The Process of Interaction Design

DECO1200
Outline

Practical issues in interaction design
   Who are the users? What are their needs?

How are interactive products designed?
   The four basic activities of interaction design

Identifying needs & establishing requirements
   Gathering data about users and what they want

Lifecycle models for interaction design
   How do the activities relate to each other?
Interaction Design

Interaction design is the development of a product informed by its intended use, its target domain, and relevant practical considerations.

Alternative designs need to be generated, captured and evaluated by users. For the evaluation to be successful the design must be expressed in a form suitable for users to interact with.
Characteristics of Interaction Design

Focus on users through the design process
   Users are involved through the design process from the identification of needs to the evaluation of designs

Specific usability and user experience goals
   Usability and user experience goals are identified early in the design process and used to evaluate designs

Iteration of the design process
   Interaction design is an iterative process that allows designs to be refined in response to user feedback
Interaction Design

Activities

Identifying needs & establishing requirements
Needs and requirements are identified at the start

Developing alternative designs
Developing conceptual and detailed designs

Building interactive versions of the designs
Interactive versions are used to evaluate designs

Evaluating designs based on user feedback
Evaluation based on observation, questionnaires, etc.
Identifying Needs and Establishing Requirements

Users and Stakeholders

Who are the target users?
People who will directly interact with the design.

Who are the stakeholders?
People who will be affected by the design.

What do the users need to do?
Although it is tempting for a designer to design what they would want but a good designer is able to design for the needs of the users of a product.
Identifying Needs and Establishing Requirements

Different types of requirements:

Functional: what should the product do?
Data: what types of data should the product handle?
Environmental: physical/social/organisational/technical
User: characteristics of the target user group
Usability: important usability goals and measures
Identifying Needs and Establishing Requirements

Techniques for Gathering Data

Questionnaires: useful for asking specific questions from a number group of people, questionnaires are often combined with other techniques.

Interviews: useful for exploring issues that arise as the result of asking questions, but they are time-consuming.

Focus Groups: good for gaining a consensus view of an issue and/or highlighting areas of conflict/disagreement.

Observations: shadowing people as they work with a system can provide important insight into what people actually do (compared to what they say they do).

Studying Documentation: existing documentation can be a good source of information about user activities.
Identifying Needs and Establishing Requirements

Describing user tasks
   Scenario: an informal narrative description of a user performing a task that allows the exploration of the context, needs and requirements
   Use Case: a description of how a user (actor) would interact with a system to achieve a task, allowing the description of the interactions required throughout

Activity: Write a short scenario of how you’ll go about choosing a unit of study to enrol in next semester.
Developing Alternative Designs

“The best way to have a good idea is to have lots of ideas.”

Linus Pauling, scientist and Nobel prize-winner
Developing Alternative Designs

Conceptual Design
  Conceptual models for products that describe what a product should do and how the product should behave.

Detailed Design
  Detailed models for products that describe aspects of an interface, e.g. colours, sounds, images, icons, menus, etc.
Developing Alternative Designs

Generating design ideas
Methods for generating design ideas

Cross-fertilisation of existing ideas
  e.g. analogy, bisociation, case-based reasoning, mutation

Evolution of existing ideas
  e.g. addition of new features, extrapolation of trends

Reproduction of existing ideas
  e.g. application of ideas to new domains
Building Interactive Versions of Designs

Evaluating interactive products
  Users need to evaluate interactive versions of designs

Interactive version $\neq$ full implementation
  e.g. paper-based prototypes, role-playing users

Prototyping products for users
  Reduces confusion between designers and users
Evaluating Designs

Choosing between design alternatives:

Observation of users
  e.g. number of errors made using the design

Questionnaires of users
  e.g. how appealing is the design

Objective evaluation
  e.g. how well does the design match requirements
Lifecycles Models

Lifecycle models describe how the activities in a design process relate to each other e.g. how the generation of design ideas relates to the evaluation of designs

Lifecycle models have been developed to describe processes in a number of fields e.g. Software Engineering, Human-Computer Interaction, Usability Engineering
A Simple Interaction Design Lifecycle Model

- Identify needs/establish requirements
- (Re)Design
- Build an interactive version
- Evaluate

Final product
The Waterfall Lifecycle Model

- Requirements analysis
- Design
- Code
- Test
- Maintenance
The RAD Lifecycle

1. Project initiation
2. JAD workshops
3. Iterative design and build
4. Evaluate final system
5. Implementation review
The Star Lifecycle Model

- implementation
- prototyping
- conceptual design/formal design representation
- task analysis/functional analysis
- requirements/specification

Evaluation
The Usability Engineering Lifecycle
Summary

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Lifecycle models for interaction design
   How do the activities relate to each other?