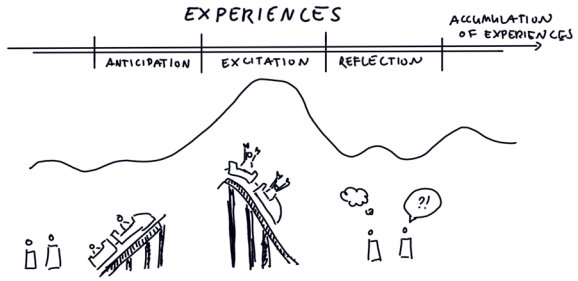

Figure 1. Rollarcoaster example for experience stream

Methods and tools

As a designer, you cannot control all the factors that influence the experience of a product. Therefore, it is important to test your device in its setting and talk with users to understand their experience. But before that, mapping out the goal of your device is key.

Hassenzahl's method of experience design gives us the Why-What-How model [9].

"How" is about functionality: All about the possible operations, requirements and tasks people can perform using your device.

"What" is about the usability: Can the user do the things they want and need to do with the product? It is the ease of use and ability to pursue goals using the device.

Tools to measure the (perceived) usability are questionnaires like the SUS and the UEQ. UI testing can also be a tool to see the usability of an interface. Additionally, methods such as Guerilla testing or contextual inquiries can be done to get an early insight into the experience of a prototype by letting random people use it and tell you their experience.

Finally, "Why". "Why" is the goal of the product. Why should people use it, what value will it give them? The following questions can help you answer the "Why".

- "*What are the needs I am addressing?"* Is it a physical need I am supporting or changing, or a psychological one? Maslows Hierarchy or Hassenzahls basic needs model [8] can be used to answer this question.
- *"What is the value for the user who uses my product?"* Is the value of this product to stimulate the user, make them feel supported in their daily lives or should they feel proud from owning it? Using Sheldon's set of statements [24], one can set a goal of what they want the user to feel when using the product.

The Jordan Pleasurability Questionaire [13] as well as AttrakDiff questionnaire [11], are tools to cover the question what pleasure people feel when using a product.

Behaviour

Theory

A part of answering the "How" and "What" questions is understanidng how people decide to 'do something'. Everyone has their motivations, intentions, emotions, needs, values. The Integrated Behavioural Model [18], consisting of the Theory of Reasoned Action and the Theory of Planned Behaviour, is an example of a model attemting to explain human behaviour. They state that based on behavioural, normative and control beliefs, a person forms an attitude, and intention to do a certain task or perform a behaviour.

Additionally, our behaviour influenced by the accumulation of experiences, habits and whether the person feels that they have the capability, motivation and opportunity to perform the behaviour [16].

But importantly, when does someone feel satisfied when doing something? What aspects of behaviour determine this? The Self Determination Theory [3,7] states that people need to feel autonomy, competence and relatedness for them to have the satisfaction of their psychological needs.

Methods and tools

By understanding the theories, the aspects influening the behaviour around your product can be mapped and anticipated. But by using empathic techniques, engaging with potential users and taking on different perspectives, one can better understand why people perform or do not perform certain behaviours.

Once you have a prototype, you can use behavioural

mapping to observe behaviours in a specific context. Doing it with and without the prototype can give insight into the implications of the design.

Finally, if the goal of the design is to create a behavioural change, perhaps to help someone stop smoking, a COM-B analysis is useful. This will show which behaviour change intervention functions (e.g. persuasion, training or education) are useful in the users situation and can thus help in designing an effective product [17].

Empathy

Theory

Described as "*a designer's intuitive ability to identify with others' lived experiences such as thoughts, feeling, motivations, emotional and mental models, values, priorities, preferences and inner conflicts*" by Suri [6] the connection to experience is clear: Empathy is a method to understand the experience of your user group.

To do this effectively, one must be able to effectively distinguish between the self and the other. Too much of either can cause a loss of focus or depth in a design, or cause one to act on personal biases.

Empathy itself can be subdivided into different types: Affective and Cognitive [2]. Affective Empathy or Emotional Empathy is the ability to share emotional experiences and respond appropriately to the emotional states of others. Cognitive Empathy, or the theory of mind, is the ability to understand and make sense of someone else's situation. It is the skill of placing yourself in someone else's position and understanding part of their experience.

Methods and tools

Ways to approach a problem empathically are through taking different perspectives, or by using tools that can provide different mediums through which empathic knowledge can be obtained.

The empathic cycle [14] through which a designer can immerse themselves in the users world view through different perspectives. While this is a specific technique, it is not a uncommon phenomenon. During a design process, people generally switch between these perspectives, creating a more complete picture [25]

Techniques such as personas, journey or empathy maps, value proposition canvasses, or scenarios, are ways to guide you to use your empathic ability as a designer to gather insight into your users' experience during this switching of perspectives.

Especially storytelling techniques –empathy and journey maps and scenarios- can be extremely powerful, as our brains are very attuned to imagine stories [19,27]

LOGBOOK

In the following chapter, I will highlight my learning experiences in each course activity, as well as the things I learned and discovered outside of the curriculum.

Week one

The first week was to get started. The speed-date, study material and lecture helped me form the first idea about UX design and forced me to set concrete goals for this course. It was quite a load of information, and a lot of it still had to settle in. With all the definitions flying around in my head, I felt a bit confused. I took some time to figure them out and write them down. Most of these have now been used in this file.

Week two

This week, my research project had gotten started. Coincidentally, the focus of this project lies in understanding the current experience of a product. The goal is to see what should be improved to set goals for the next prototype.

The lecture and study materials provided me with new knowledge of techniques and methods to gain an understanding of a user-group who live in a very different context. As my project is about the elderly and their risk for dehydration, these were very useful.

Specifically, the empathic handover was interesting for me. I have the luck of having little experience with feeling lonely, and I have grandparents who are active and healthy. By being the person switching between groups to do the 'handover' of information I was able to gain information on both of these subjects from my peers. I was very surprised to see with what seeming ease we talked about these difficult subjects.

I therefore aim to use this method for my research project -if the COVID-situation allows it-.

Week 3

I was familiar with most of the papers and theories for this week. I did find it difficult to link the theories to concrete application methods, as I feel it is more part of an understanding than actual 'tools'. However, this might just be a sign that I am not yet knowledgeable enough about these theories.

The rest of this week was mostly dedicated to writing this portfolio. I am realising through writing this that I have yet to link all the knowledge and information given to me. I tried to use examples to aid me in this, but this ensured I quickly got over the word limit.

I think that the challenge, which I will have to do next weeks, will help with this synthesis of the different theories and methods. That will also show me if I am able to apply these theories and methods to a concrete issue. Until then, I plan to use this portfolio as a starting point, updating it when I pick up new knowledge.

INTEGRATION OF NEW INSIGHTS IN EARLIER PRODUCTS

Reflecting on a set of projects, I was happy to find some intuitive integration of the techniques and theories discussed in this course.

An example is my use of the Why, How, What model discussed earlier. I feel like I have been using this technique ever since I did my internship at JAM visual thinking. During my work there, it was my job to listen to people with a plan or idea and make it concrete. This included asking those three questions and defining a clear goal for their project. Facilitating this process for people helped me understand the value of having a clear

goal with your design, whether it is a complete system or a single product.

Figure 2. Collage of the AoI alarm clock.

Project Description

A project I want to analyse and discuss is one I did before I did my internship. It is the alarm clock we build for the course Aesthetics of Interaction (AoI). I chose this project because, even though it was made with the interaction in mind, I feel like there is a lot to improve.

The clock (Figure 2) is both an alarm clock, and a room divider. It consists of two panels with a set of large beads. These beads can be turned to set the alarm. The two panels can be clicked together (as to 'close' them) this would then set the alarm or turn it off.

Analysis

Why: The goal of this product was to make the user feel relaxed at the end of the day while making them feel stimulated and energized at the start of their day.

What: This would be done with a novel alarm clock.

How: By facilitating novel operations compared to a 'regular' alarm clock. Operations such as: shutting yourself off from the rest of the room by closing the panels, setting the alarm through creating a pattern in the panel when sitting on your bed, snoozing by running your hand past the beads to 'swipe the alarm away'.

Values that we deemed important were autonomy, trust and calmness. Specifically autonomy, we wanted the user to stay in control of the alarm clock. Thus not create a clock that tilts your bed when it its time to get up.

The usability values include ease of use, reliability and possibly entertainment, enjoyability and the option for personalization of the stimulation.

Improvement

During this project, too little time was used to analyse the behaviour of people in their evening and morning routines. Habits or other often displayed behaviours were not taken into account, just a general idea. I feel like we mostly worked from assumptions in this course, which causes a disconnect between what the design does and what the user wants. Personas, and more complex storyboards would have been useful in this case. For it would have broadened our horizon and given us extra perspectives.

If I were to revisit this product, I would specify the goal to be two goals, thus splitting the wind-down in the evening and the wake-up in the morning into two goals. This will give a clearer perspective on what operations are ment for which goal, for that was not clear during this project, resulting in a chaotic design and report.

Additionally, I would spend more time getting feedback from potential users, as well as using the product myself.

I already tried simulating the product by setting my alarm on my phone each evening for the next morning, in combination with a set of curtains in front of my bed. I thought this would give me an idea of the interations this product would ask for: setting the alarm, opening and closing of the panels etc.

From taking this brief first-person perspective last week, I got to know just how much I rely on and trust my automatic alarm on my phone to wake me up. I forgot to set my alarm most of the nights, even if I closed the curtains.I did not link these two interactions.

Studying if people like and can learn to link these two interactions could be an interesting step if this product would be further explored.

In future projects, I will be more aware of setting the goals for a product. If it has multiple purposes, carefully splitting these and discussing them seperately will prevent the chaotic approach we had in this project for AoI.

CONCISE PERSONAL UX PROPOSITION

As a designer, I feel technology can and should aid us in our daily tasks. I am not a fan of tech replacing us, or taking over tasks in our own homes through large connected systems that learn our behaviours. Technology and people should be able to cooperate. To realise this vision, I am going to have my expertises be in the field of User and Society, and Technology and Realisation.

The first, US, specifically focused on Human-Technology Interaction with the intention to adapt behaviour. The second, TR, focused on the knowledge and application of new and emerging technologies.

With this combination of expertises, I would like to work in a team that works on a variety of issues or challenges. In this team, I would then offer them my skills to understand and effectively help the user, as well as insights in creating a prototype.

I feel like the Research Design and Development track will provide me with the opportunity to develop these skills. This course has already given me a set of tools I can study and practice applying. For example, in my current project, I can get experience using the usability and pleasurability tests discussed in this course in a research setting.

Finally, I understand that behaviour change, though it can be used for good causes, should always be evaluated. Tools mentioned in this course, such as Value Sensitive Design, is also a method I should study and learn to apply.

Overall, through this course, and the rest of my masters, I plan to evolve myself into a designer that understands and cares for the user and their experience. I hope I can then, with others, translate their needs and wishes into a product that is valuable for them, and fits their values.

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