

Sketching and Inspiration

Embedded Interface Design

with **Bruce Montgomery**



Learning Objectives

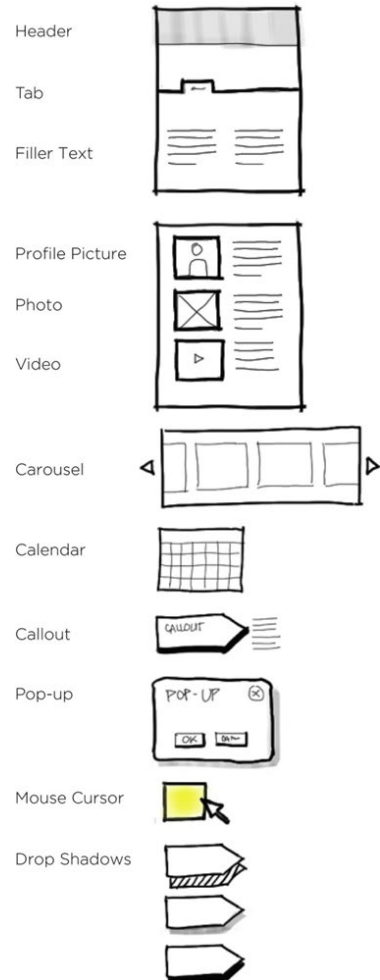
- Students will be able to...
 - Understand sketching and its design role
 - Apply sketching appropriately in UX Design
 - Consider alternatives to paper/pencil sketches
 - Consider various sources of design inspiration



Sketching

- Time: a minute to hours, depending on detail and scope
- Fidelity: usually low to medium
- Sketching is the first step in developing design alternatives
- Sketching, broadly defined, is any activity that helps further explore the design - not just pencil/pen on paper
- Reasons sketching is a vital tool
 - Cheap/fast
 - Aids in exploration
 - Pushes away perfectionism
 - Invite conceptual feedback
 - Engages others
 - Anyone can do it
- Reference [1], [2]

Sketching



- Process
 - Have the right equipment
 - Block off time
 - Focus on key parts of the UX
 - Sketch alternatives
 - Review/pick the best ideas
- Tips
 - Clarity before beauty
 - Can use Balsamiq or similar tools to help with look (image from [3])
 - Can sketch in words vs images
 - Keep sketching tools handy
 - Frame for your audience
- Reference [1], [2]

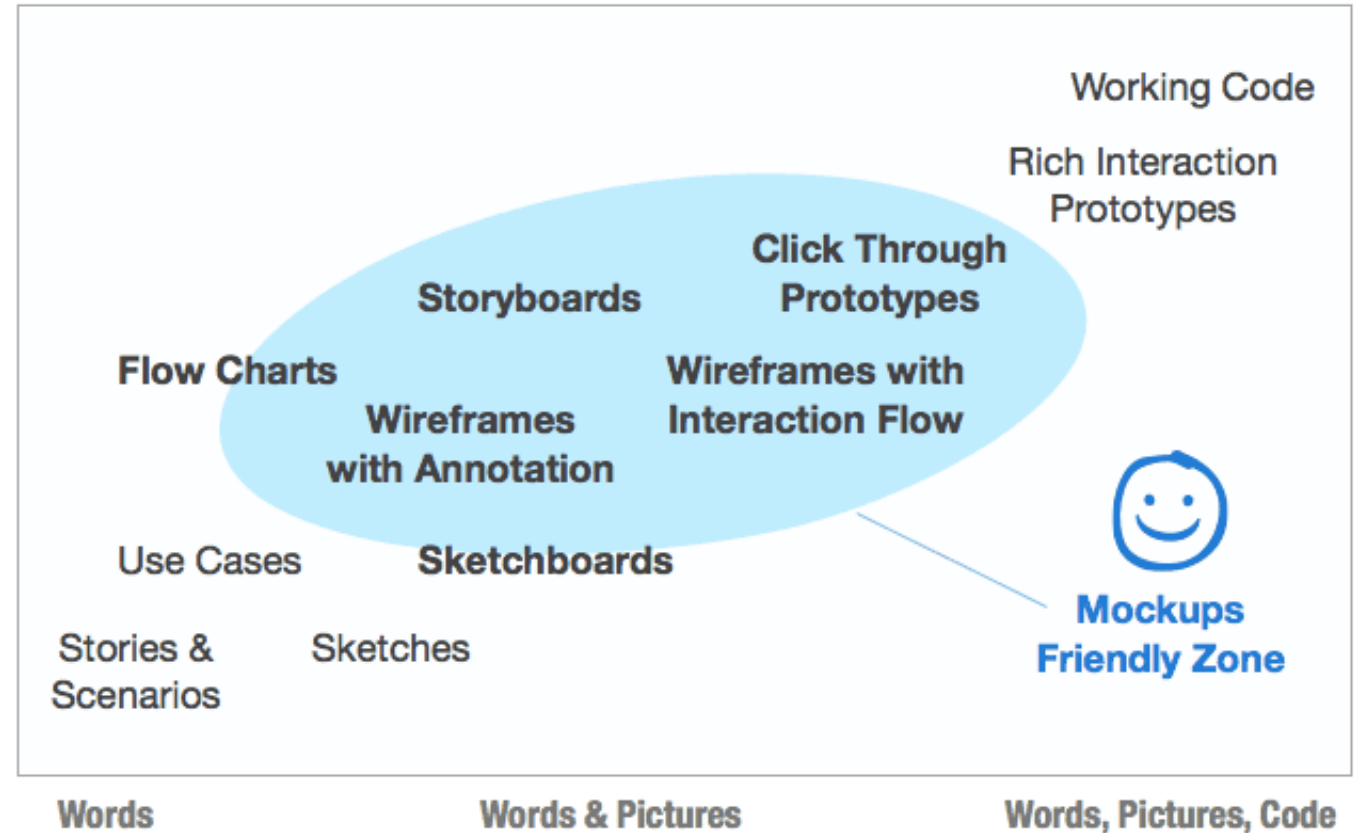
Balsamiq Mockups

- “Life’s too short for bad software.”
- Available for web, Windows, and Mac
- Demo “cloud” version available for 30 days
- Lots of extension graphics available
- Good site documentations and usability blog
- Quick demonstration...

Techniques for Specifying Interaction with Mockups

Increased
Time & Effort

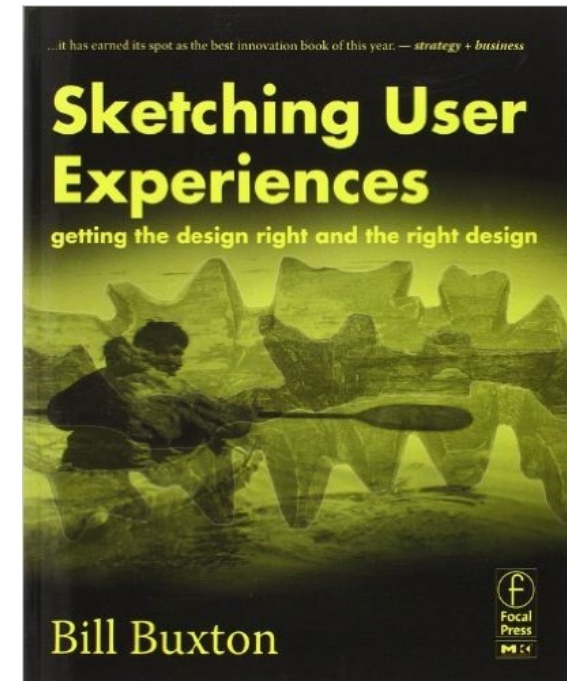
Quicker
Less Effort



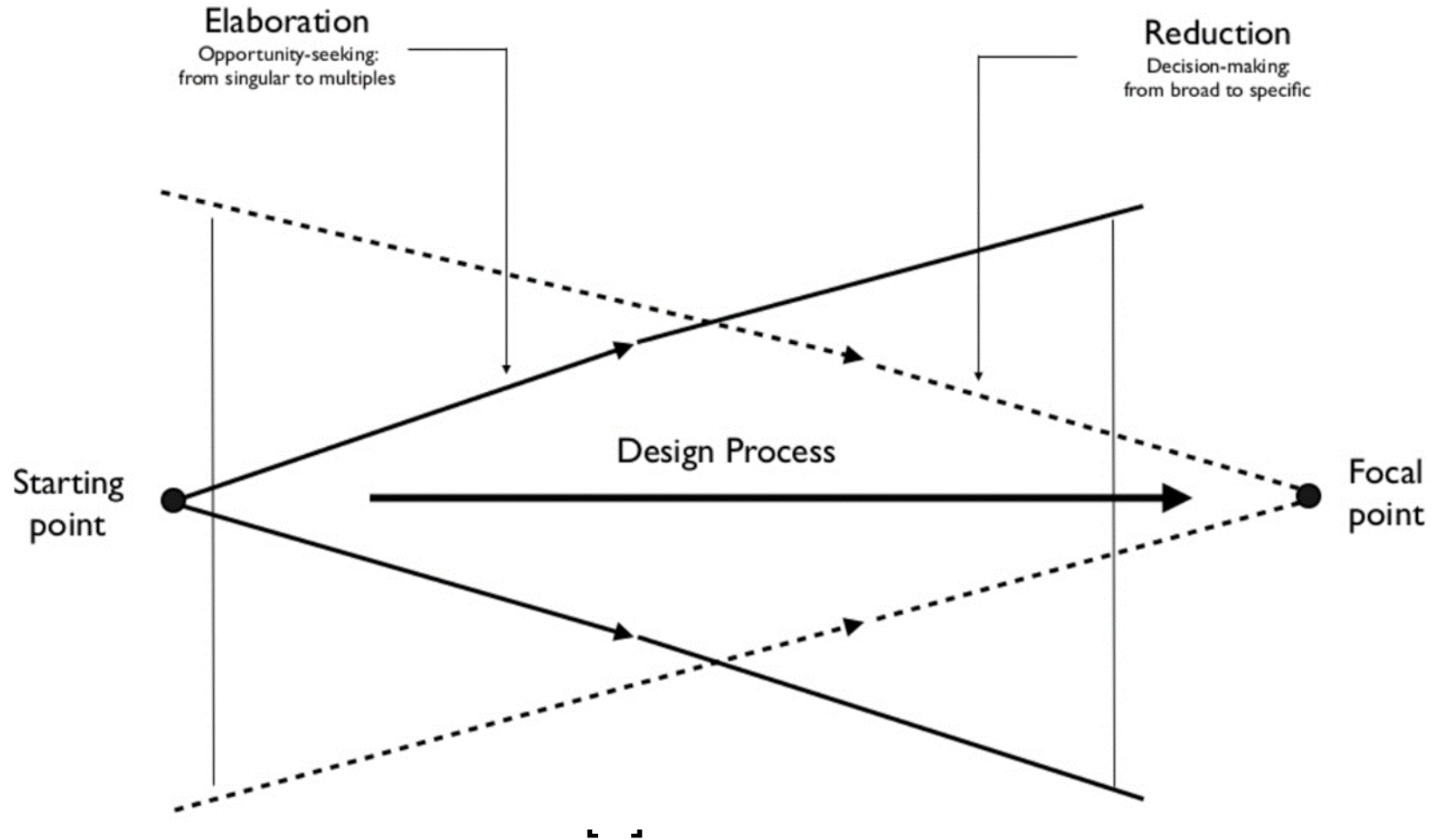
Book: Sketching UX – Buxton

- The nature of design
 - The design funnel
- The importance of sketching
- The capacity for rich and spontaneous annotation
- The social nature of design
- The importance of persistent displays to “bake in” to the consciousness
- The role of critique in design process and education
- Very rich design book – very visual
- Book reference [2]

- Buxton is an award winning computer scientist; in 2008 he received the ACM’s SIGCHI Lifetime Achievement Award for contributions to the human-computer interaction field



Sketching UX: Design Funnel



- Buxton's design funnel speaks to the design goals of progressive elaboration and avoiding premature design optimization or decisions
- Reference [4]

More from Sketching UX – Buxton

- “Design is compromise.”
- “People on a design team must be as happy to be wrong as right.”
- “The worst thing that can happen with a new product is that it is a failure. The second worst thing is that it is a huge success.”
- “Without appropriate design, yesterday’s success is tomorrow’s straightjacket.”
- Reference [2]

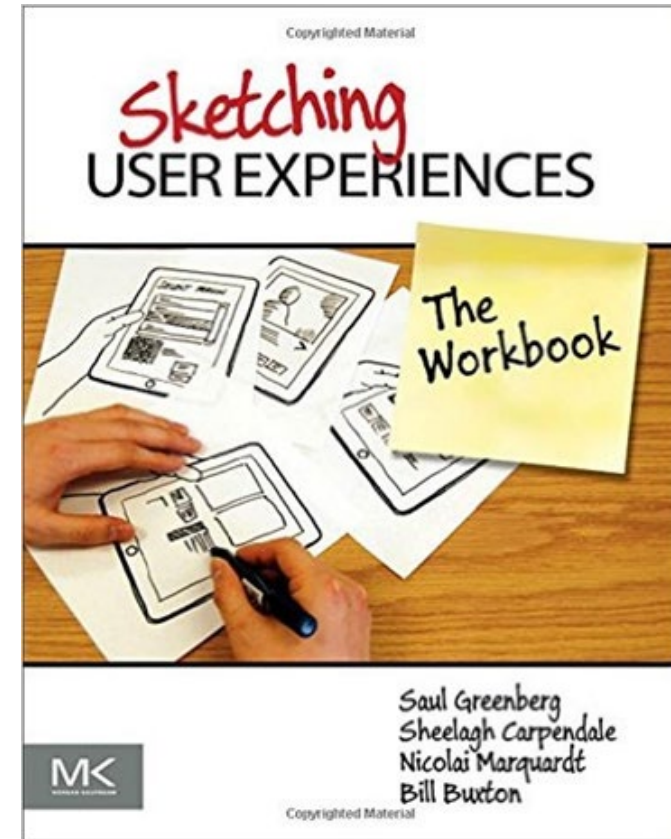
From his web site:

- The “Buxton Collection” [5]
 - Physical examples of varieties of different types of devices
- Library of books on Design [6]
 - Exhaustive list of design books



Sketching UX Workbook – Greenberg et al.

- Sketching practice
- Sampling with cameras; collecting images and clippings
- Physical collections and toyboxes
- Sketching methods – with basic elements, templates, photos, etc.
- 3D sketching
- Using storyboards, state transitions, and animations
- Reviewing your work for critiques and feedback
- “Wizard of Oz” – how your sketch responds to use
- Thinking aloud exercises
- Book reference [7]



Sketching thoughts

- Every job is easier with the right tools, for sketching you should experiment and consider what tools are best for you
- Paper: do you want to keep something with you, a pocket notebook?
Does the kind of paper matter?
 - I like engineer's pad and graph paper, and also thick sketch paper (from art supplies)
- Pens/pencils: What's easiest for you to use? Do you want to erase?
 - I carry a combination 4 color pen with a pencil for sketches (and every day writing or doodling)
- Would it help to get the sketching workbook or take a sketching class?
- Would you rather use a software drawing tool on a tablet, phone, or PC?



Importance of Participatory Design

- It's important to realize most design activities, including sketching, are better done as a team sport
- Buxton points out that the talents of those who focus on research, design, and engineering are complementary
 - All these elements have opportunities for exploration and creativity
- Further, in order to move to a manufacturable design, there can be no silos; collaboration across all the disciplines involved is the path to success
- And don't forget user representation
- Reference [2]



Inspiration – Where to find it?

- In designing a device, a system, an interface, you may feel like your ideas are stale; it's always good to take a step back, and look for what else may open up your creativity
- Keep links, a file, or some other log of any potential ideas you may find
 - Consider a pocket sketchbook or a similar phone app to capture passing thoughts
 - Similarly, a bookmark system for organizing things you may see on the web
- Sources of inspiration are all around
 - Architecture, photography, packaging, board games, nature, travel, music, crafts, food, fashion, movies and television, even children's books
- Reference [8]



Inspiration – From the Web

- Often, you need to break out of your own thought patterns or clear a blocked design
- One way, surfing the web
- <http://designinspiration.net/popular/page/1/>
- <https://www.smashingmagazine.com/2008/01/monday-inspiration-innovative-designs-and-devices/>
- <http://www.yankodesign.com/>
- <http://www.techeblog.com/index.php/tech-gadget/category/concept/>
- Always be prepared to cite sources (or commercially, to recognize patented design)



Inspiration – Two Suggestions

- Oblique Strategies by Brian Eno & Peter Schmidt
 - A set of phrases to break a creative deadlock or redirect thought patterns during design
 - Ex: “Remove specifics and convert to ambiguities”, “Don’t be frightened by clichés”
 - Purchase phrase cards [9] or use a web site [10]
- Scott McCloud’s books on comics
 - Besides his own graphic novels, he writes about the process of making comics
 - Full of interesting thoughts on flow, perspective, design, and sketching...
 - Books include Making Comics [11], Understanding Comics [12], and Reinventing Comics [13]



Summary

- Sketching may be one of the most important skills an engineer can develop
- It's also one that seems to scare most people, exposing raw creativity or deficiencies in drawing – just keep it simple and clear
- Also, consider the tools you like, possibly doing exercises or getting training, and start making sketching a method you use all the time
- And remember to look up and consider other things that might inspire your ideas and designs, including collaboration with coworkers and users
- Be open to exploring new ideas and thoughts, and they will reward you



“Quiz” for this week – Two Sketches

- Sketch the described device (to right)
 - Can be a hand drawing, Balsamiq, text sketch, or a collection of like devices from the web – but should describe two different approaches
 - We will review/vote in class on Wed – full quiz points (10) for two sketches, possible bonus from class votes
 - Distance students can send me their entries to participate
- Sketch target: **a connected embedded system for medical pill dispensing:**
 - The main target users will be seniors (age 65 or older), and other adults who need management of medication delivery and schedules
 - The device can be locally configured and managed through an embedded UI, but can also be monitored and updated remotely by authorized users via an internet connection to a cloud-based application
 - The device will remind users about scheduled times to take medication and will physically dispense medication for pick up into a monitored receptacle that can confirm medication being removed from the device
 - The device will also monitor medication counts and remind users of needs for refills, with optional automatic pharmacy notifications



Next Steps

- Project 4 (Super Project Phase 1) intro today, Project 3 demos today
- Reviewed Super Project Proposals: I will make a preliminary list of devices to order based on your superproject input, and then check back with you
- Next week – last UX phase: Verify/Validate
- Quiz – two sketches – due next Wed before class for voting – I'll post an assignment on Canvas
- Class staff available to help
 - Shubham - Tues 12-2 PM, Fri 3-5 PM in ECEE 1B24
 - Sharanjeet - Tues 2-3 PM, Thur 2-3 PM in ECEE 1B24
 - Bruce - Tue 9:30-10:30 AM, Thur 1-2 PM in ECOT 242
- Final Exam is set
 - Tuesday Dec 17 7:30 PM - 10 PM ECCR 1B51
 - Final will be open notes and Canvas based, you'll need a PC



References

- [1] User Experience Ream of One, Buley, 2013, Rosenfeld
- [2] Sketching User Experiences, Buxton, 2007, Morgan Kaufmann
- [3] <https://balsamiq.com>
- [4] <https://www.billbuxton.com/>
- [5] <https://www.billbuxton.com/Catalogue.pdf>
- [6] https://www.billbuxton.com/bill_buxton_design_library.html
- [7] Sketching User Experiences, Greenburg et al., 2011, Morgan Kaufmann
- [8] <https://www.smashingmagazine.com/2010/02/finding-inspiration-in-uncommon-sources-12-places-to-look/>
- [9] <http://www.joshharrison.net/oblique-strategies/>
- [10] <http://stoney.sb.org/eno/oblique.html>
- [11] Making Comics, McCloud, 2006, William Morrow
- [12] Understanding Comics, McCloud, 1994, William Morrow
- [13] Reinventing Comics, McCloud, 2000, William Morrow

