The Process of Interaction Design

DECO 1200
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?
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 vs Stakeholders

Users: people who will directly interact with the design.
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 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

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 scenario for how someone would interact with your iPhone application.

Tell a short story about how someone would use your application in their everyday life.
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
The best way to have a good idea is to have lots of ideas.

Linus Pauling, scientist and Nobel prize-winner
Building Interactive Versions of Designs

Evaluating interactive products
Users need to evaluate interactive versions of designs

Interactive version ≠ full implementation
e.g. paper-based prototypes, role-playing users

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

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
The Waterfall Lifecycle Model

Requirements analysis

Design

Code

Test

Maintenance
The RAD Lifecycle

- Project initiation
- JAD workshops
- Iterative design and build
- Evaluate final system
- Implementation review
The Spiral Lifecycle Model
The Star Lifecycle Model

- implementation
- prototyping
- conceptual design/formal design representation
- task analysis/functional analysis
- requirements/specification
The Usability Engineering Lifecycle

Usability Engineering
Summary

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