COMS W4170
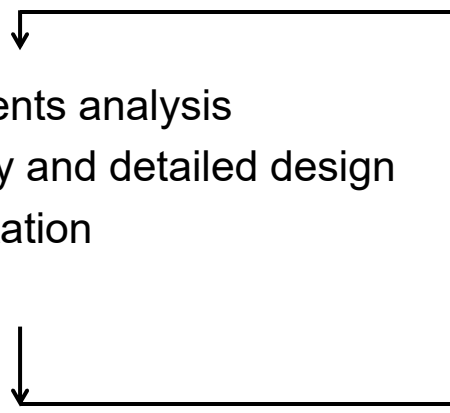# UI Design

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Iterative Design Process

- Requirements analysis
- Preliminary and detailed design
- Implementation
- Evaluation

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Requirements Analysis

- Determining requirements for interaction design from stakeholders
  - *Functional requirements*
    - Behavior the system should support
    - "What" the system should do
  - *Non-functional requirements*
    - The way in which functional requirements should be supported
    - "How" the system should do it: Hdw, sfw, usability, performance, reliability, supportability
    - *User experience requirements*
      - Non-functional requirements specifically related to the UI

3

Preliminary and detailed design

- Preliminary design (architectural design, conceptual design)
  - Determining high-level concepts
    - User's mental model
    - UI appearance, navigation, interaction
- Detailed design
  - Specifying the user dialogue
    - UI appearance, navigation, interaction
- Methods: Sketching, Prototyping

4

Implementation

- Turning the design into a running system (hardware and software)
- For us
  - HTML, CSS, JavaScript, libraries
  - IDEs/Editors

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Evaluation

- Determining how well the design meets requirements at any stage
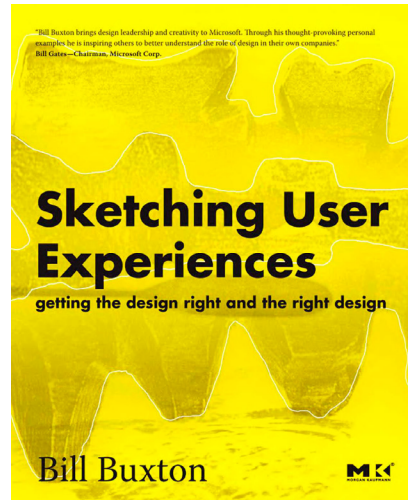 - Heuristic evaluation
  - User studies

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Sketching

- Bill Buxton, *Sketching User Experiences: Getting the Design Right and the Right Design*, 2007

http://sketchbook.cpsc.ucalgary.ca/

"Bill Buxton brings design leadership and creativity to Microsoft. Through his thought-provoking personal examples he is inspiring others to better understand the role of design in their own companies."
Bill Gates—Chairman, Microsoft Corp.

Sketching User Experiences

getting the design right and the right design

Bill Buxton

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Sketching

- Getting the design right vs. getting the right design
- "There is surely nothing quite so useless as doing with great efficiency that which should not be done at all"
  —Peter Drucker, *Managing for Business Effectiveness*, 1963
- "Efficiency is doing the things right. Effectiveness is doing the right things."
  —Peter Drucker

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Properties of Sketches

- Quick
- Timely
- Inexpensive
- Disposable
- Plentiful
- Clear vocabulary
- Distinct gesture
- Minimal detail
- Appropriate degree of refinement
- Suggest and explore rather than confirm
- Ambiguity

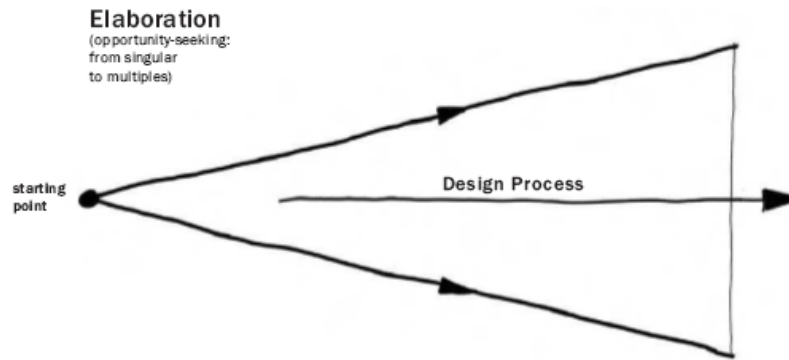— Buxton, *Sketching User Experiences*

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Properties of Sketches

"The ceramics teacher announced on opening day that he was dividing the class into two groups. All those on the left side of the studio, he said, would be graded solely on the quantity of work they produced, all those on the right solely on its quality. His procedure was simple: on the final day of class he would bring in his bathroom scales and weigh the work of the "quantity" group: fifty pounds of pots rated an "A", forty pounds a "B", and so on. Those being graded on "quality," however, needed to produce only one pot—albeit a perfect one—to get an "A." Well, came grading time and a curious fact emerged: the works of highest quality were all produced by the group being graded for quantity. It seems that while the "quantity" group was busily churning out piles of work—and learning from their mistakes—the "quality" group had sat theorizing about perfection, and in the end had little more to show for their efforts than grandiose theories and a pile of dead clay." (Bayles & Orland 2001; p. 29)
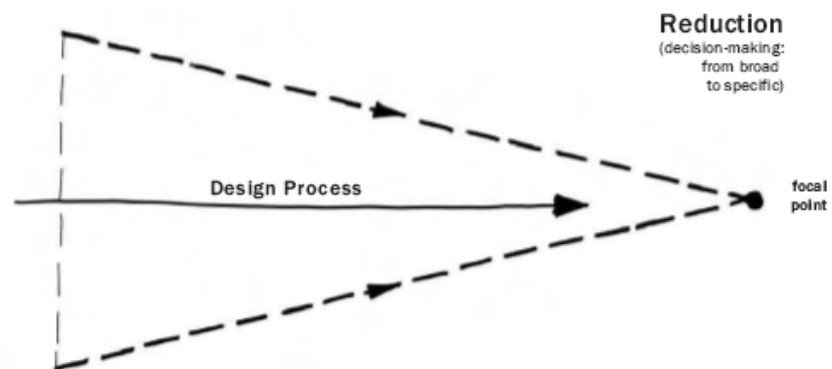
— Buxton, *Sketching User Experiences*

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Sketching

Elaboration
(opportunity-seeking:
from singular
to multiples)

starting
point

Design Process

P. Laseau, *Graphic Thinking for Architects and Designers*, 1980
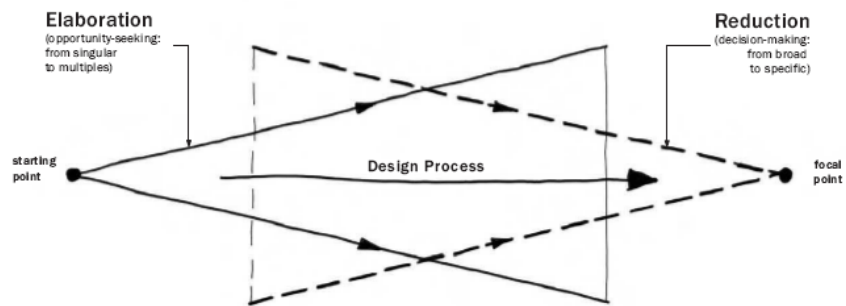
— Buxton, *Sketching User Experiences*

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Sketching

Reduction
(decision-making:
from broad
to specific)

focal
point

Design Process

P. Laseau, *Graphic Thinking for Architects and Designers*, 1980

— Buxton, *Sketching User Experiences*

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Feiner, COMS W4170, Fall 2018

Sketching

Elaboration
(opportunity-seeking:
from singular
to multiples)

Reduction
(decision-making:
from broad
to specific)

starting point

Design Process

focal point

P. Laseau, *Graphic Thinking for Architects and Designers*, 1980

— Buxton, *Sketching User Experiences*

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