Create Design Ideas

- Static representations of the product
  - Sketches
  - Wireframes
  - Mockups

Visualization

Prototype Design

Prototypes
- Interactive design model of the product
  - Low-fidelity
  - High-fidelity

Testing and Evaluation
Prototype Design

- Heuristic Evaluation
  - Eye Tracking
  - Focus Groups

- Tree Testing
- A/B Testing
- Walk Through

- Click Testing
- Keystroke Level Modeling
- Five Second Test

Evaluated by experts (sometimes called “expert review”)

Following prescribed user journeys - set of specific, goal-based tasks

Assessment is based on set of heuristics

To conduct you need:
- 3-5 evaluators
- List of tasks
- List of heuristics
- Form for notes

Report: Identify each issue, prioritize according to severity, relate each issue to a screenshot
Prototype Design

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Usability Heuristics for User Interface Design
- Visibility of system status
- Match between system and the real world
- User control and freedom

- Consistency and standards
- Error prevention
- Help to recognize and recover from errors

- Flexibility and efficiency of use
- Recognition rather than recall
- Aesthetic and minimalist design

Help and documentation

Jakob Nielsen
Keystroke Level Modeling
Tree Testing
A/B Testing
Click Testing
Keystroke Level Modeling
Eye Tracking
Focus Groups
Walk Through
Five Second Test

Other sets of usability heuristics:

- Ben Shneiderman: *Eight Golden Rules of Interface Design*
- Jill Gerhardt-Powals: *10 Cognitive Engineering Principles*
- Bruce Tognazzini: *First principles of interaction design*
- William Lidwell, Kritina Holden, Jill Butler: *Universal principles of design*
- Connell & Hammond: *30 Usability Principles*
- Alan Cooper: *About face 2.0: The essentials of interaction design*
- Larry Constantine: *Software for use*

List made by Luke Chambers
Detects person’s fovea fixations and the movements in between fixations

Showing hard-to-articulate behaviour

- Where participants expected to find certain elements
- Whether participants noticed a particular element
- Whether there are differences between user groups
- What elements of the interface are distracting
- Efficiency of a design guidances through a task
- Which content participants read in details, scan or ignore

Reported as a gaze plot for one participants and as heat maps for study overall
Images: http://www.upstain.com/
Typically lasts about two hours, 6-10 people

Type of an interview: Conversation based on open-ended questions and story sharing

Run by a moderator who maintains focus of the conversation according to a discussion plan and asks clarification questions

Explores users’ attitudes, opinions and expectations as well as general reaction to a concept or prototype, all self-reported
Assessment of **Information Architecture**: Detects navigation structure problems

- **Items**
- **Groups**
- **Labels**

~50 participants, ~10 tests per person, keep trees under several hundreds items (guidelines, not a rule)

Ask participants to **find an item**, use realistic task **scenarios**.

**Measurements:**
- **Task completion**
- **Time per task**
- **Number of attempts**
- **Taken paths**

**Tip**: Ask about confidence, associate confidence and completion
Prototype Design

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A/B Testing

Quantitative comparison of two versions of an element by a defined success metric

- Trigger elements style
- Images and text content
- Headlines / descriptions
- Layout, style, color scheme
- Input forms

Split user traffic between two versions and run them simultaneously

Correlation does not mean causation. Variations should aim at addressing actual causes of an issue

Need to reach statistical confidence
The Button Color A/B Test: Red Beats Green
Task-based approach to identify potential problems for novice users.

Users prefer to learn by doing rather than reading manuals.

Create a “successful story” for each task and include step-by-step list of actions (for assessment).

During the walkthrough assess:

- Does user attempt the expected step?
- Does user notice available correct option?
- Does user’s expectation align with the outcome?
- Does user understand provided feedback?

Examine what user **clicks on first** in order to complete a given task.

Users are **almost twice as likely to succeed** in a task if their first click was down the right path.

To conduct you need a **list of tasks** (for users) and **correct paths** (for researchers).

- Track each click
- Track time to make first click

Create a **satisfaction / confidence scale** and **difficulty scale**, ask participants to assess each task.

Create **heatmaps** to visualize study results and analyze clusters.
Predicts a **skilled** user’s error-free task time (within 10-20% of the actual time), estimates UI **efficiency**

- Keystroke 0.8sec
- Pointing 1.1sec
- Homing 0.4sec
- Drawing
- Mental Operator 1.35 sec

**KLM** was proposed by Stuart K. Card, Thomas P. Moran and Allen Newell. A **GOMS** model technique

**TLM** (touch level model) was proposed by Andrew D. Rice and Jonathan W. Lartigue

Added **operators for touchscreen** interactions
Tests first impression of a page/screen and its communicative ability regarding the main purpose.

Participant is given context and exposed to an image of a page for 5 seconds, then image is removed.

- What participant can recall
- What can they do on the page
- What caught their attention

Best on pages designed with a single primary purpose.

- Is critical content clear?
- Is purpose clear?
- Are options obvious?
- General impression
Prototype Design

High Fidelity Prototype Evaluation

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Understand Your Users: Exploratory Studies

There is a product

- Ask about user’s goals and/or intentions when they entering the service
- Track their subsequent behavior
- Ask if they were successful in achieving their goal

- True-Intent Studies
  - Remote Unmoderated Usability Studies
  - Intercept Surveys
  - Clickstream Analysis

- Questionnaires
- Observations
- Interviews

- Diary/Camera Studies
- Participatory Design

- Ethnographic Field Studies
- Contextual inquiry
Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- Remote Unmoderated Usability Studies
- Intercept Surveys
- Clickstream Analysis

- Quantitative/qualitative automated method
- Captures **behaviors** (through software on participant device) and **attitudes** (through embedded survey questions)
- Usually includes goals/scenarios

- Questionnaires
- Observations
- Interviews
- Diary/Camera Studies
- Participatory Design
- Ethnographic Field Studies
- Contextual inquiry
Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- Remote Unmoderated Usability Studies
- Intercept Surveys
- Clickstream Analysis

- A survey triggered during the use of a product
- Usually very short

- Questionnaires
- Observations
- Interviews
- Diary/Camera Studies
- Participatory Design
- Ethnographic Field Studies
- Contextual inquiry
Understand Your Users: Exploratory Studies

There is a product

- True-Intent Studies
- Remote Unmoderated Usability Studies
- Intercept Surveys

Clickstream Analysis

- Analyzing the record of elements that users clicks on/views, as they use a software product
- Requires proper software instruments / tools for telemetry data collection enabled

- Questionnaires
- Observations
- Interviews

- Diary/Camera Studies
- Participatory Design

- Ethnographic Field Studies
- Contextual inquiry