CSE 593

Assignment 2 Post-Mortem, Evaluation Methods (Qualitative) Part 2, Assignment 3 Review

Farnaz Jahanbakhsh

Lecture content adapted with modifications from:

- MIT 6.813 materials authored with contributions from: Elena Glassman, Philip Guo, Daniel Jackson, David Karger, Juho Kim, Rob Miller, Stefanie Mueller, Clayton Sims, and Haoqi Zhang
- MIT 6.S063 by David Karger & Lea Verou
- UMich EECS 593 by Nikola Banovic

EECS ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
UNIVERSITY OF MICHIGAN

Logistics

- Assignment 2 (Group) was due yesterday at 5PM
- Assignment 3 assigned today.
- Assignment 3 (Individual) due next week (10/23 at 5PM).
- Assignment 3 (Group) due in two weeks (10/30 at 5PM)
- Midterm exam next Thursday!

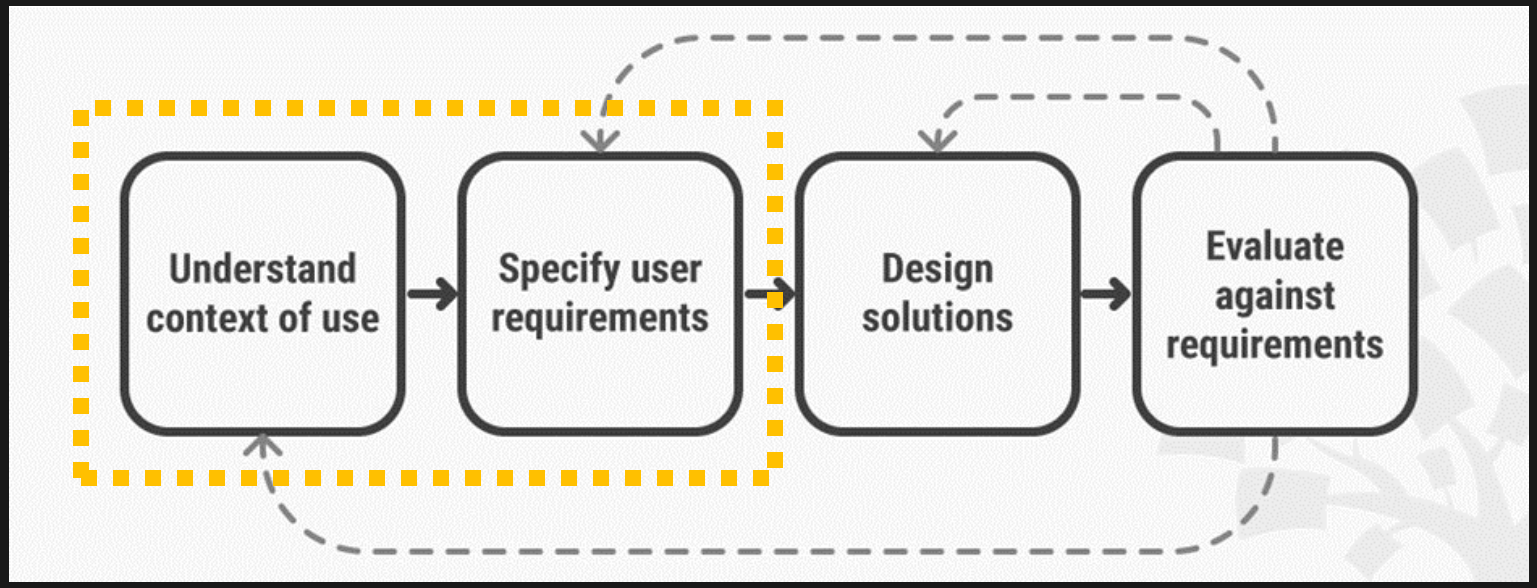
Goals

(Quick) Assignment 2 post-mortem

Learn how to conduct heuristic evaluation as a qualitative evaluation method

Assignment 3 review

Assignment 2

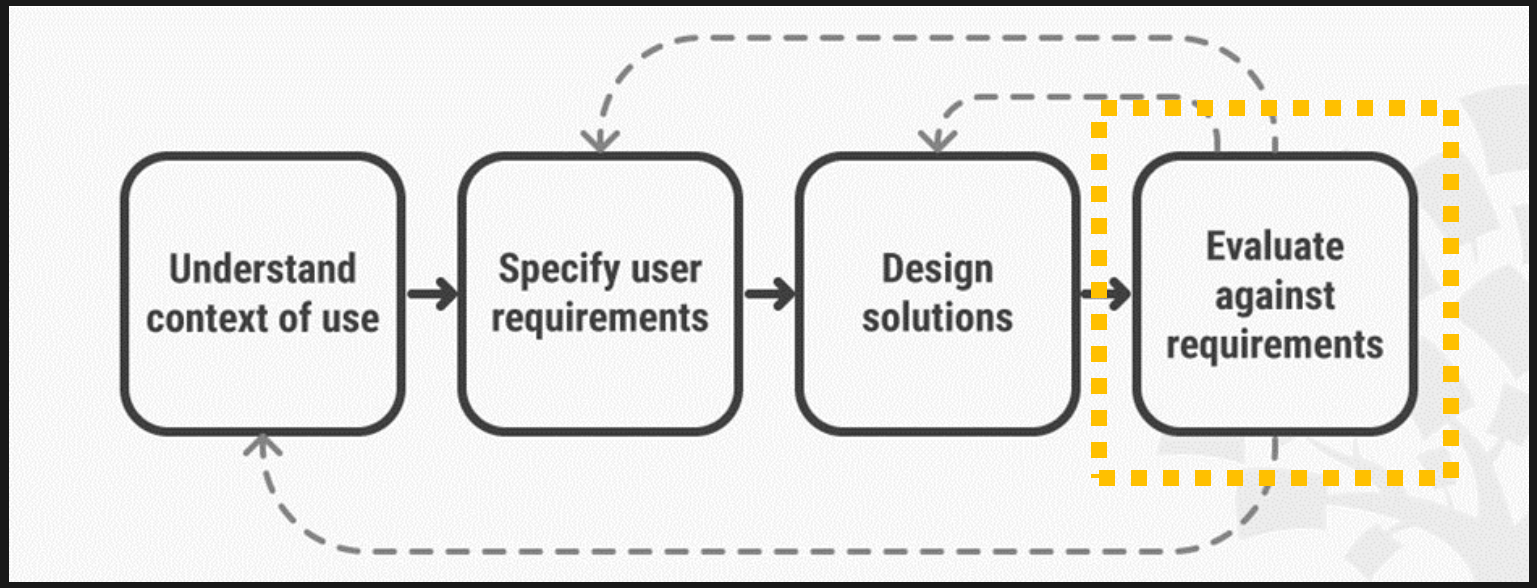


Interaction Design Foundation (https://www.interaction-design.org/literature/topics/user-centered-design)

Assignment 2

- Take a look at the Piazza post about formulating Promise, Obstacles, Solutions, and Takeaways
- The Related Work together with assignments 1 & 2 inform your focus
- Some diagrams were too high level

Usability evaluation



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Qualitative user evaluation

We focus on discount usability

Simplified User Testing

&

Heuristic Evaluation

Nielsen. 1989. Usability engineering at a discount. In Proc. Intl. HCI conf. on Designing and using human-computer interfaces and knowledge based systems.

Simplified User Testing via Narrow-Down Prototyping

Pick one or more user goals (or sub-goals)

Recruit 3 to 5 participants

Ask them to use your design prototype to accomplish the goal and ask them to perform a think-aloud

If low-fidelity: have a team member be the “backend”; otherwise have functional high-fidelity prototype do its thing

Heuristic Evaluation

Uses heuristics to identify usability issues

Is an inspection method

Performed by usability experts

Usability Heuristics

#1 Visibility of system status
#2: Match between system and the real world
#3: User control and freedom
#4: Consistency and standards
#5: Error prevention
#6: Recognition rather than recall
#7: Flexibility and efficiency of use
#8: Aesthetic and minimalist design
#9: Help users recognize, diagnose, and recover from errors
#10: Help and documentation

https://www.nngroup.com/articles/ten-usability-heuristics/
https://www.youtube.com/playlist?list=PLJOFJ3Ok_idtb2YeifXIG1-TYoMBLoG6I

Heuristic Evaluation at High Level

- Performed by an expert
- Steps
  - Inspect UI thoroughly
  - Compare UI against heuristics
  - List usability problems
  - Explain & justify each problem, referencing heuristics

How to do Heuristic Evaluation

- Justify every problem with a heuristic
  - “Too many choices on the home page (Aesthetic & Minimalist Design)”
  - Don't just say “I don't like the colors”

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  - Once to get the feel of the system
  - Again to focus on particular interface elements

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- Go through the interface at least twice
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- Don't have to limit to the 10 Nielsen heuristics
  - But easy to compare against
  - Can use general principles (LES, etc.)

Formal Evaluation Process

1. Training
    1. Meeting for design team & evaluators
    2. Introduce application
    3. Explain user population, domain, scenarios

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Severity ratings

Contributing factors

- Frequency: how common?
- Impact: how hard to overcome?
- Persistence: how often to overcome?

Severity scale

1. Cosmetic: need not be fixed
2. Minor: needs fixing but low priority
3. Major: needs fixing and high priority
4. Catastrophic: imperative to fix

Writing good Heuristic evaluations

- Must communicate well to developers and managers
- Include positive comments as well as criticisms
  - “Good: Toolbar icons are simple, with good contrast and few colors (minimalist design)”
- Be tactful
  - Not: “the menu organization is a complete mess”
  - Better: “menus are not organized by function”
- Be specific
  - Not: “text is unreadable”
  - Better: “text is too small, and has poor contrast (black text on dark green background)”

Severity ratings

What to include

- Problem
- Heuristic
- Description
- Severity
- Recommendation (if any)
- Screenshot or picture (if helpful)

12 . Severe: **User may close window without saving data** (error prevention)

If the user has made changes without saving, and then closes the window using the Close button, rather than File ⟩⟩ Exit, no confirmation dialog appears.

Recommendation: show a confirmation dialog or save automatically

- 

Heuristic Evaluation is not user testing

- Evaluator is not the user either
  - Maybe closer to being a typical user than you are, though
- Analogy: code inspection vs. testing
- HE finds problems that UT often misses
  - Inconsistent fonts
  - Fitts's Law problems
- But UT is the gold standard for usability

Evaluating prototypes

- Heuristic evaluation works on:
  - Sketches
  - Paper prototypes
  - Buggy implementations
- "Missing-element" problems are harder to find on sketches
  - Because you're not actually using the interface, you aren't blocked by feature's absence
  - Look harder for them

Hints for better Heuristic Evaluation

- Use multiple evaluators
  - Different evaluators find different problems
  - The more the better, but diminishing returns
  - Nielsen recommends 3-5 evaluators

Nielsen, Jakob. "Finding usability problems through heuristic evaluation." In *Proceedings of the SIGCHI conference on Human factors in computing systems*, pp. 373-380. 1992.

Hints for better Heuristic Evaluation

- Use multiple evaluators
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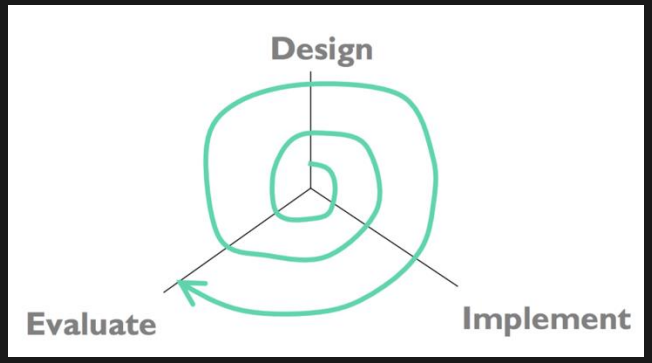
  - Nielsen recommends 3-5 evaluators
- Alternate heuristic evaluation with user testing
  - Each method finds different problems
  - Heuristic evaluation is cheaper



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  - Each method finds different problems
  - Heuristic evaluation is cheaper
- It's OK for observer to help evaluator
  - As long as the problem has already been noted
  - This wouldn't be OK in a user test

Please answer this question in Canvas

What is heuristic evaluation good for? Select all that apply.

- ❑ Evaluating low-fidelity prototypes.
- ❑ Evaluating high-fidelity prototypes.
- ❑ Evaluating qualitative requirements.
- ❑ Evaluating quantitative requirements.
- ❑ Evaluating usability requirements.

You have 120 seconds…

DONE!

Please answer this question in Canvas

What are the main differences between simplified user testing and heuristic evaluation? Select all that apply.

- ❑ Heuristic evaluation is performed with a larger number of participants than simplified user testing.
- ❑ Heuristic evaluation results are always more reliable than those from simplified user testing since it follows a structured process.
- ❑ Heuristic evaluation often uncovers deeper usability insights since it involves direct interaction with users.
- ❑ Simplified user testing captures real user behaviors and issues, whereas heuristic evaluation identifies potential usability issues based on predefined heuristics.

You have 120 seconds…

DONE!

Let’s practice heuristic evaluation

2. Evaluation
    1. Evaluators work separately
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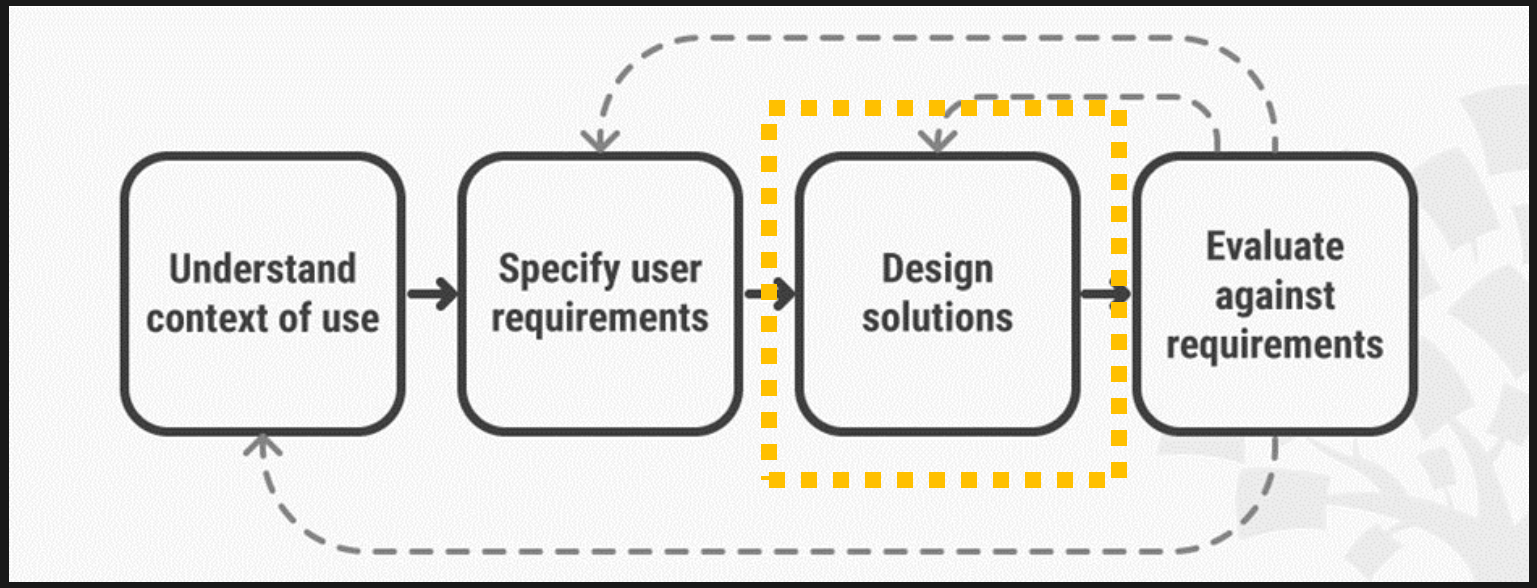
https://www.art.yale.edu/

Assignment 3



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Personas

Emma: The Emerging Professional Adult

Emma sees herself as "cool, connected, creative, hip, up on fashion, health conscious, having depth and opinions." Emma knows who she is and is trying to stay authentic to herself as she moves into the professional world. Emma also realizes that part of becoming an adult is moving toward buying things of quality, rather just what's cheapest.

"The coolest people I know don't need to flaunt anything."

Emma is actively engaged in deliberately creating a public image of herself, so she carefully considers the devices she uses. She says, "It's not just if you have an iPod or any one thing. It's the whole package." Emma is struggling with how to maintain her unique identity while adjusting to the new corporate world she's part of now.

The phone Emma uses perfectly embodies this struggle. She carries a Blackberry, which they gave her at work. But the two-tone color is too industrial and the overall image is too corporate. Emma covered the phone with a black neoprene case to try to reconcile its appearance with her image. But a case only goes so far. Emma would strongly prefer using an iPhone, its appearance and streamlined interface better reflects her image. The functionality of the iPhone feels immediate – "boop, I've done it" – whereas with the Blackberry she feels like she's tediously "loading and pressing," even when using the same "cool" app, like Facebook. The Blackberry's clunky interaction doesn't represent Emma.

Nonetheless, there are certain gadgets that Emma loves, though they don't fit her public image, so she uses them in private. For example, her Bluetooth headset gives her freedom to move around her apartment, where the cell phone reception is spotty. To Emma, the headset is "super cool and cute." But Emma would never be caught using the headset out of her home. She says, "People who use a Bluetooth are trying to project an image of importance that ends up working against them."

Part of being an adult to Emma is making careful, higher quality purchases. Her proudest "adult" purchase was a 42" flat-screen TV. She did research beforehand to make sure she was getting a good deal and a good product. This careful consideration before purchasing has changed the way Emma now purchases almost everything. For example, rather than buying "cheap, junky" clothes, she researches and gets a good price on good clothes. Emma says, "My new TV is the electronic version of a cute new outfit."

Cool Characterization
- Sleek design
- Immediate interaction
- Things that portray self image

Life Tasks
- Work, commute to work
- Keep up with current events
- Stay in touch/socialize

Devices/Technology
- Blackberry
- Flat-screen TV
- Digital camera
- iPod
- Bluetooth headset
- Windows laptop (not MacBook)
- Nice car when commuting

Demographics
- Female or male
- Mid-20's
- Single
- Rents in city or suburbs
- Middle class

When Emma was younger...

"I'm proud of the responsible and capable adult I am becoming."

Cool Characterization
- Good value for cost
- Helps provide feeling of safety and

Contextual Design *Evolved* (https://doi.org/10.2200/S00597ED1V01Y201409HCI024)

Assignment 3 (high level)

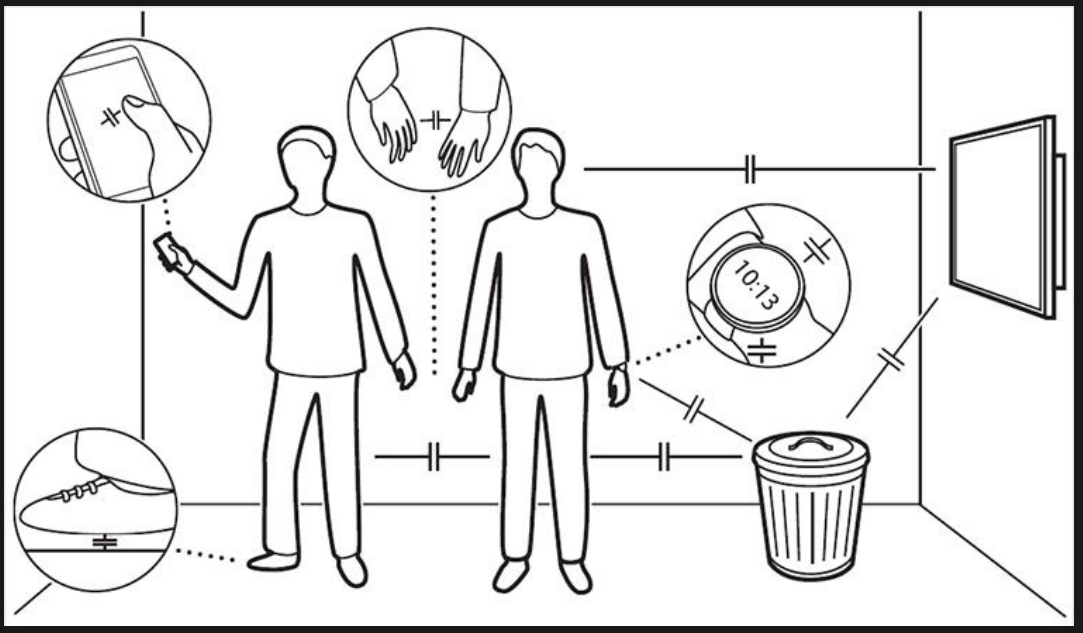
- Individual:
  - Create one persona
  - Helps guide your design and communicating the design to your team
- Group
  - Design critique of individual designs
    - Using the I like, I wish, What if framework
  - Create a final primary persona
  - Take the aspects that you like from each design and the suggestions and create your group design

https://public-media.interaction-design.org/pdf/I-Like-I-Wish-What-If.pdf

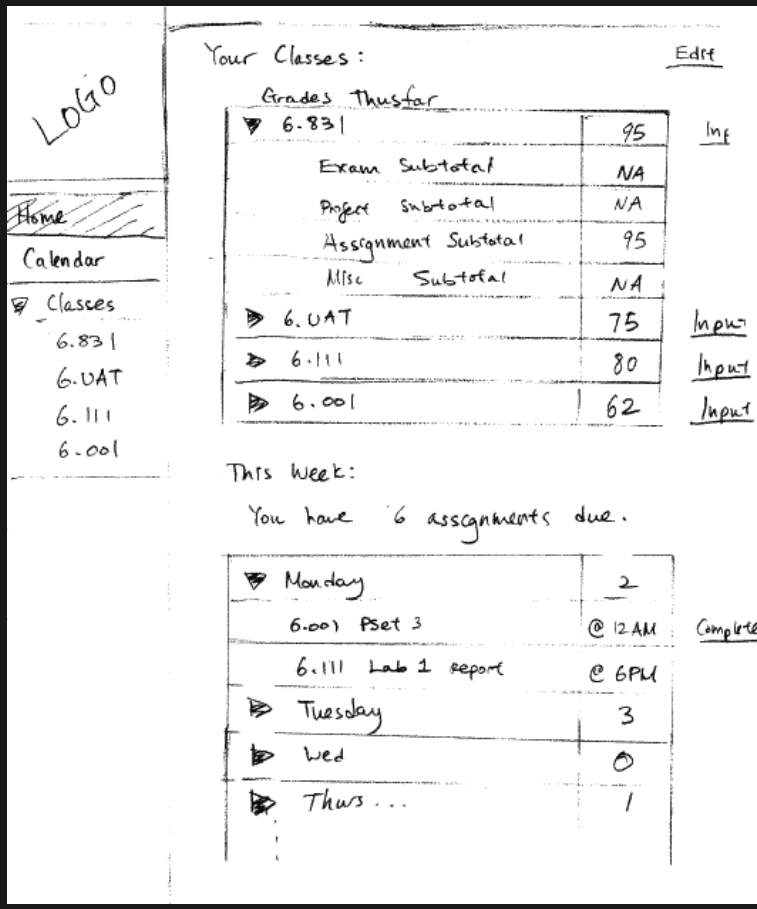
Some notes about Assignment 3 (individual & group)

- Create a persona
- Start prototyping (at the lowest fidelity level):
  - Sketches and storyboard
  - Communicate the usefulness of our design
- Storyboards capture what motivates the persona to interact with the deign, their goals, the environment, their interactions, etc.
- Tell us the rationale behind your designs

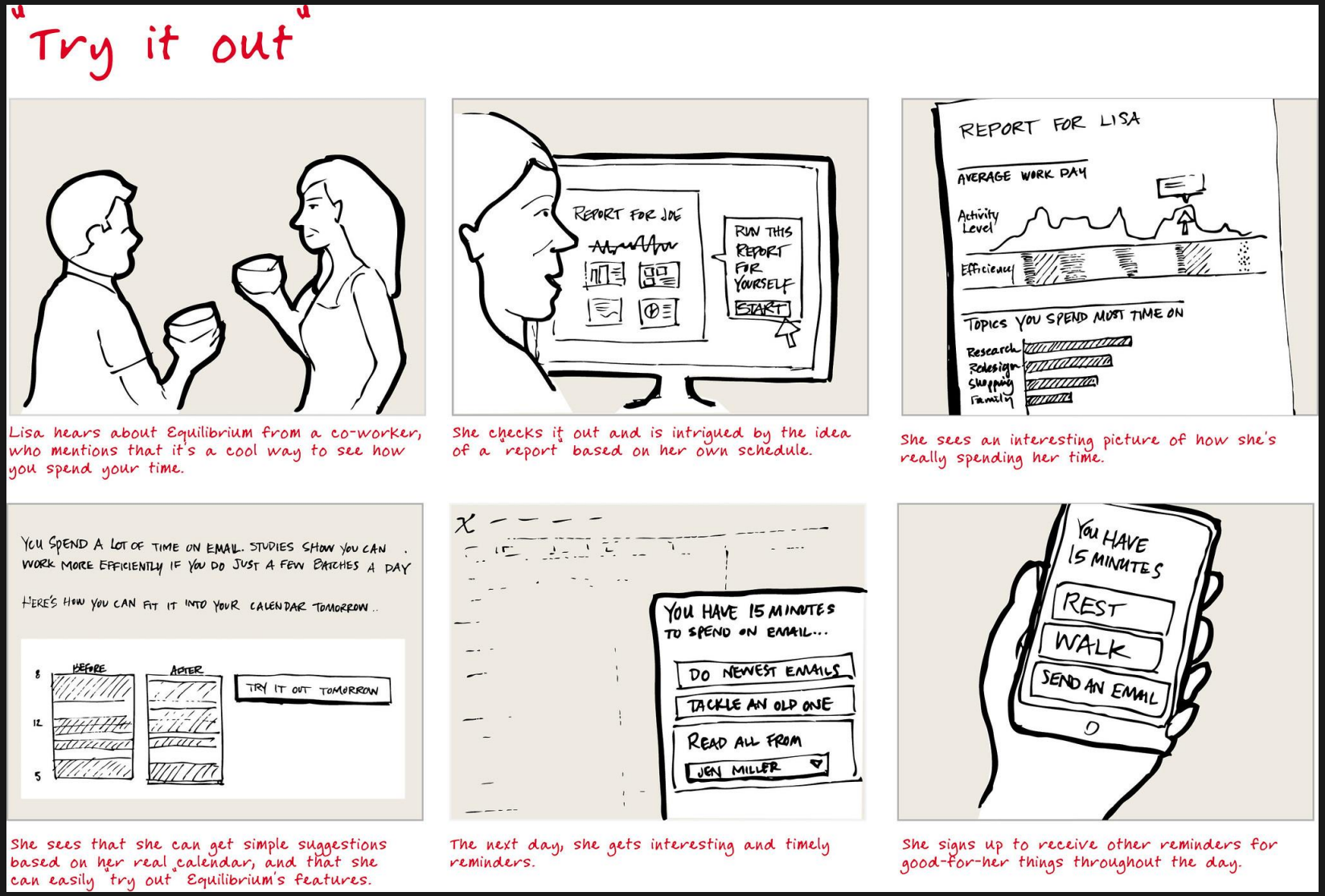
Low-fidelity prototypes: sketches



Grosse-Puppendahl et al., Finding common ground. CHI 2017.



Low-fidelity prototypes: storyboards

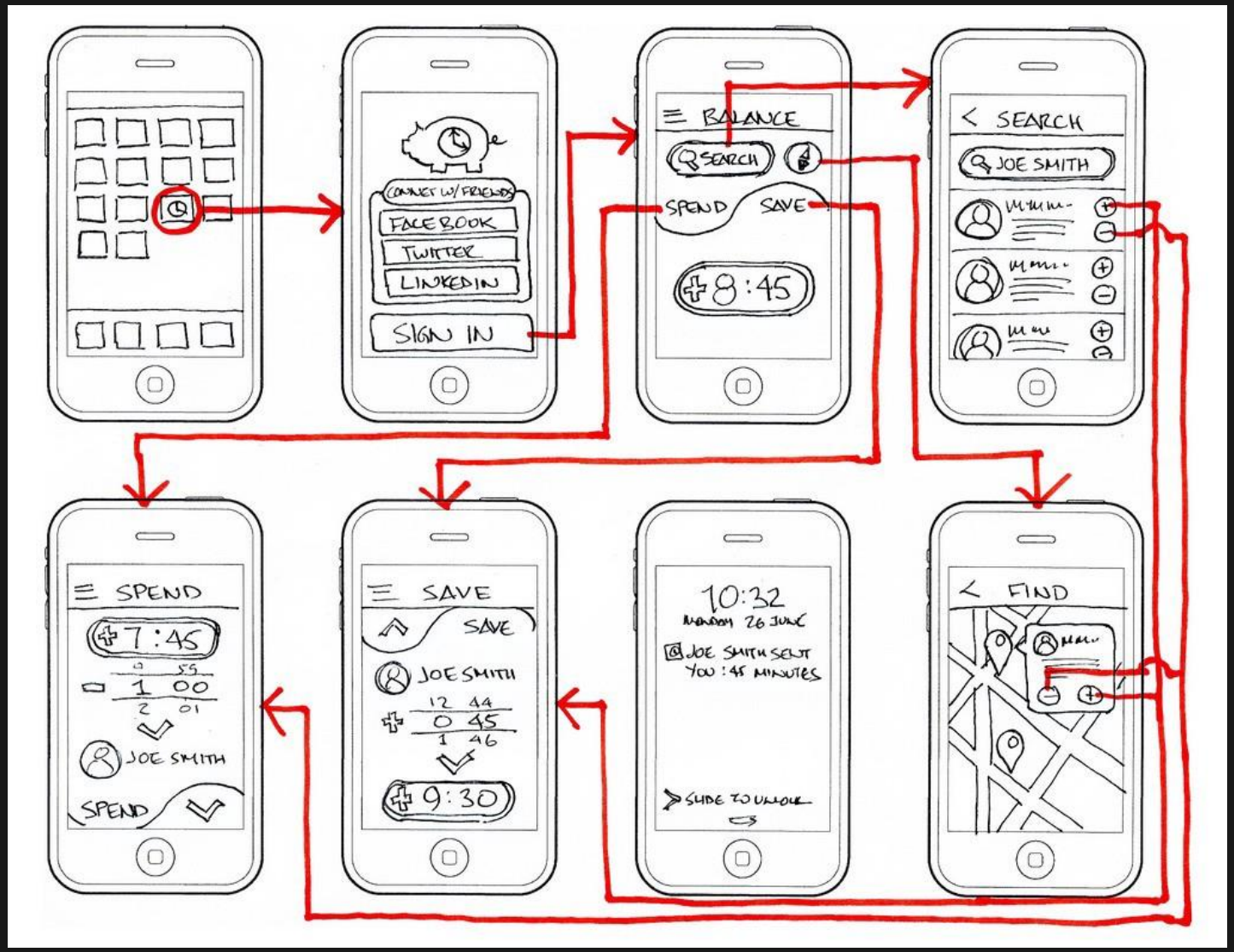


Buley. 2013. The User Experience Team of One. rosenfeldmedia.com/books/ux-team-of-one/

Some notes about Assignment 3 (group)

- In addition to sketch(es) and storyboard(s), you will create a paper prototype
- You will explain how you plan to wizard of Oz the prototype (via photos, videos, and/or a sitemap)

Low-fidelity prototypes: paper prototyping



Ergomania UX. 2019

Low-fidelity prototypes: paper prototyping

Image source: http://www.davidfenigstein.com/

Questions, comments, and/or concerns?

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