

Interaction quality

Unit 2



Learning outcomes

- Define quality metrics
 - Usability
 - user experience
- Understand the main types of evaluation

Usability

- “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.”
 - ISO 9241-11:1998 Ergonomic requirements for office work with visual display terminals (VDTs) -- Part 11: Guidance on usability.

Usability

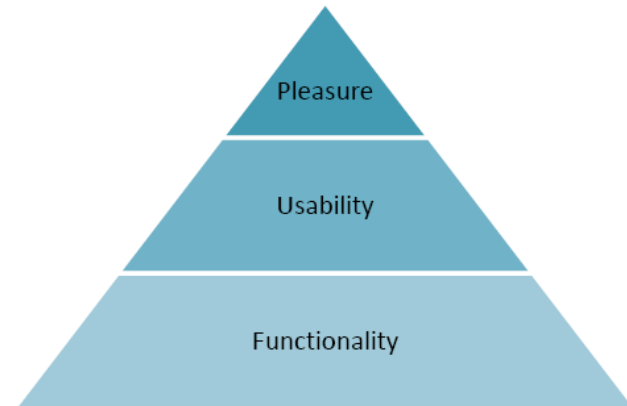
- Usability is a **quality attribute** that assesses how easy user interfaces are to use.
- Five quality dimensions:
 - **Learnability**: How easy is it for users to accomplish basic tasks the first time they encounter the design?
 - **Efficiency**: Once users have learned the design, how quickly can they perform tasks?
 - **Memorability**: When users return to the design after a period of not using it, how easily can they reestablish proficiency?
 - **Errors** : How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
 - **Satisfaction**: How pleasant is it to use the design?
 - <http://www.useit.com/>

Usability

- Quality = absence of problems
 - discover usability problems and reduce their frequency and severity.
 - It can be measured
 - Objective data (performance is measured by behavioural data, user observations)
 - Subjective data (quality is estimated by the user, self-report, questionnaire or interview)

Hierarchy of consumer needs

- Jordan (2000)
- Functionality = “a product will be useless if it does not contain appropriate functionality, a product cannot be usable if it does not contain the functions necessary to perform the tasks for which it is needed”.
- Usability, = “once people had become used to having appropriate functionality they then wanted products that were easy to use”.
- Pleasure= “having become used to usable products, it seems inevitable that people will soon want something more: [...] products that bring not only functional benefits but also emotional ones”



User experience UX

- The User Experience (UX) is a complex psychological response to the interaction with computing systems.
- This response is a consequence of
 - individual predispositions of the user (e.g., attitudes, motivations and needs)
 - characteristics of the interactive system (e.g., purpose, functionality and usability)
 - contextual dependencies (e.g., task and environment).

User experience goals

- Satisfying
 - Fun
 - Enjoyable
 - Entertaining
 - Helpful
 - Motivating
 - Aesthetically pleasing
 - Motivating
 - Enhancing sociability
- rewarding
 - support creativity
 - emotionally fulfilling
 - ...and more

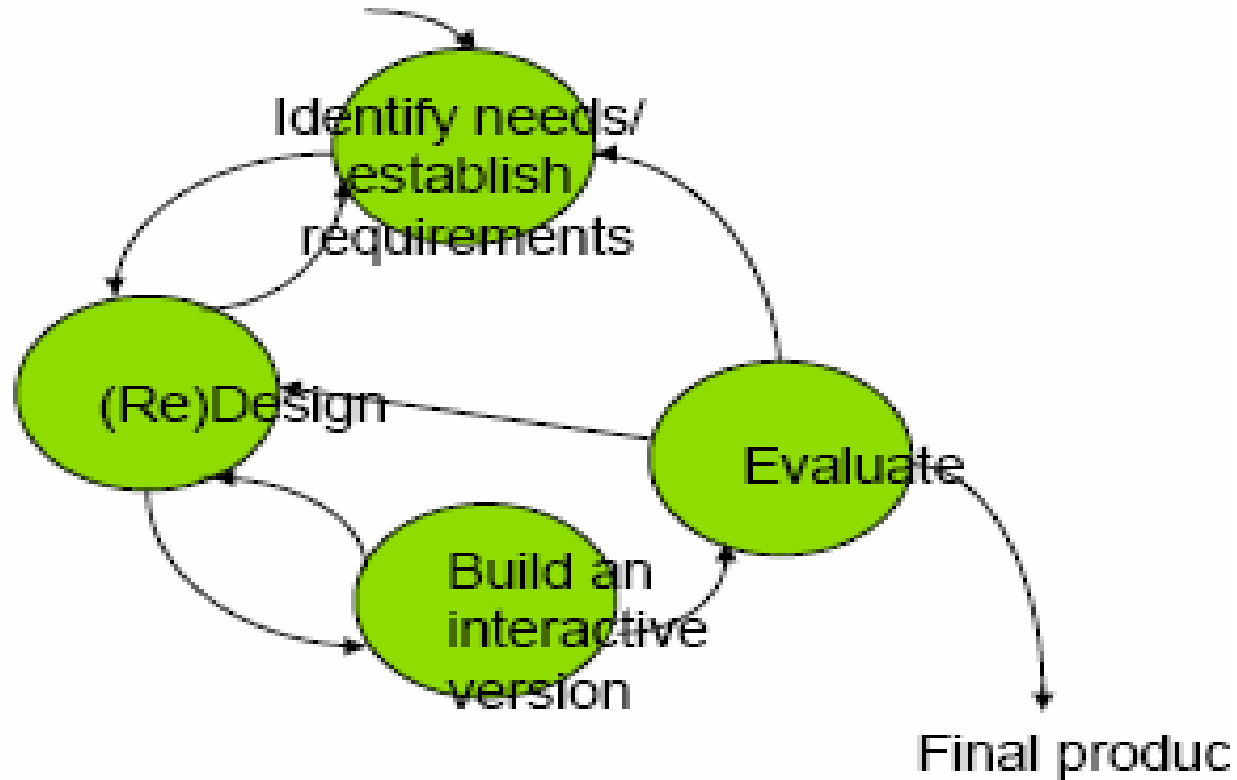
Design metrics UX

- Usability
 - Easy of use and efficiency
- Aesthetics
 - sensorial experience generated by the look and feel of the interface and to the extent to which this experience matches individual preferences and goals.
- Symbolism
 - meanings and associations elicited by a system.
 - As opposed to aesthetics which can be ‘visceral’, symbolism requires cognitive processing (the individual recognizes a symbol and associate a meaning to it).

User experience UX

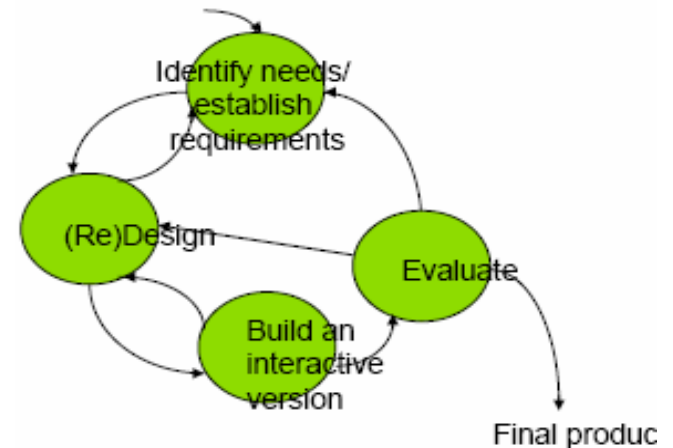
- Positive
 - good design is more than absence of problems.
 - add “extra value” to design (emotion, fun, personal fulfillment)
 - Holistic
 - Pragmatic qualities (traditional usability dimensions),
 - Hedonic qualities (non-task related, beauty, challenge, stimulation and self-expression)
 - Subjective
 - Usability focuses on performance and tasks: can be objectively measured
 - Hedonic attributes relate to the user’s self which is subject to deep variations among individuals.
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User-centred design



When do you evaluate?

- **Formative evaluation**
 - During design and development process
 - Inform design
- **Summative evaluation**
 - After design is deployed
 - Measure effectiveness
 - Check standards
 - Guide adoption decisions
 - Collect requirements for future systems



Evaluation

- Exploration – Conceptual design
 - Assess what it would take for a design to fulfill users' needs and likes – e.g., requirements
 - Based on scenarios, storyboard
- Development – Physical design
 - Evaluate alternatives
 - Anticipate breakdowns
- Deployment
 - Upgrade subsequent versions
 - Continual improvement
 - Collect user requirements for future systems

Overview of usability techniques

- observing users
- asking users' their opinions
- asking experts' their opinions
- testing users' performance
- modeling users' task performance

3 main types of evaluation

- Analytical – expert based
- Usability studies – controlled tests with users
- Field studies – watch people while they spontaneously use the tools in their everyday life

Key points

- Usability
- User-experience
- Different evaluation types