

FIT3175 Notes

Week 1: Terms and Introduction to Usability

Learning Outcomes:

- Explain what usability is, at a high level
- Distinguish usability from similar topics
- Importance of usability

Usability is a **quality attribute** that assesses how easy user interfaces are to use.

Nielsen-Norman Definition of Usability – defined by 5 quality components:

1. Learnability – how easy is it to accomplish basic tasks when initially using it?
2. Efficiency – Once mastered the design, how quickly can they perform tasks?
3. Memorability – If idle for long period, how easy it is for users to pick up design again?
4. Errors – How many errors do users make, and how severe and recoverable are the errors?
5. Satisfaction – how pleasant is it to use the design?

ISO Definition of Usability – The extent to which a product can be used by specified users to achieve specified goals with *effectiveness*, *efficiency*, and *satisfaction* in a specified **context** of use.

Effectiveness – accuracy and completeness with which users achieve specified goals.

Efficiency – resources expended in relation to the ‘effectiveness’ with which users achieve goals.

Satisfaction – freedom from discomfort and positive attitudes towards the use of the product.

ISO Definition of UX - a person's perceptions and responses resulting from the use or anticipated use of a product, system, or service.

Human Computer Interaction (HCI) – study of how people interact with computers

Usability is a subset of UX and HCI, UX covers a much broader area than Usability.

Importance of Usability

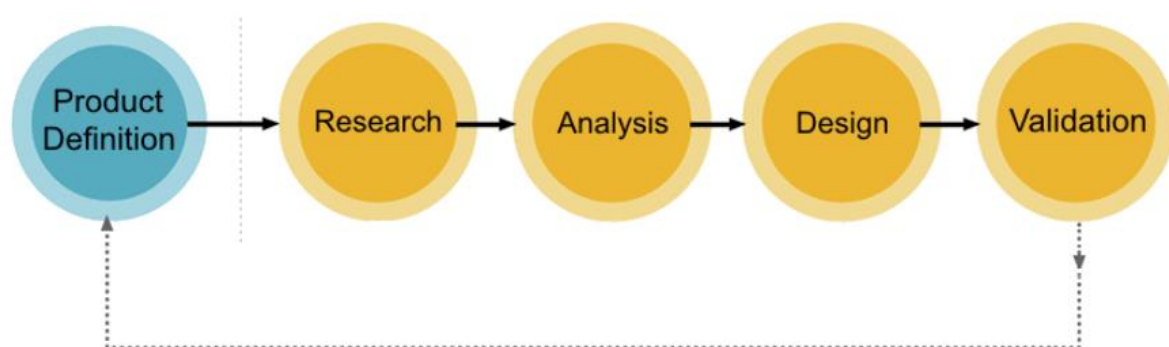
Usability is important to customers – they leave if UI is difficult to use or navigate.

Usability is important to employees – Less productive if waste time navigating = organization loses money

Usability of a good UI goes beyond aesthetics and intuition, we need to look at it as a science – turning to theories, models and principles.

The UX Process

UX Process is always different depending on the nature of project. However, core principles always have 5 key phases:



1. Product Definition

We must understand our product's *context for existence*. This provides the first half of the foundation for great design. This is where designers brainstorm the product to the highest level through:

Stakeholder interviews – Goals and values of product

Concept sketching – Early mock-up of what the team is looking to build

Kick-off meeting – set expectations, high-level outline of purpose and design

2. Product Research

Provides the other half of the foundation for great design. Includes user and market research in order to inform our *product* on adjustments to be made. Research most variable between projects, but always include:

Individual in-depth interviews (IDI) – Conducted for understanding of their user-base.

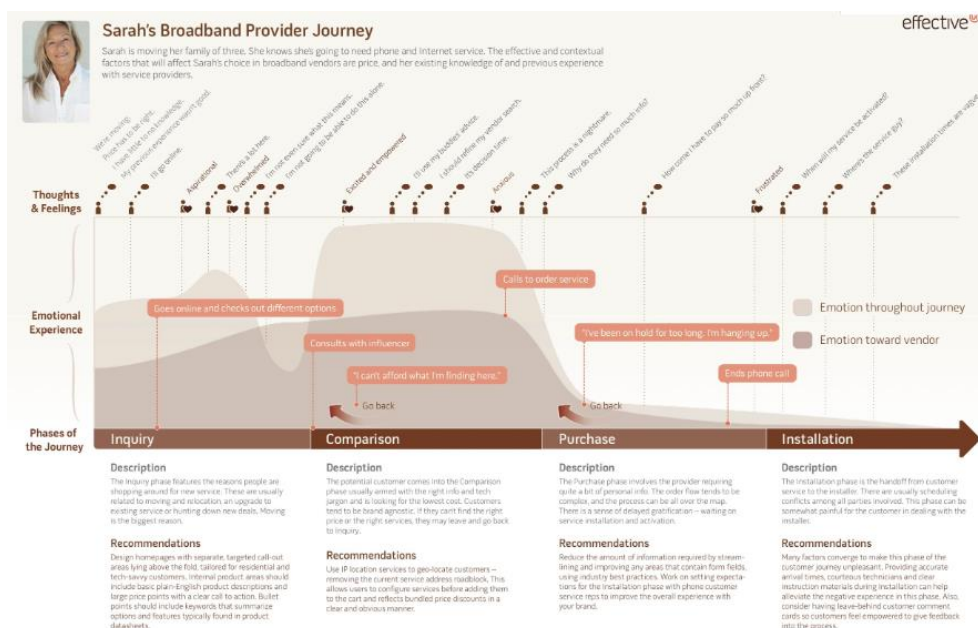
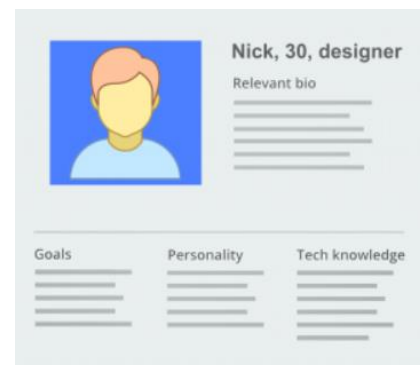
Competitive research – Analyse competitor products in order to compare existing features and industry standards + opportunities for product.

3. Analysis

Draws insight from data collected during the *Market Research* phase. We capture, organize, and make inferences from user data in order to help UX designers understand why users feel a specific way using the app. In this phase, designers confirm the most important assumptions being made are valid. Phase includes:

Creating personas – fictional characters created to represent the different user types that might use a product in a similar way.

Creating Journey experience maps – design tool to understand the product interactions from users' point of view. Essentially a visual representation that illustrates user flow within a product.



4. Design

Phase after establishing user expectations. Collaborative and iterative process which usually involves:

Sketching – early mock-up of product, allows for broad visualization of ideas

Wireframes – Represents the structural and visual hierarchy of key elements of the product – backbone of the product

Prototypes – Simulation of the product, aiming to portray the interaction experience (through look and feel). Commonly done through clickable wireframes.

Design specification – consists of user flow and task flow diagrams which outline functionality and style requirements of the product.

5. Validation

Product is validated with stakeholders and end-users through a series of testing sessions – preparing to roll out high-fidelity design. Phase can include:

“Eat your own dogfood” – let the product team test their own product

User testing sessions – validates design through sessions such as usability testing, focus groups, and surveys.

Metrics analysis – Numbers provided by an analytics tool about how a user interacts with the product such as click amounts, navigation time, search queries etc.

User feedback - capture info from real-world users to drive product refinement.

Methods can include support tickets, bug reports, and user diaries.

Improving UX Design Process

1. Consider Overlap Between Phases and Iterations – *UX design is not a linear process*. A lot of overlap and back-and-forth, may be necessary to revisit research undertaken or try out new design ideas.
2. Communication – communicating *great design* is essential alongside a *great design*
3. Processes Morph to Fit Projects – Design process should be tailored to fit specific project needs, both business and functional.

Week 2

Learning Objectives:

- Define what a UI is.
- Explain what makes a UI 'good'.
- Explain how users understand their tasks, through mental models.
- Understand how designers communicate functionality, through metaphors and icons
- Apply personas as a tool for how designers understand their users.

ISO Definition of UI – All components of an interactive system that provide information and controls for the user to accomplish specific tasks with the interactive system.

What makes a good UI?

1. *Easy for user to become familiar with and competent in during the first contact with the UI.*
2. *Easy to achieve their objective in the UI.*
3. *Easy to recall the UI and become familiar with it on subsequent visits.*

Features/Tricks of Designing a good UI

1. Effective Icons
2. Effective Metaphors
3. User Testing for feedback
4. Well-defined Mental Models of product from users
5. Persona-focussed design
6. Develop features around user-stories

Dark Pattern

Patterns exploiting usability theory in order to manipulate users into performing undesirable interactions. E.g. subscribe to website cancel or adblocker cancel button.

Icons – Visual representation of an object or idea, if well designed, are **fast to recognize, universal** across all languages, **visually pleasing**, and can support a **product family** (where a suite of the same icon or style is used). Four main types:

1. Resemblance – graphical representation
2. Exemplar – Example of typical class of objects
3. Symbolic – Depicting by reference or analogy
4. Arbitrary – does not mean anything, just over time we came to agree on

“Universal Icons are Rare”. If the Icon suffers an absence of a standard usage, text labels are necessary to communicate the meaning and reduce ambiguity.

Practices for Designing Effective Icons

1. KISS (Keep It Simple, Stupid) Principle – Keep icons as simple as possible, and avoid unnecessary complexity
2. Consistency – Focus on common elements to use in our icons such as:
 - a. similar color palette (3-4 color maximum)
 - b. repeating elements in icons
3. White space – white/blank space around icons makes them clear and gives them attention – room to breathe
4. Communication – transfer visual information to the user in simple way

Metaphors – Grounding user interface actions, tasks, and goals in a familiar framework of concepts that are already understood. Metaphors ensure learnability and memorability by making the user recognise the ‘real-world’ in a digital space.

Most metaphors aren’t good enough metaphors to go around, they don’t scale well, and the ability of users to recognise them is often questionable across cultural boundaries. Sometimes metaphors are also taken too far.

User testing – studying usability by getting *representative users* to do *representative tasks*, then observing what they do, where they succeed, and where they have difficulties with the UI.

User Stories – **Agile UX approach** (see week 5) that shifts the focus from writing about requirements to talking about them. They are short, simple descriptions of a feature told from the perspective of the user.

“As a <type of user>, I want <some goal> so that <some reason>.”

Mental Models – Pre-conceived ideas users have about a system or product. Mental models are **based on beliefs** or assumptions, not facts. They **base their predictions** about the system on their mental models and thus plan their future **actions** based on how that model predicts the appropriate course.

It is very important for designers to make the UI communicate the system’s basic nature well enough that users form accurate (and useful) mental models.

Big Usability Dilemma – “*The Mental Model between the designer and end-user are not aligned.*” Designers form wonderful mental models of their creation, leading them to believe each feature is easy to understand, whereas the user’s mental model are likely to be deficient.

Mental Model Inertia – There is a level of inertia that must be overcome if we want to change a user’s mental model. Intense effort is required to overcome the inertia and hence it is only justifiable if the new approach is vastly superior to the old ways.

Jakob’s Law (Mental Model Rule of Thumb)

“Users spend most of their time on other sites. This means that users prefer your site to work the same way as all the other sites they already know. Design for patterns for which users are accustomed to”.

Users will form their mental models based on interactions with existing applications and web sites. Hence users expect functionality to be consistent with these previous experiences. By designing for patterns that users are accustomed to, you prevent their chances of getting lost and eventually giving up on your website or app.

Natural User Interfaces

Reduce abstractions in the GUI and make it align as much as possible to real life. Create natural and intuitive interfaces. E.g. gestures in touch-screens align to real-life interactions

Personas

Archetypical users whose goals and characteristics represent the needs of a larger group of users. Usually consists of 1 to 2 documents which includes behaviour like patterns, goals, skills, attitudes, and background information.

Importance of Personas

- Deep understanding of a target audience's expectations, concerns, and motivations allows designers to create a successful product which satisfies all needs of the audience.
- Personas help designers shape product strategy. Allows designers to make decisions about what is necessary or unnecessary for them from a user-centred point of view.
- Personas help prevent common design pitfalls:

self-referential design – Designers design as if they are making the product for themselves

Elastic user – a 'false' user created by development teams which falsely reflect the goals, abilities, and contexts of *real* users.

Personas also allow designers to **build empathy** by:

- Gaining a perspective similar to the user's
- Identify with the user they are designing for

Properly constructed personas make the design process less complex.

They guide the ideation processes and help designers achieve the goal of creating a good UX for the target users.

They allow designers to work mindfully, keeping the real user at the core of everything they do.