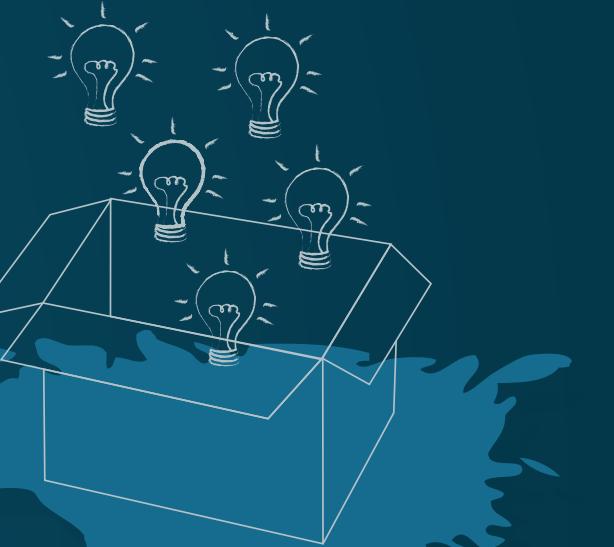


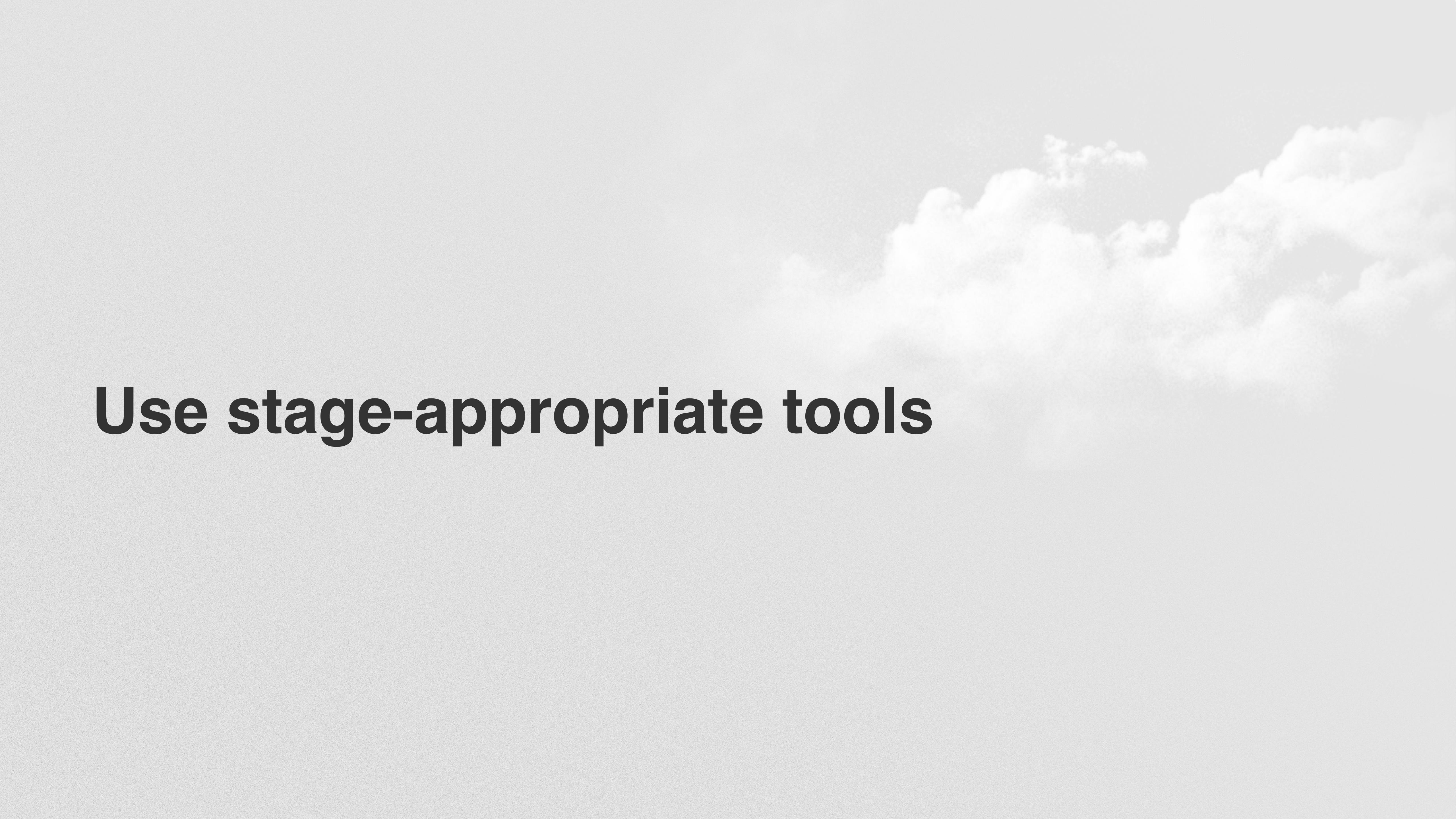
HUMAN-CENTERED DESIGN

Storyboards, Paper Prototypes, and Mockups

Scott Klemmer

UC San Diego
The Design Lab





Use stage-appropriate tools

Prototyping techniques

- Storyboarding
- Creating paper prototypes
- Testing paper prototypes
- Creating digital mock-ups

Storyboarding isn't about “pretty pictures”

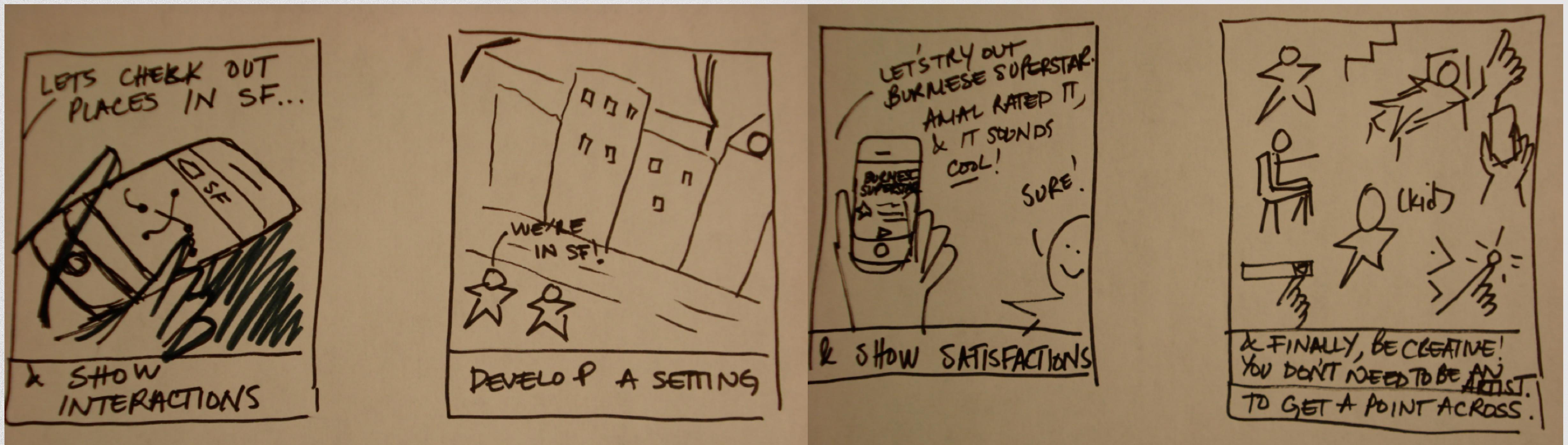


Image courtesy Amal Dar Aziz, Guide to Storyboarding, <http://d.ucsd.edu/story>

Storyboards should convey - setting

- People involved
- Environment
- Task being accomplished



Image courtesy Amal Dar Aziz, Guide to Storyboarding,
<http://d.ucsd.edu/story>

Storyboards should convey - sequence

- What steps are involved?
- What leads someone to use the app?
- What task is being illustrated?



Image courtesy Amal Dar Aziz, Guide to Storyboarding,
<http://d.ucsd.edu/story>

Storyboard should convey - satisfaction

- What motivates people to use this system?
- What does it enable people to accomplish?
- What need does the system fill?

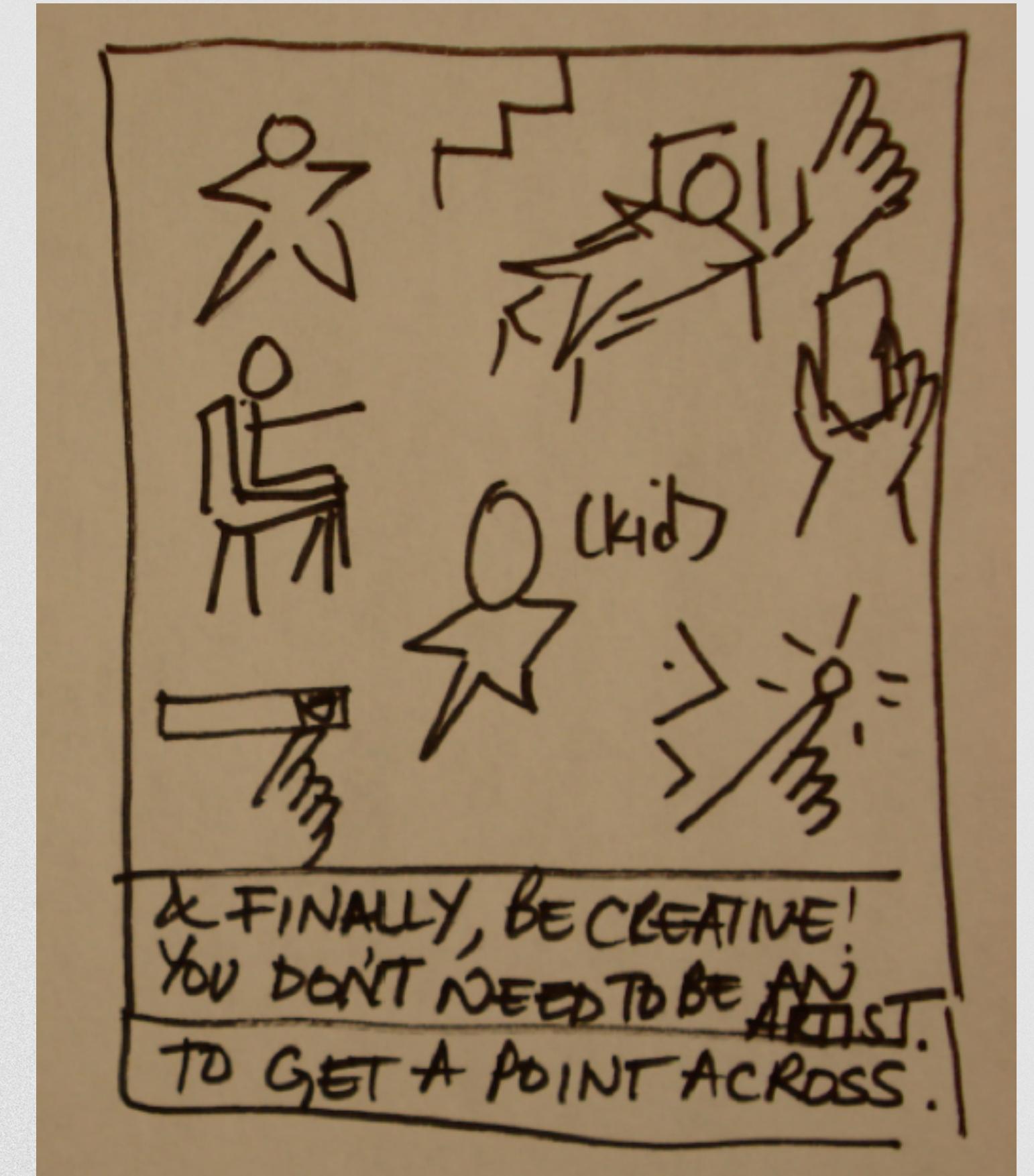
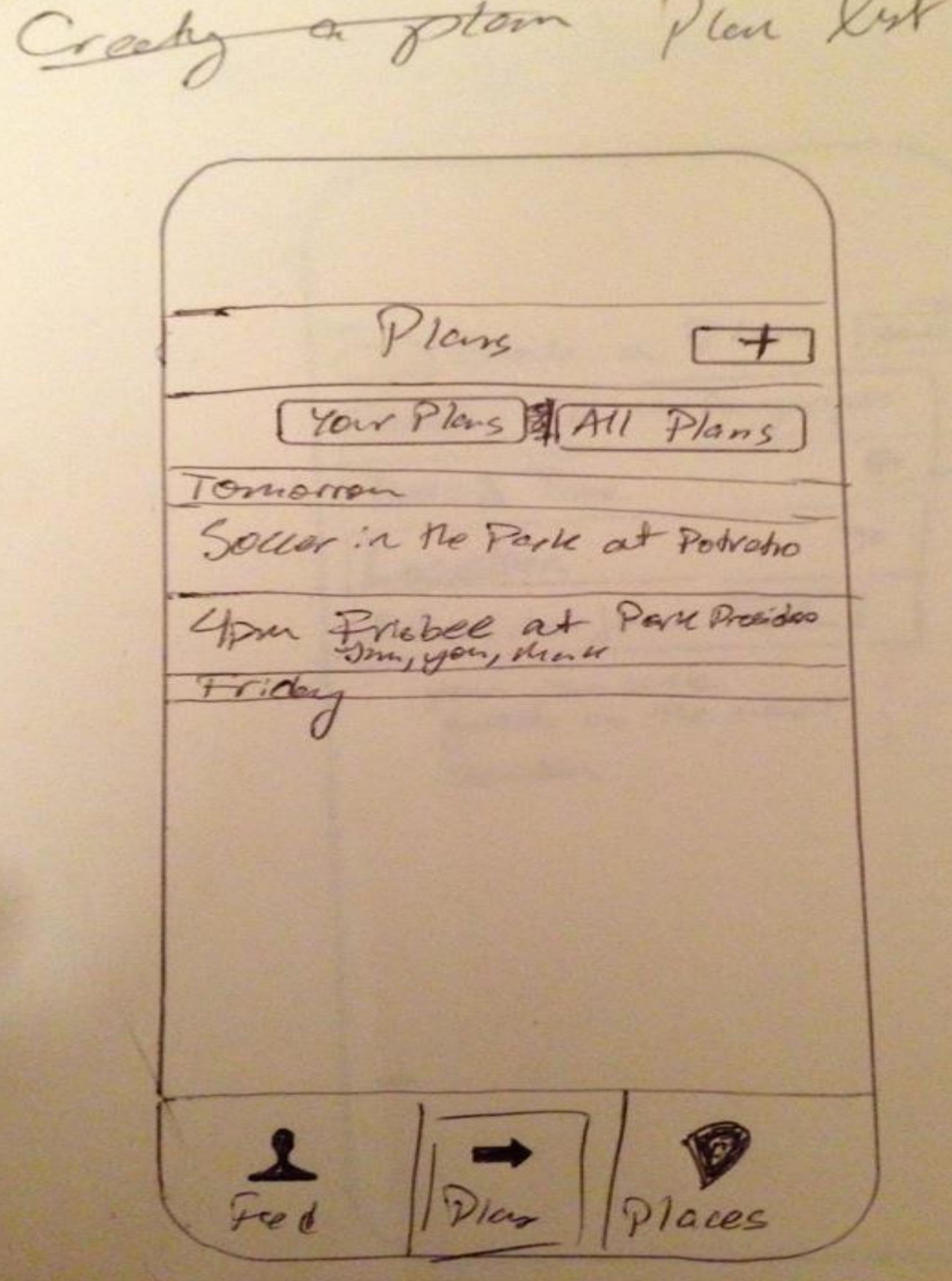
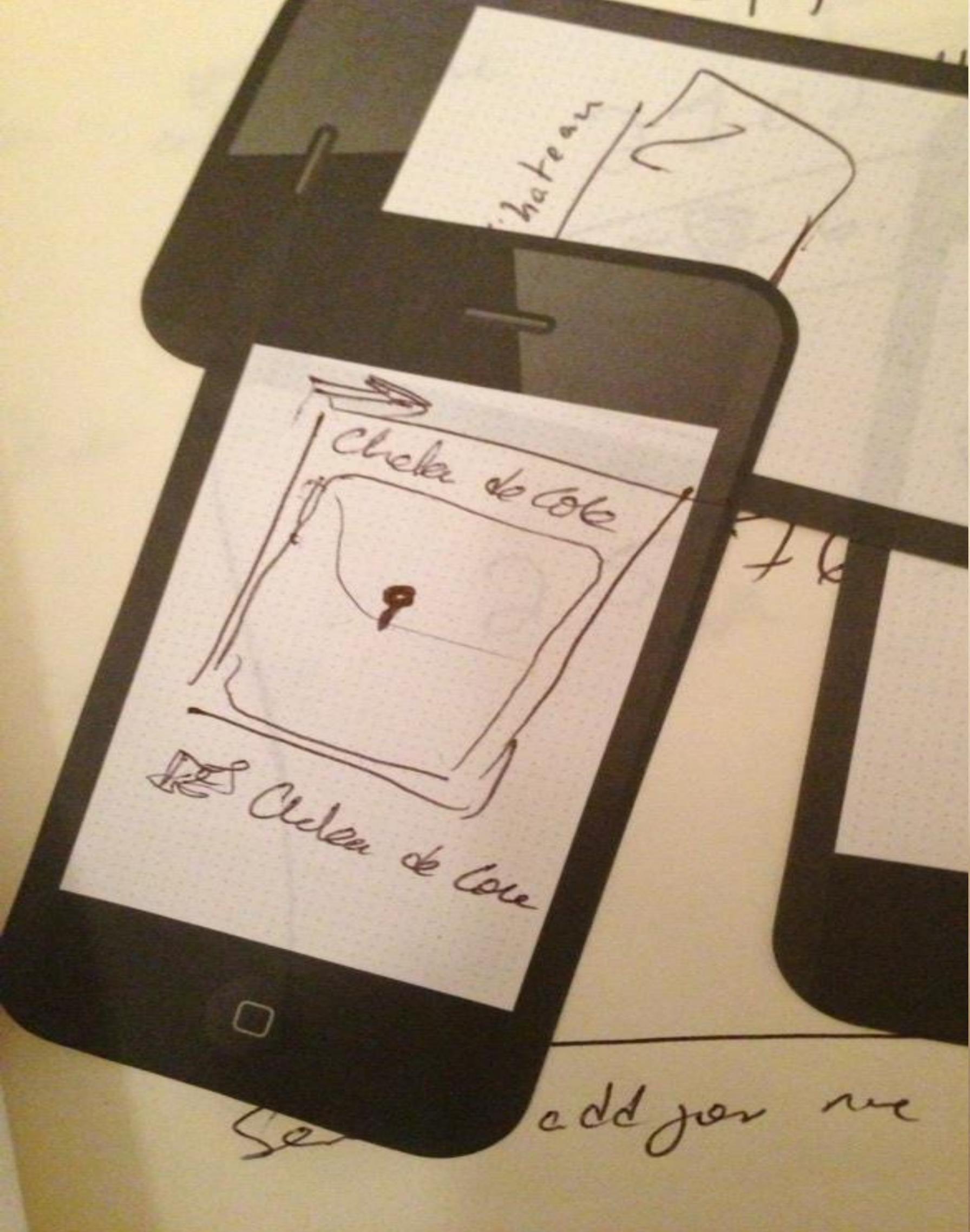


Image courtesy Amal Dar Aziz, Guide to Storyboarding,
<http://d.ucsd.edu/story>

Benefits of storyboarding

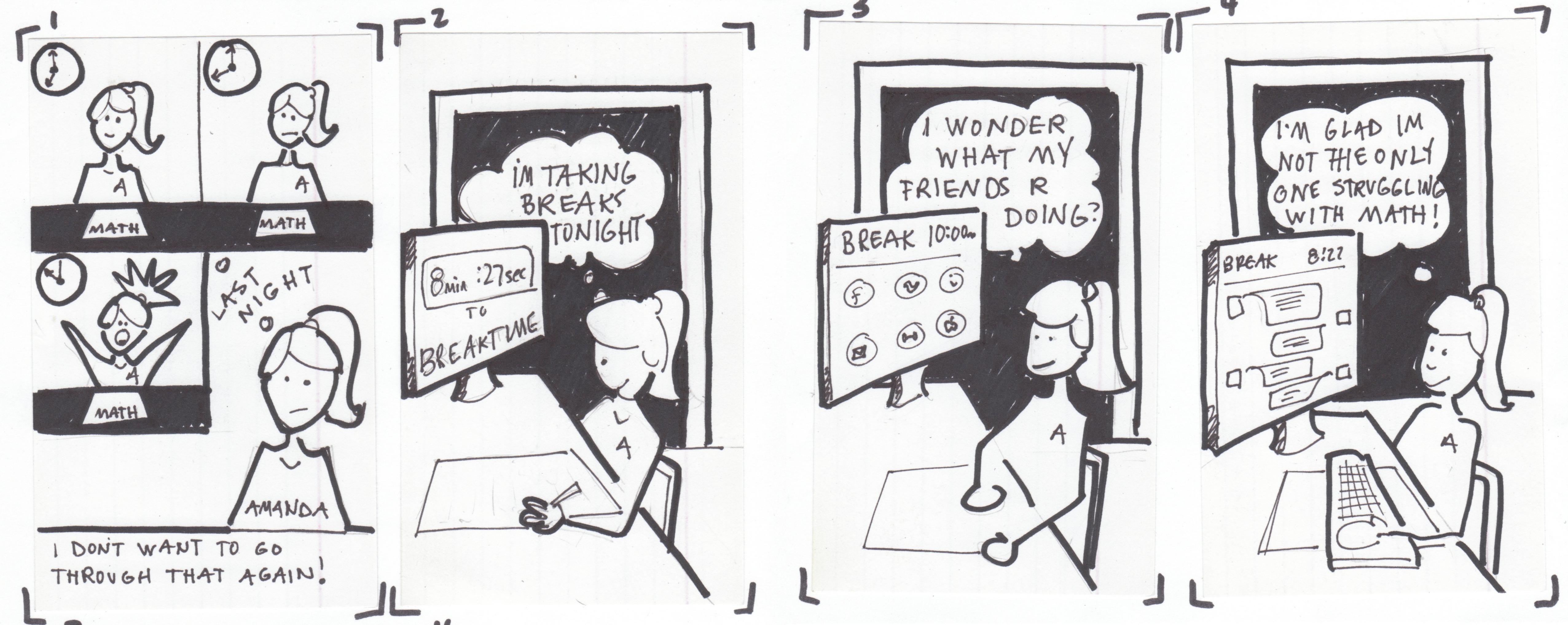
- Holistic focus emphasizes how interface accomplishes a task
- Avoids commitment to a particular user interface; no buttons yet
- Helps get all the stakeholders on the same page in term of goals

Time Limits Help



Early Instagram sketches

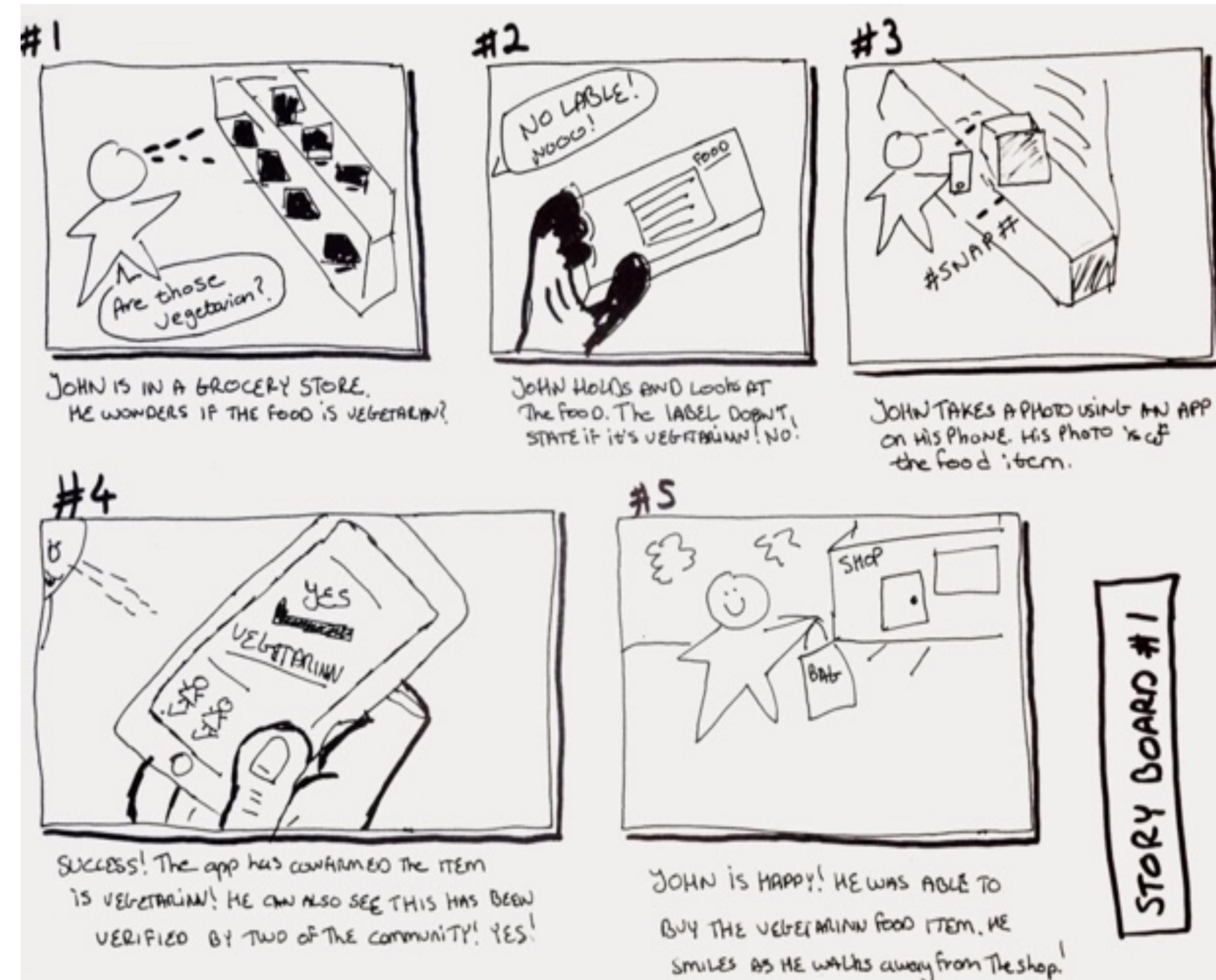
Courtesy of Mike Krieger



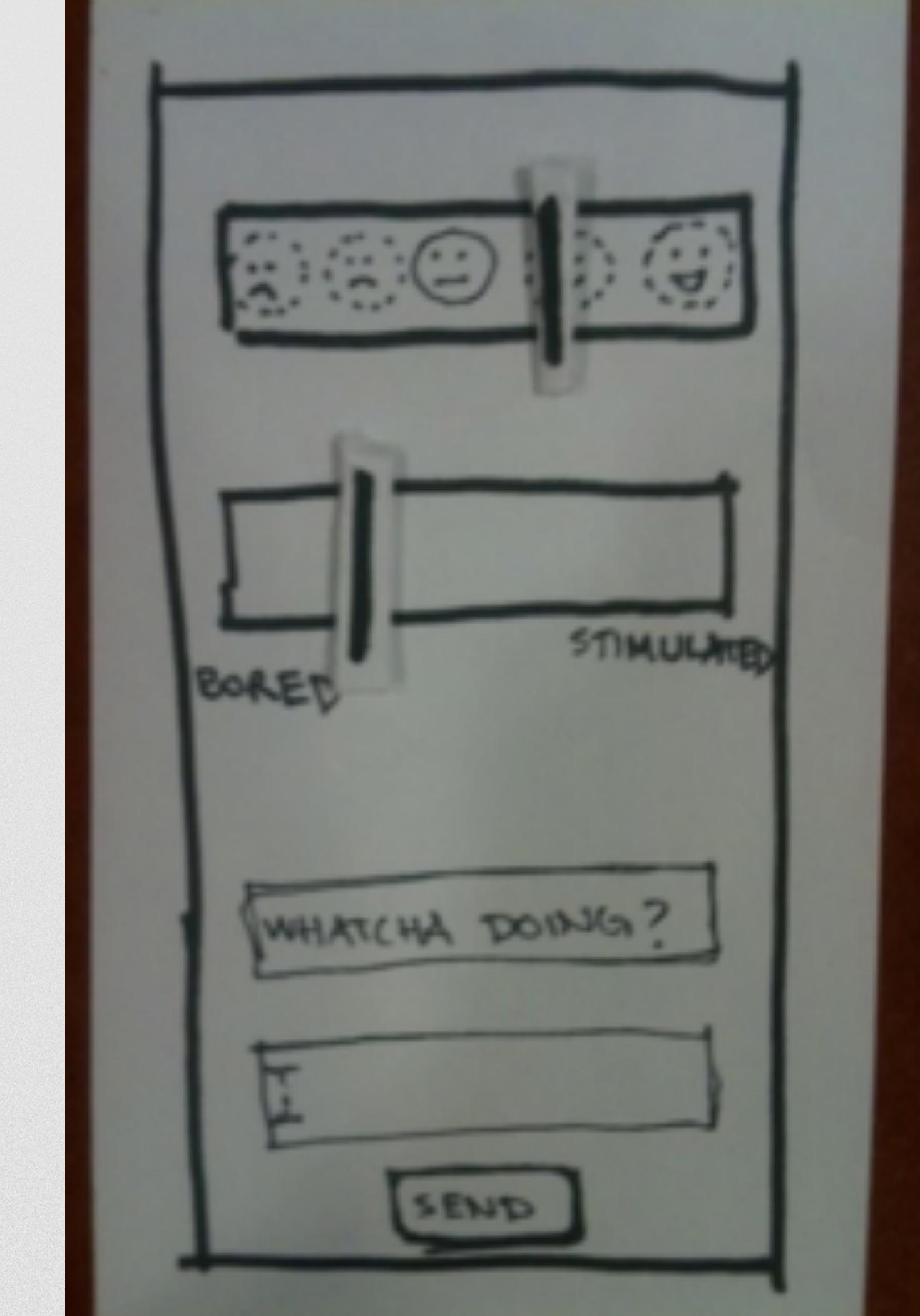
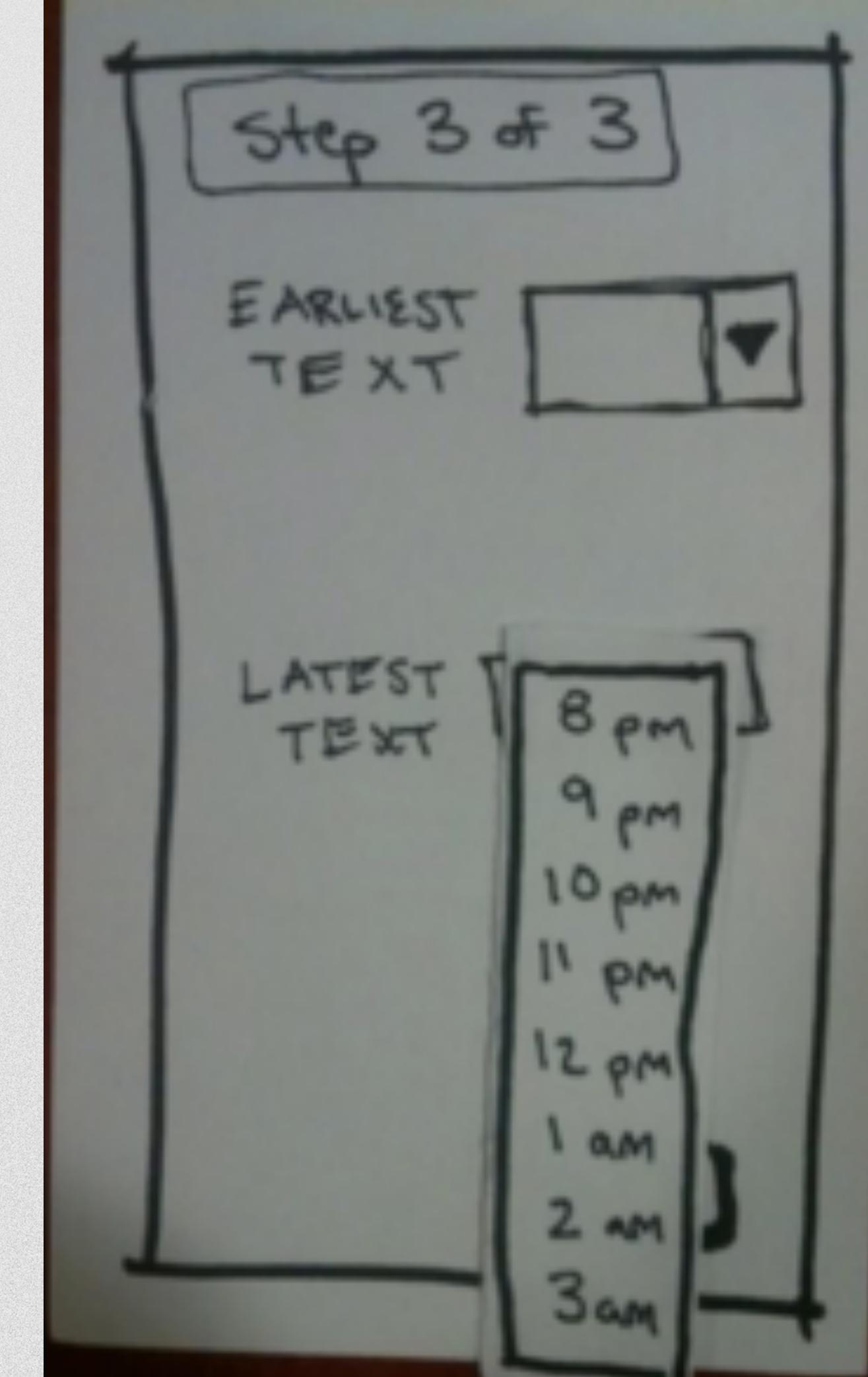
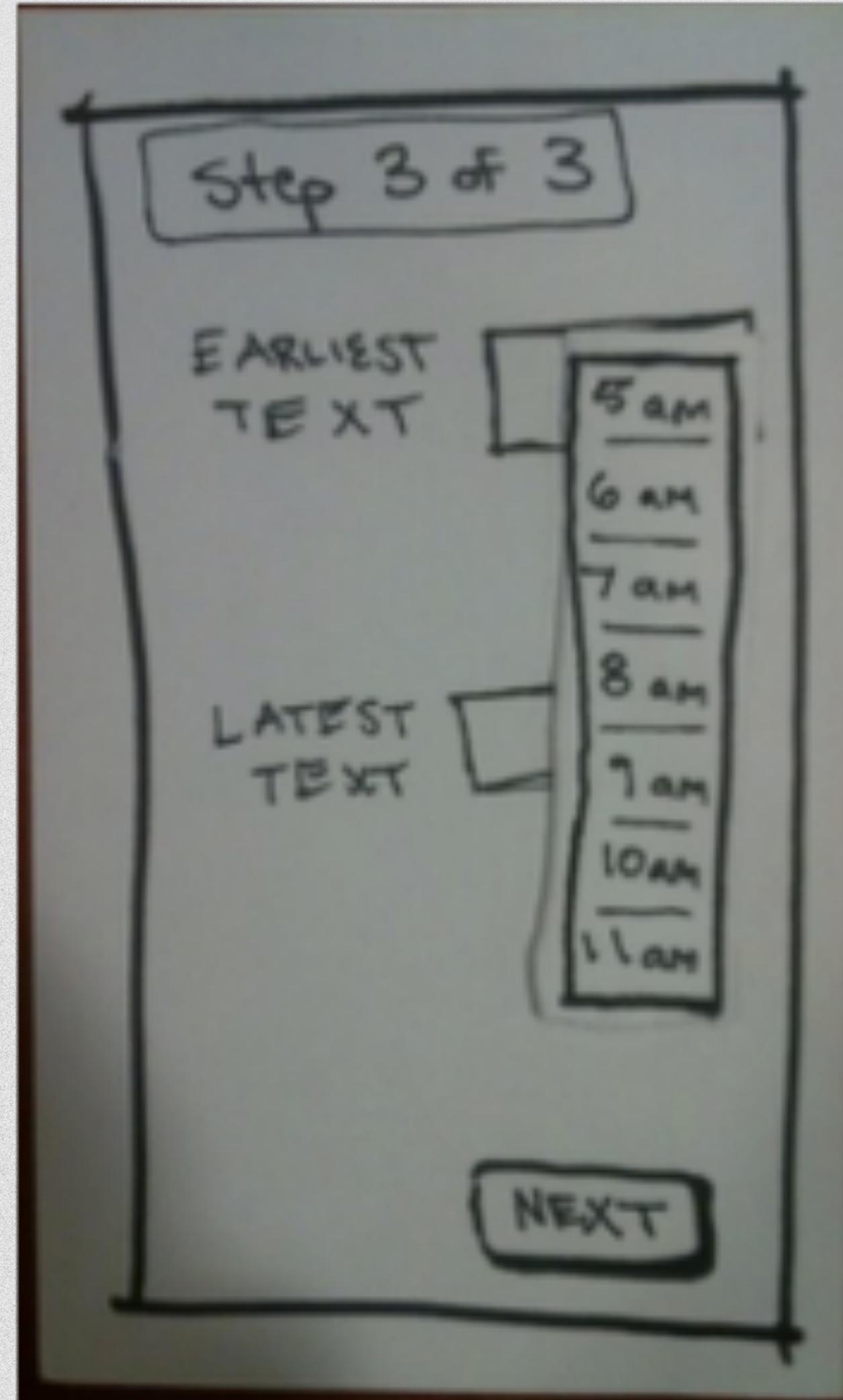
Storyboarding

Courtesy of Morgan Shortle from HCI4

Storyboarding



Courtesy of Patrick Mooney



Courtesy of Lyfalyze team: Greg Grenier, Luke Knepper, Alexandra Liptsey-Rahe, Vivian Shen

6 paper prototyping tips and tricks

- Work quickly and make reusable components
- Keep all your materials together; widgets can get lost and damaged
- Difficult to simulate? Need it on the fly? (progress bars, interactive transformations...) Draw it or describe it
- Backgrounds can contain prototypes and provide context for user
- Mix and match – paper and pixels, hardware and software, ...
- Add context by including familiar operating system elements

Get creative with materials

- Widgets: paper, cardboard, transparencies
- Connectors: tape, glue, rubber cement
- Drawing: pens, pencils, markers

More materials...

- Poster board, unlined index cards, and foam core
- Removable tape or restickable glue for changing components quickly
- Transparency pens allow the user to input content - use a sheet of transparency paper for the input field
- Wide-tipped pens and markers (think Sharpie) - smaller line widths can be difficult to see
- Use stacks of index cards to simulate tabbed dialog boxes

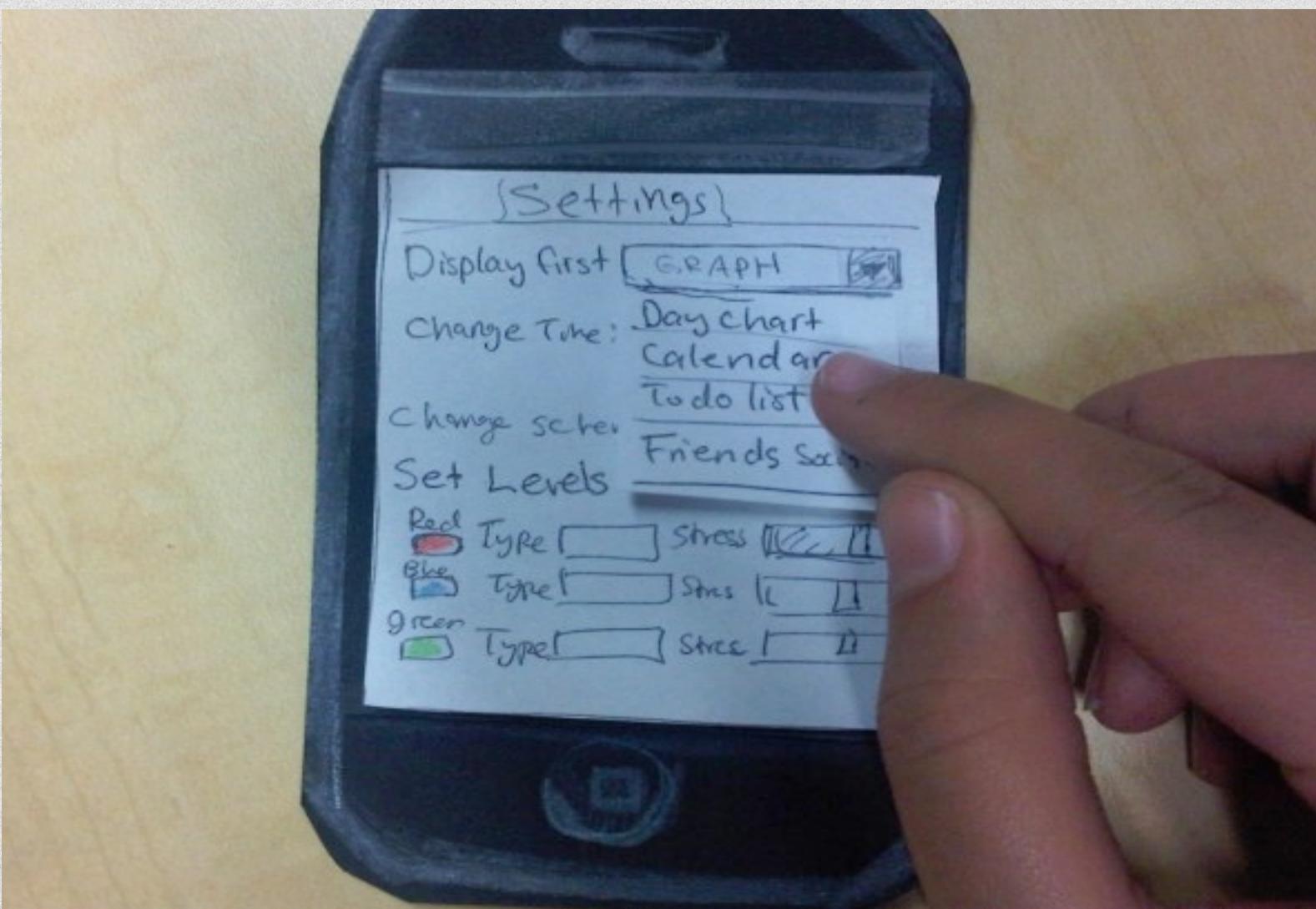
Try prototypes with people

- Bring mock-ups
- Test multiple options
- Emphasis on conversation



Courtesy of Lifalyze team: Greg Grenier, Luke Knepper, Alexandra Liptsey-Rahe, Vivian Shen

Test multiple prototypes simultaneously to get most value



Courtesy of Lifalyze team: Greg Grenier, Luke Knepper, Alexandra Liptsey-Rahe, Vivian Shen



**Get users and other stakeholders
to help design**

Timeline

CRISIS

10:18 AM

Treatable Causes: Asystole

Hypovolemia	Toxins (overdose)
Hypoxia	Tamponade - cardiac
Hydrogen ions - acidosis	Tension pneumothorax
Hyper/Hypokalemia	Thrombosis coronary
Hypo/Hyperthermia	Thrombosis pulmonary
Hypoglycemia/calcemia	

Team: WHO'S PRESENT

Larry Anesthesiologist
Kyle Surgeon
Chelsea Nurse

Patient: C. JONES, 47, 76 kg

Procedure: Knee surgery
Allergies: Latex
History: Hypotension
Past surgeries: Hip replacement

Event Record

- 10:17 Begin CPR
- 10:16 HR ↓ 54 bpm
- 10:15 BP ↓ 130/60
- 10:14 50 mg benadryl
- 10:13 100 mg neo
- 10:12 BP ↓ 120/80

PAST

Cognitive Aids: Asystole

Resources

- Request Backup
- Call for Services
- Cognitive Aids
- Detailed Patient Info
- Drug Inventory

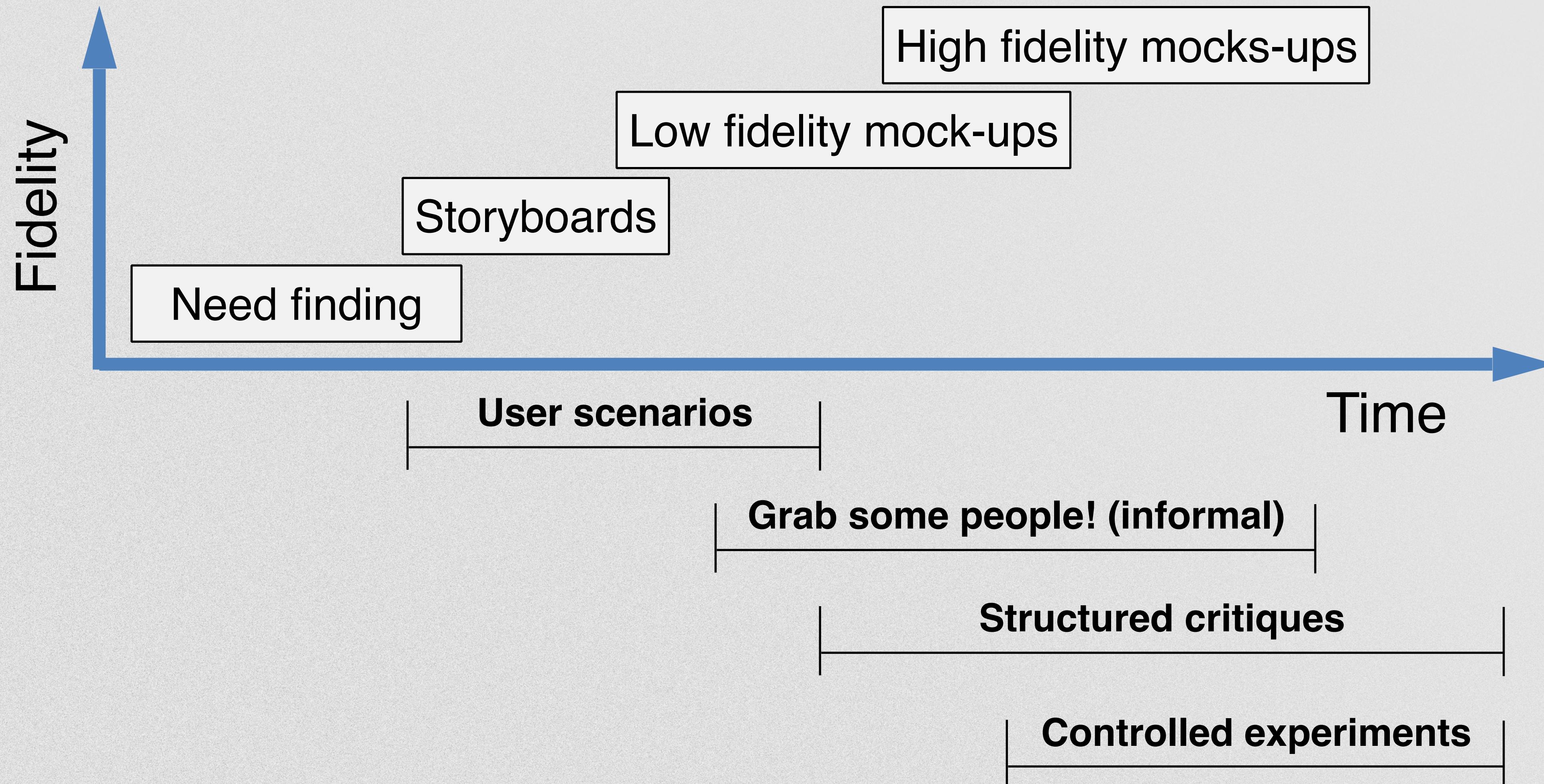
HR: 1 min ago VTACH

BP: 3 min ago 120/80 ↓

HR: 138 ↑

Digital mock-ups

Form and feedback co-evolve





This video is courtesy of Scott Klemmer
Produced by: Events, Tours and Media Technology, Qualcomm Institute @ Calit2
University of California, San Diego
Directed by: SAP Labs LLC