

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 11:
Tasks in Testing

James Fogarty

Eunice Jun

David Wang

Elisabeth Chin

Ravi Karkar



Tuesday / Thursday

10:30 to 11:50

Today

Presentations on Thursday / Friday

7 groups will present on Thursday

entire 10:30 section (no 10:30 section Friday)

1 group from each other section

Have thoughtful questions for other groups

Be sure you prepare and rehearse

Team responsibility for the presentations

PPT(X) or PDF, embed fonts, happy to “check”

Paper Prototypes Due Monday, in Class Tuesday

In-Class Inspection Methods

Today

Examples / Tips / Critique for Presentations

In-Class Design Exercise

DisTrack

Refocus yourself

| | | |
|-------------------|---|-------------------------------|
| Graeme Britz | - | Project Manager |
| Max Suffel | - | Writer/User Researcher |
| Angela Suhardi | - | Writer/Designer |
| Jackie Chui | - | Writer/Designer |
| Bryan Djunaedi | - | Writer/Designer |

Title
Image
Value Proposition



The recurring subscription management tool that let's you finally take control of your recurring services and payments.

Jen Kang • Vivian Yu • Si Liu • Brendan Lee



The recurring subscription management tool that let's you finally take control of your recurring services and payments.

Jen Kang • Vivian Yu • Si Liu • Brendan Lee

Finding

- **Reimbursement is a burden...**
 - More people, more difficult
- **Compiling shopping list**
 - mental note, notepad, or phone
- **Brand and price conscious**

Task

Typography
Consistency

- 1. Making list & budgeting**
- 2. Choosing a store & transportation**
- 3. Shopping**
- 4. Purchasing**
- 5. Storing groceries**
- 6. Managing \$\$\$ & requesting reimbursement**

Summary

Widows
Orphans
Process vs. Results

- Iteration is key
- Understand how users think
- Better design ideas came from more out-of-the-box thinking
- Discretionary spending is easy but discretionary spending tracking is hard
- Users crave positive motivation

Things to Do (Tasks)

1. Ability to record running statistics such as distance run, speed, number of runs, etc.
2. Share statistics with friends
3. Create running events and invite friends
4. Send mass notifications to friends for a spontaneous run
5. Find a SmartMatch (based on various criteria) to run with
6. Write and search for reviews on the route/experience

Overall Problem: Joint Pain & Activity

- **Target Audience: Athletes**
 - Health conscious
 - Disciplined
- **Problem: Overexertion and aggravation of injury among athletes**

Running with Friends

Erica Putsche, Heidi So, Luke
Chang, Linsen Wu

Contextual Inquiry - Insights

Johnson (20, undergraduate, CSE 006 Lab)

- Perception ≠ Observation
- Distracted by people talking and noise
- More focused at CSE Labs than at home

Steve (25, graduate, Mercer Court)

- Motivated by seeing people working
- Distracted by people and social media
- Takes breaks often

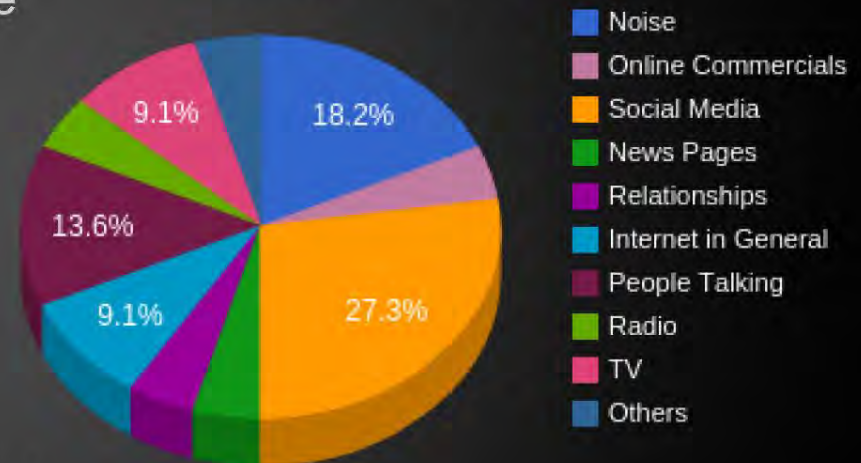
George (25, graduate, Odegaard Library)

- Turns notifications off while studying

Group (4 undergraduates, Yunnie Bubble Tea)

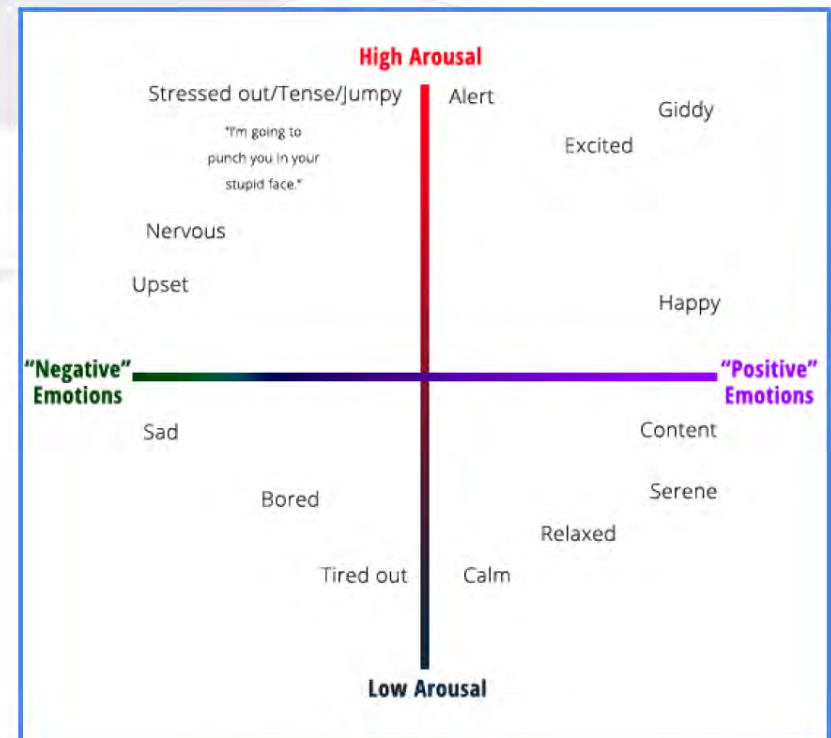
- Distracted by each other and apps
- Use headphones (music) to focus

Distraction Sources



Our three inquiries showed us:

1. People valued the insights acquired from a mood journal.
2. People thought journaling was a hassle.
3. People were interested in what triggers their mood
4. People want to share information with a mental health professional



Design 1: Running separately

May add some motivation but does not provide the full experience of running with a companion

Design 2: Coordinating running events in advance

Tasks can be accomplished using Facebook events or other similar tools

Design 3: Spontaneous Running

Tasks are unique and they also address the concerns raised in our contextual inquiries. Our chosen design also provides us with an interesting opportunity to explore personal informatics

Summary

Too Much Text
“Process” Points Distract

- Iteration is key
- Understand how users think
- Better design ideas came from more out-of-the-box thinking
- Discretionary spending is easy but discretionary spending tracking is hard
- Users crave positive motivation

Having Too Much Text

If you can read it

you probably will

we probably will

Be conversational, engaged

even when not talking

Notes are fine

but do not read them

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor

Consider
lorem ipsum
placeholders

Parent Contextual Inquiry

Participants:

- Two parents whose children formerly had IEPs
- One parent with two children that currently have IEPs
- One guardian of a student with an IEP

The Process:

- “The lingo and paperwork are confusing, they come with 17 people and you are there by yourself.”

Communication:

- “right now I come in doing all the communications to get information”

Tracking



Overall Problem: Joint Pain & Activity

- **Target Audience: Athletes**
 - Health conscious
 - Disciplined
- **Problem: Overexertion and aggravation of injury among athletes**

Contextual Inquiry

- Dancers
 - Use of entire body
 - Diverse Injuries
- Observation
 - Warmup
 - Preventative Habits



Pictures
are Good

Contextual Inquiry

4 Locations

- Odegaard Library
- CSE Undergraduate Labs
- Mercer Court
- Yunnie Bubble Tea (Ave)



3+1 Approaches

- Observation + Interview (3x)
- Interview-only (2x)
- In-group Interview (1x4)
- + Online Survey (16x)



Contextual Inquiry

Pictures
are Good

- People do not want to be interrupted or distracted
- Most people do not have a liquid intake plan
- People often reach for soda, coffee, or other beverages when they feel thirsty



Pictures
are Good

NounProject



Contextual Inquiry

**Professional
(20-40s)**



Family



**Undergrad
Student**



In-Line References Versus Bibliography Slide

15% of Americans between the ages of 20 and 69 experience hearing loss that may have been caused by **noise at work or during leisure activities.**

Motivation of Participants



Very noisy work environment

Some control over exposure levels



Moderately noisy work environment

Lacks control of his noise exposure



Dartmouth student who is exposed to **noisy social environments** multiple days per week

Has control over exposure levels

Focus on the
Right Thing

Contextual Inquiries



Suzzallo Library



Husky Union Building



Paccar Hall

One person still uses food journaling consistently and has a positive experience.
One person stopped food journaling because she reached her goal and had a nutritionist.
The third person loves taking pictures of her food and just seeing what she's been eating.
Had them take us through their process during mealtime, motivations, difficult, benefits

Watch the
Selling

We can help

Tasks

- Record mood reflections
- Discover triggers and warning signs
- Discover wellness strategies
- Planning for health
- Quick mood check-ins
- Aid your health professional

Tasks

1

Engage a
work session.

2

Record digital and
non-digital behavior.

3

Prompt for
taking breaks.

4

Reflect on recorded
data relative to
time and location.

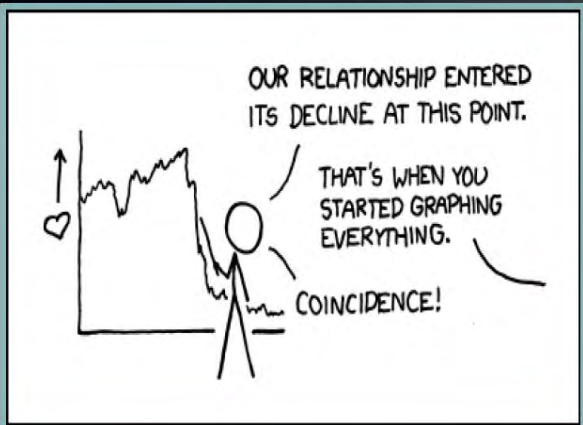
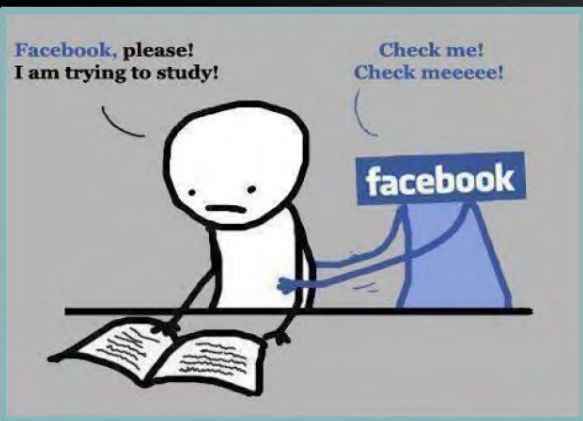
5

Find a productive
work place.

6

Find and implement
methods/strategies to
stay focused.

Tasks



Speaking of Distractions

Whether correct or not, many things distract

Plural possessive

a posteriori

Anything that might be sensitive

Original Tasks

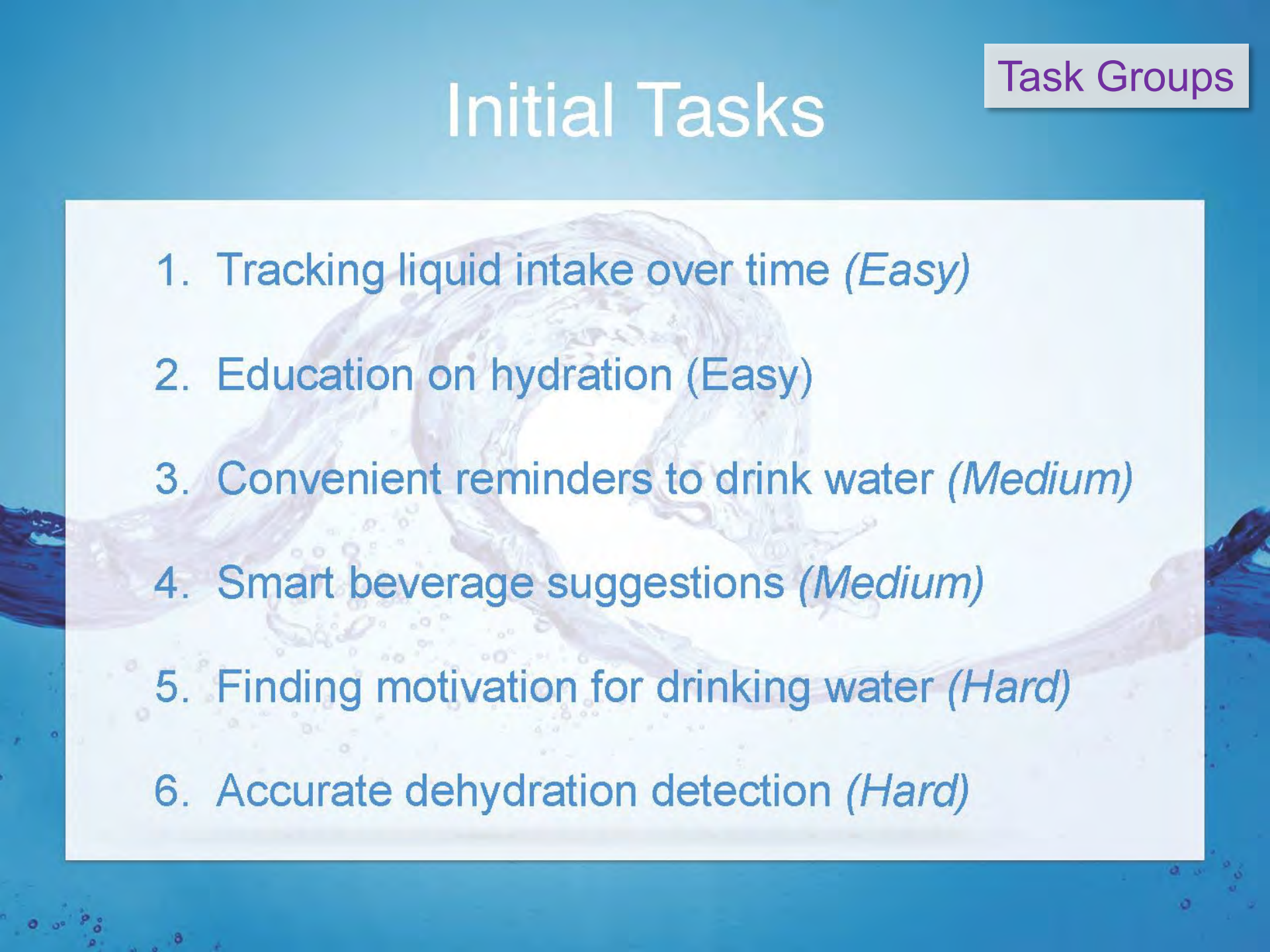
Current Tasks:

- Aggregate and collect all IEP information for continuity and stakeholder accessibility.
- Encourage communication between stakeholders.
- Connect with other parents who have children with similar disabilities.

New Tasks:

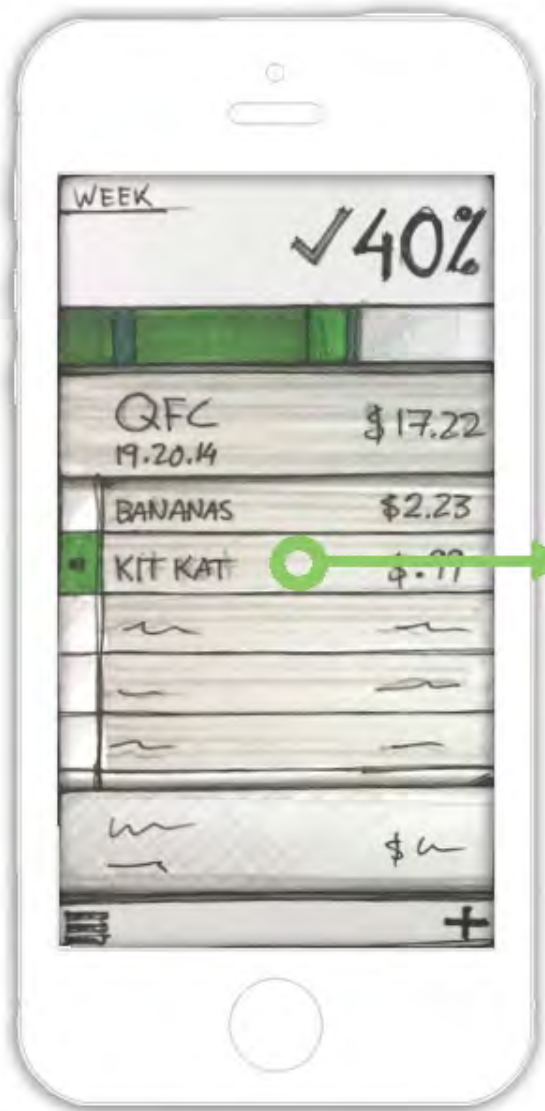
- Access mini lessons to support the developmental master of IEP tasks.
- Motivational rewards system to encourage students to be active in their IEP.
- IEP videos for parents to understand how to best advocate for their child.

Initial Tasks

1. Tracking liquid intake over time (*Easy*)
 2. Education on hydration (*Easy*)
 3. Convenient reminders to drink water (*Medium*)
 4. Smart beverage suggestions (*Medium*)
 5. Finding motivation for drinking water (*Hard*)
 6. Accurate dehydration detection (*Hard*)
- 
- A dynamic splash of water in shades of blue and white, with many small droplets and bubbles, serves as the background for the slide.

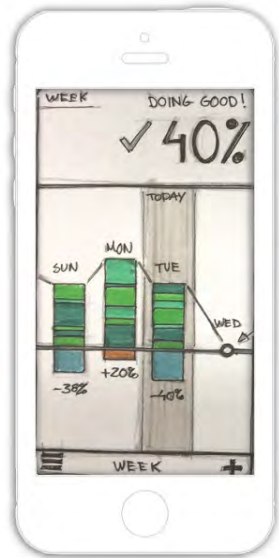


Adjust budget between different categories.



Designate spending as discretionary.

Verb as Task



Review spending **progress** compared to goals.



Account for **future** spending.



Prevent **unwanted** habitual spending.



Check if a potential purchase **fits the budget**.

Consistency
of Emphasis

Many people make **general**
budgeting goals.

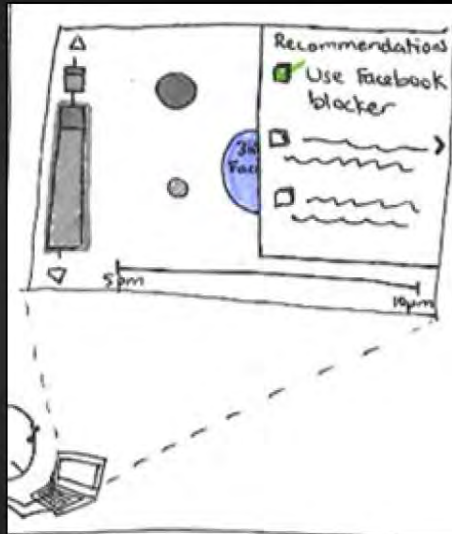
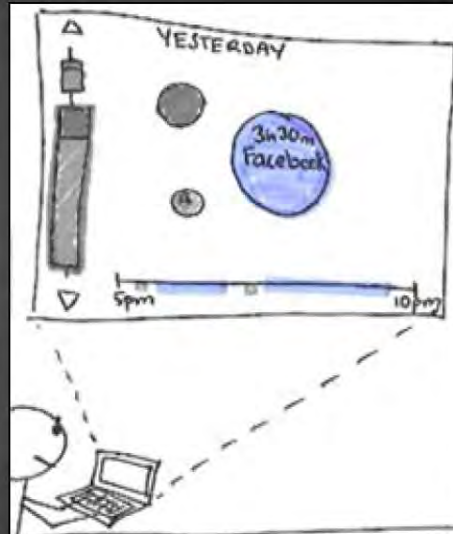
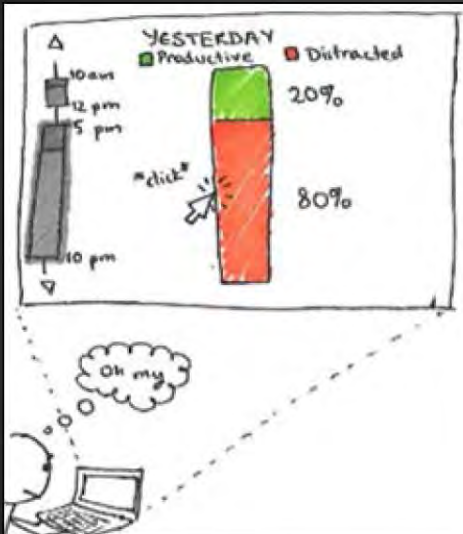
Large items are monitored.

Small items cumulative impact
not considered.

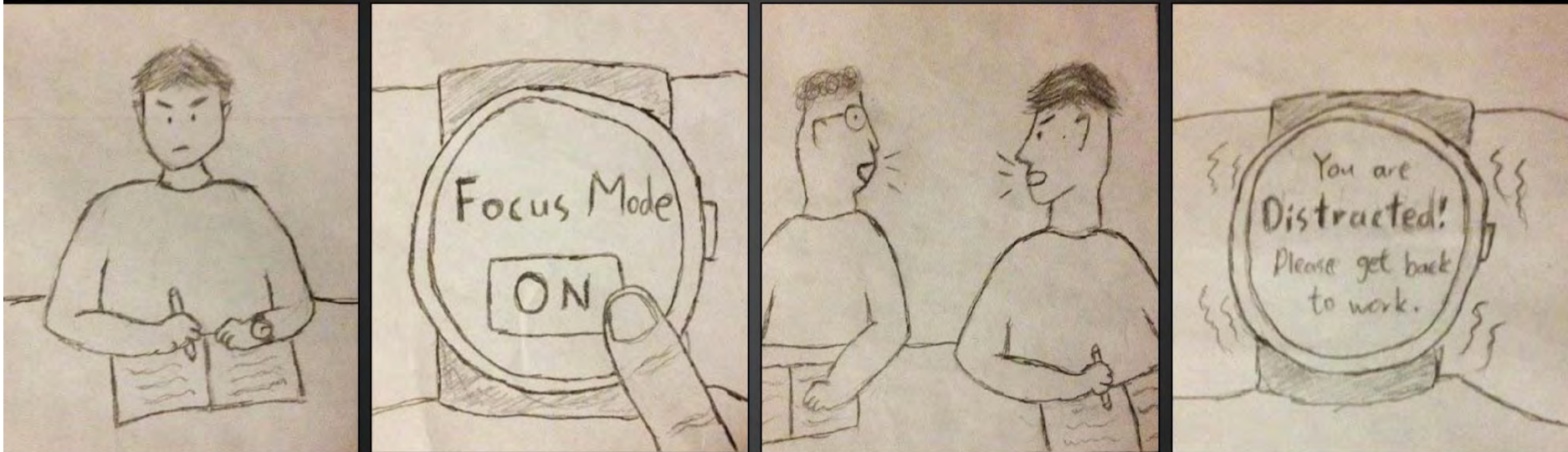
Challenging setting up budgets.

Complicated input leads to **less use.**

Task: Reflect on recorded data relative to time and location



Task: Find and implement methods/strategies
to reduce distractions and increase focus



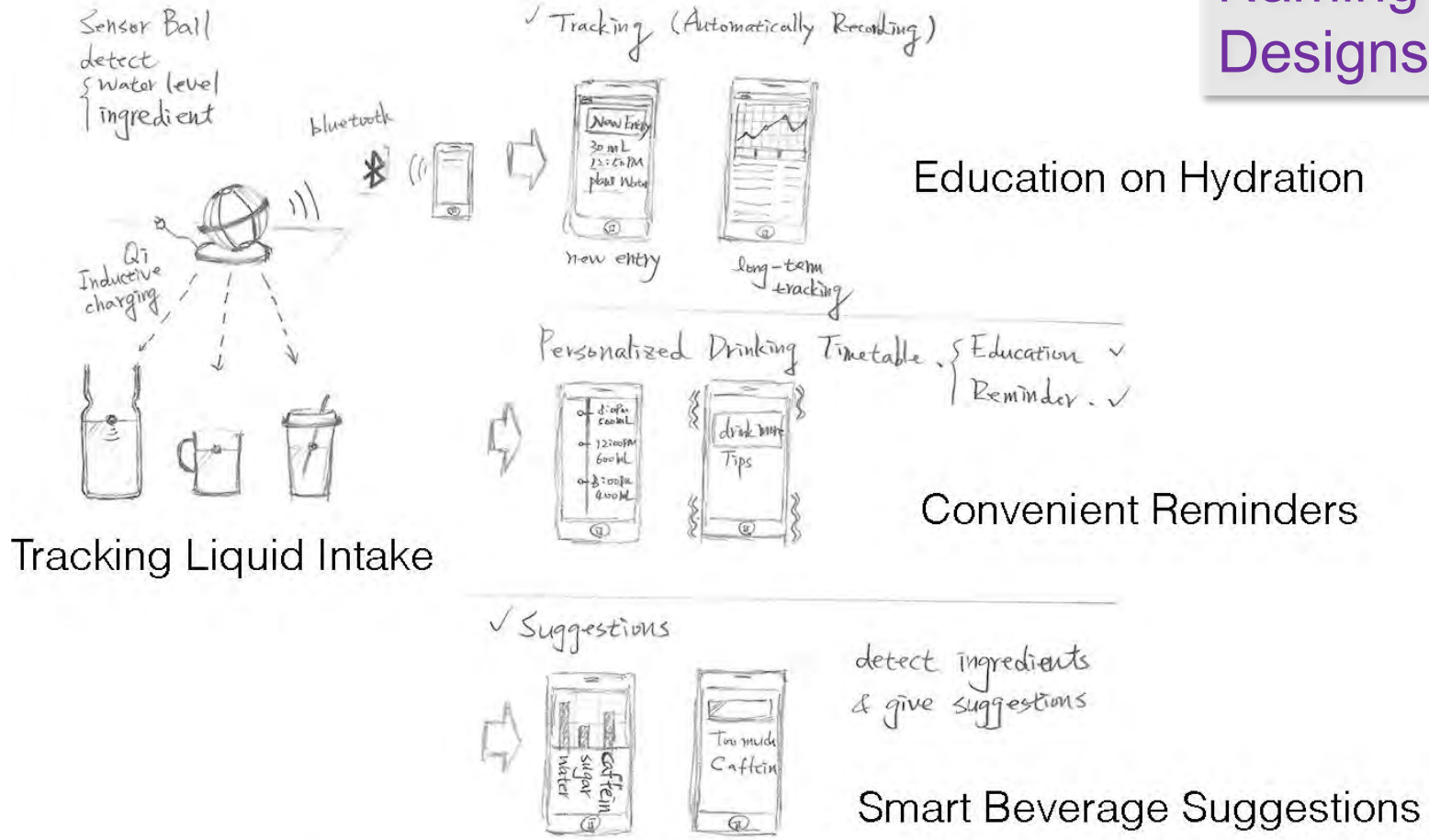
Design 1

Naming Designs

Pre-shopping



Naming Designs



Tracking Liquid Intake

Education on Hydration

Convenient Reminders

Smart Beverage Suggestions

Design 1

Sensor Ball with Mobile App

Naming Designs versus Slide Title Hierarchy of Information

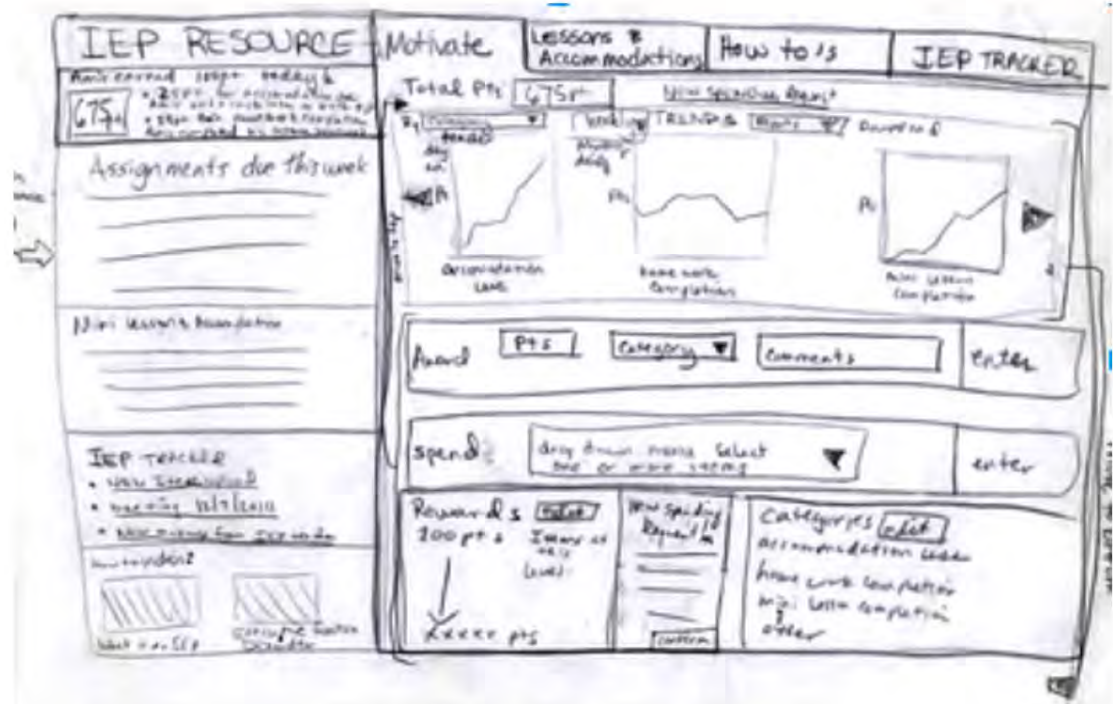
Sketch 3

Main Focus:

- Student Motivation

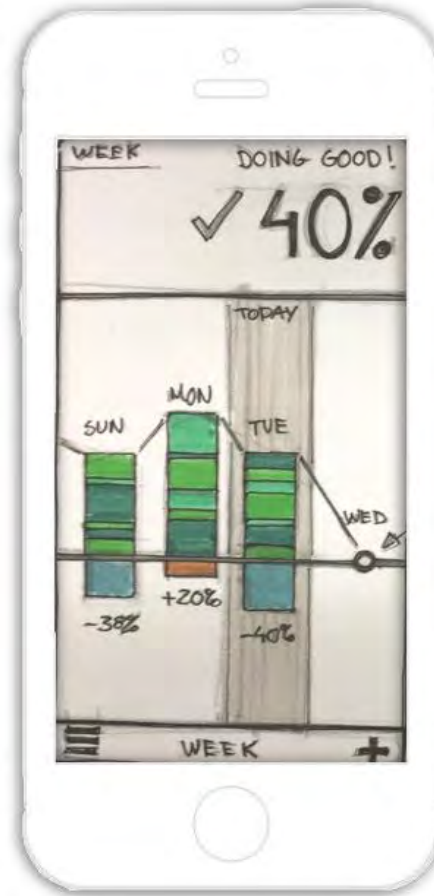
Key Features:

- Mini lessons accessible for the student and parent to work on
- Points awarded for completion of task on the website
- Spending points for various rewards

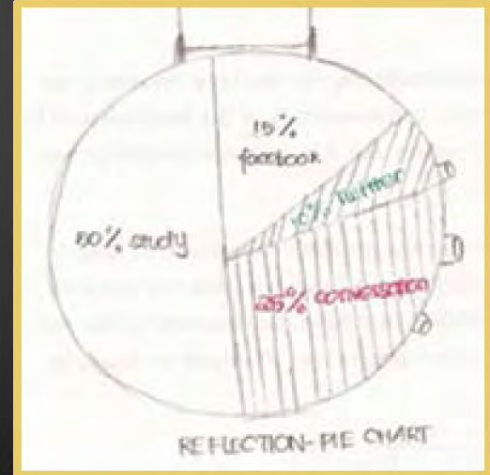
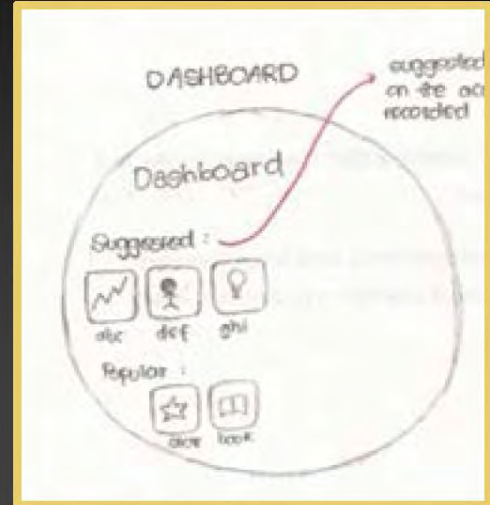
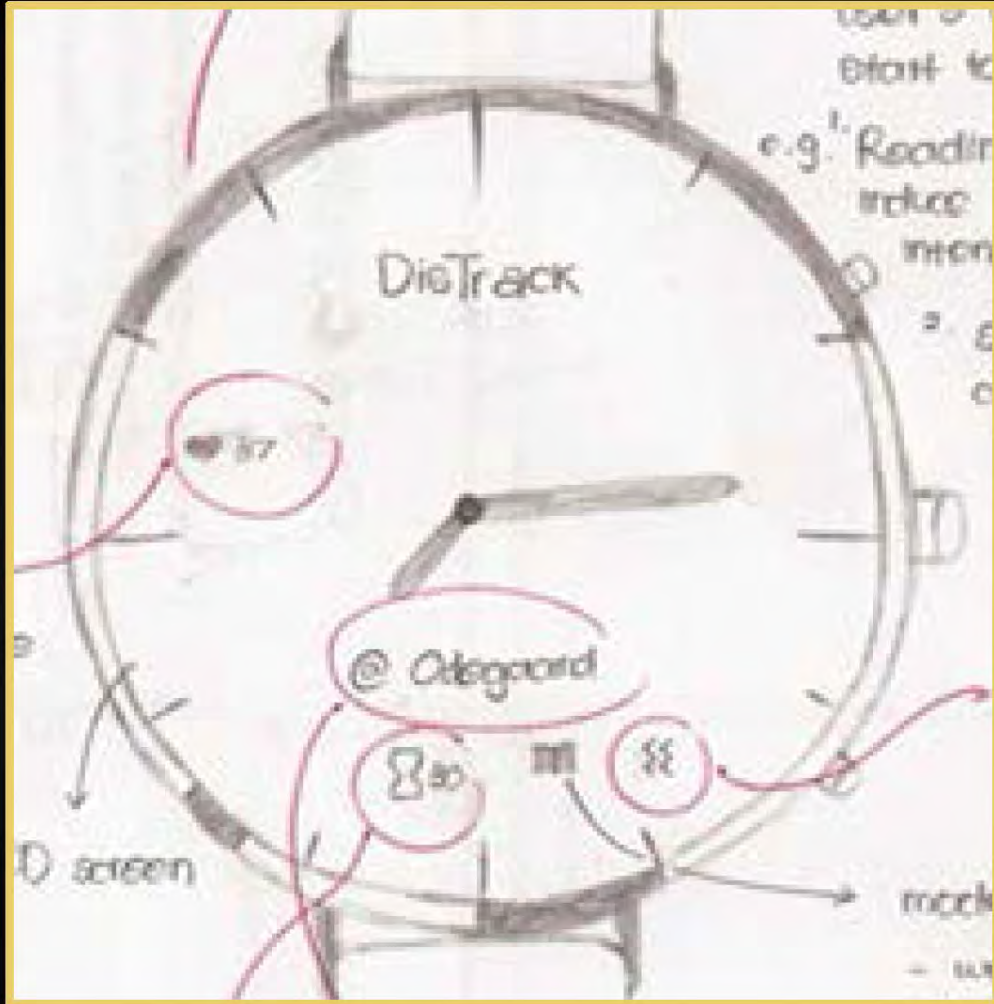


Design 1

Legibility
of Sketches



Design 3

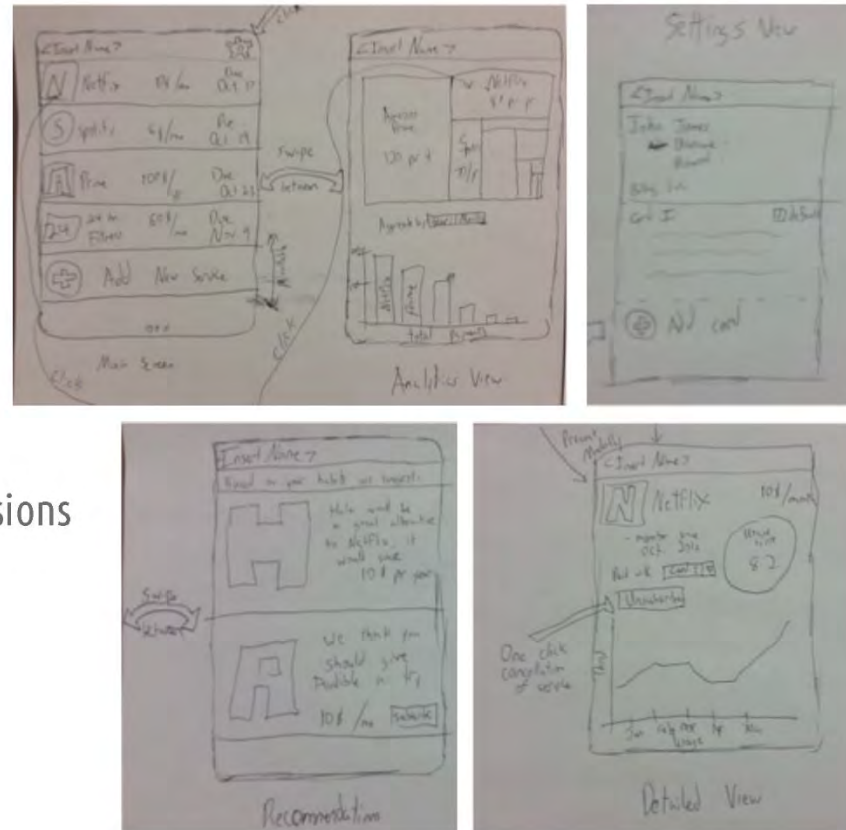


Low Contrast Images Low Contrast Text

Updated Sketch

Two Tasks

- Recurring subscription management
- Insight and informed decisions



Tasks

Distracting
Background

Categorize Time Spent

What qualifies as work or play?

Set Goals For Each Category

How much time should you spend on each activity?

Share Schedule and Free Time

Who should be notified?
Who is free right now?

Decide What To Do While Waiting

What can get accomplished within that time?

Adapt Correctly To Schedule Changes

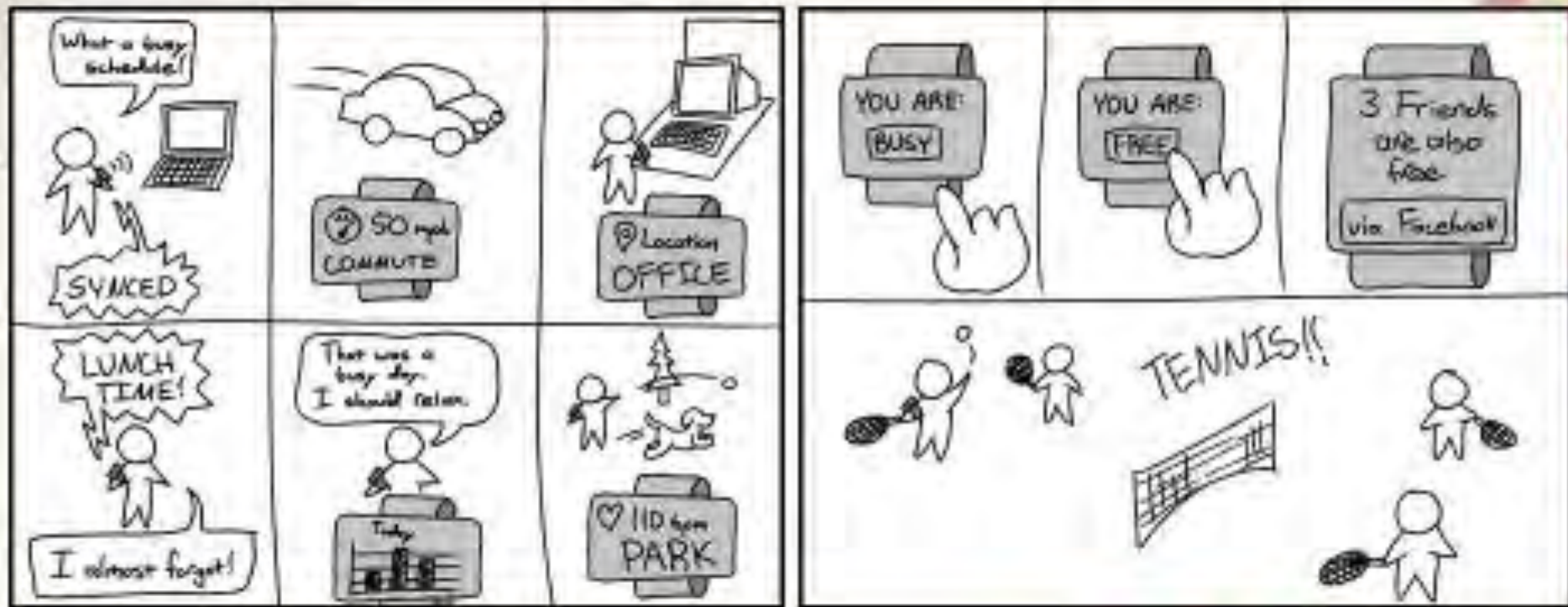
What can be pushed back and what has a solid deadline?

Get Reminders for Flexible Tasks

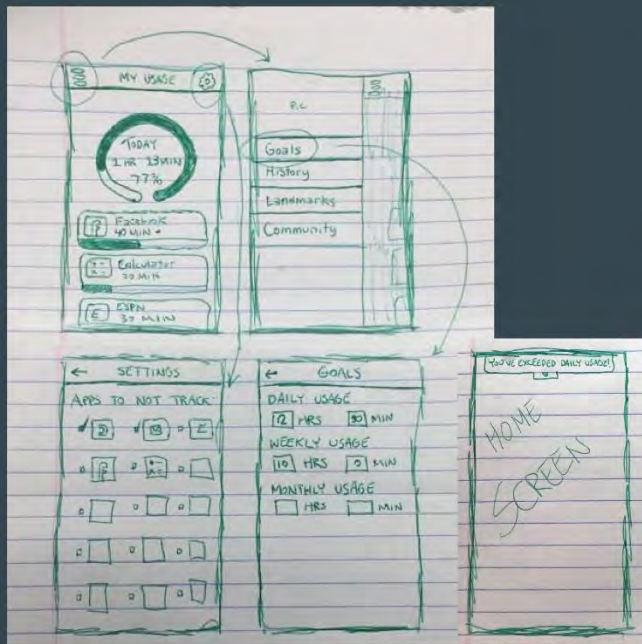
When is the best time for lunch?

Storyboards

Star People!
Hard to Follow

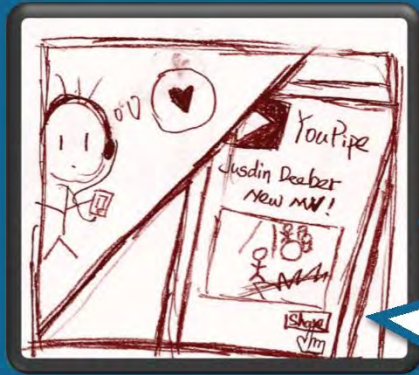


Selected Design



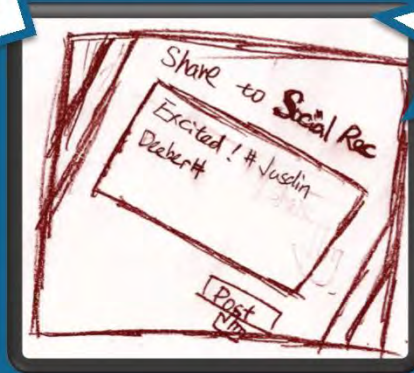
- Simplest overall design of the three
- Most aesthetically pleasing due to effective organization and spacing
- Easy way to set goals without any outside pressure on what you choose
- Firmly addresses the most important user need of tracking overall usage

Storyboard 2:



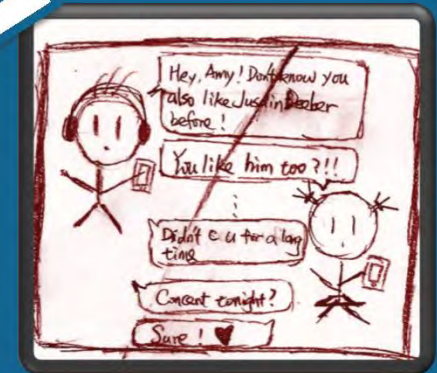
1. David likes the new song released recently, so he shares it on the SR app

2. When he posts it, he adds tags and defines the group of people he wants it to be seen

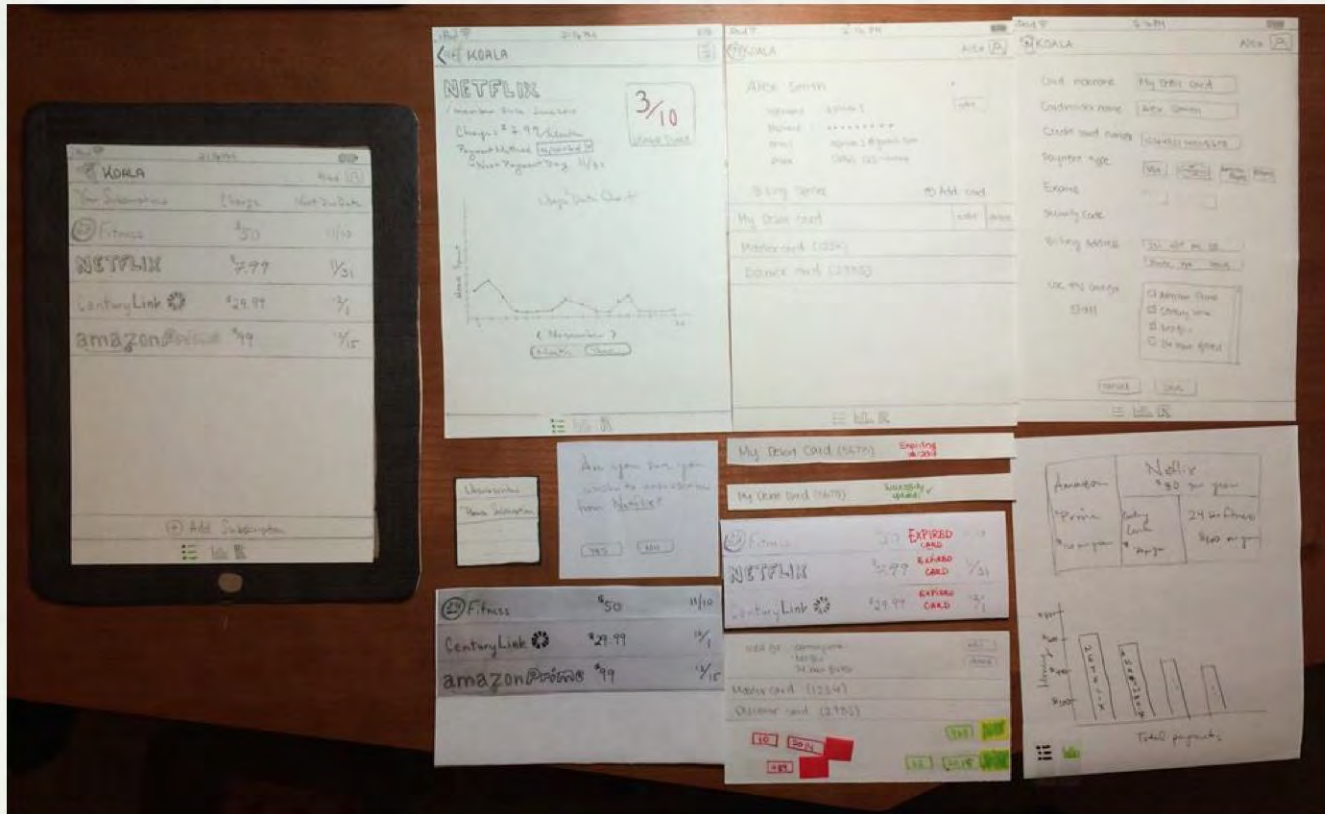


3. Daniel then gets a message showing that David likes the music

4. Daniel then messages David about his idea of the song

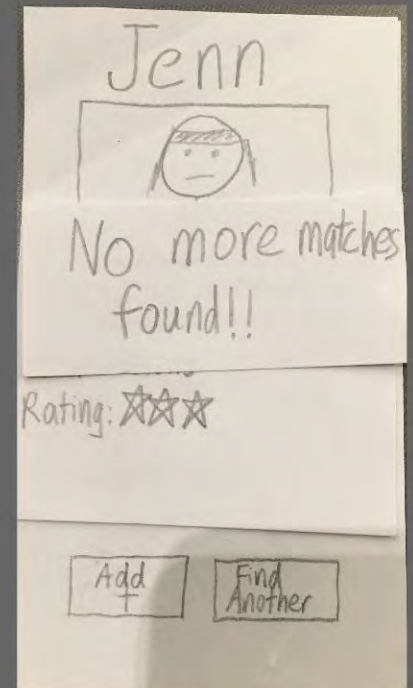
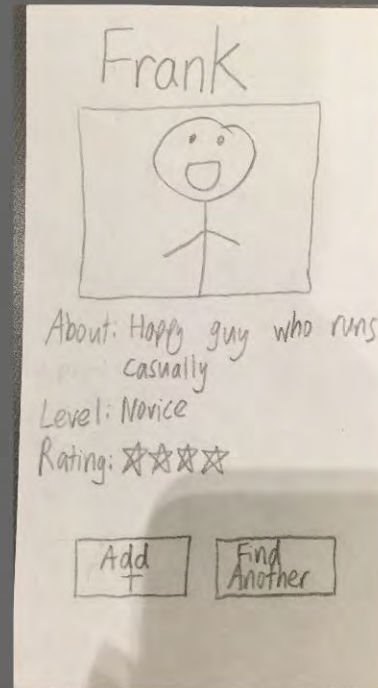
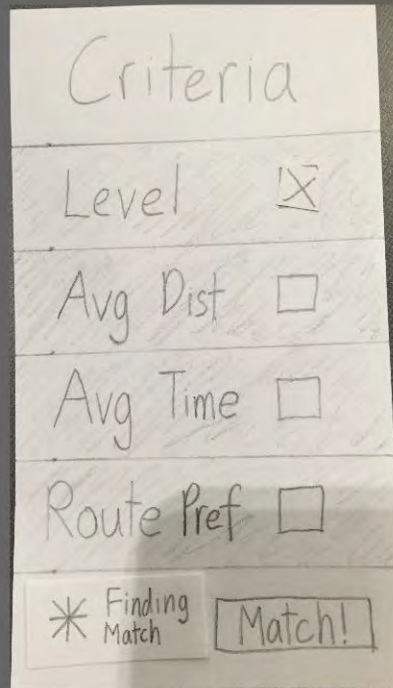
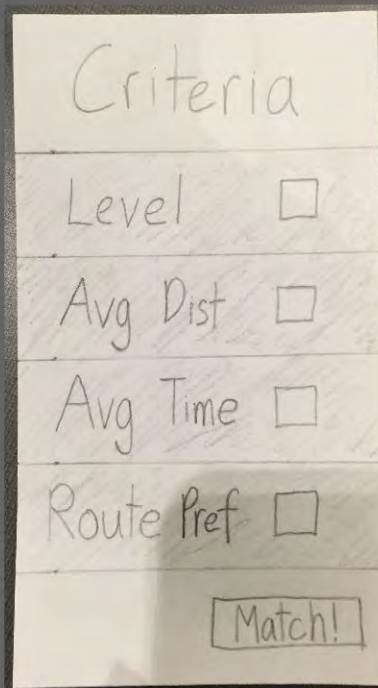


Initial Paper Prototype



Initial Paper Prototype

Task 1: Finding a SmartMatch



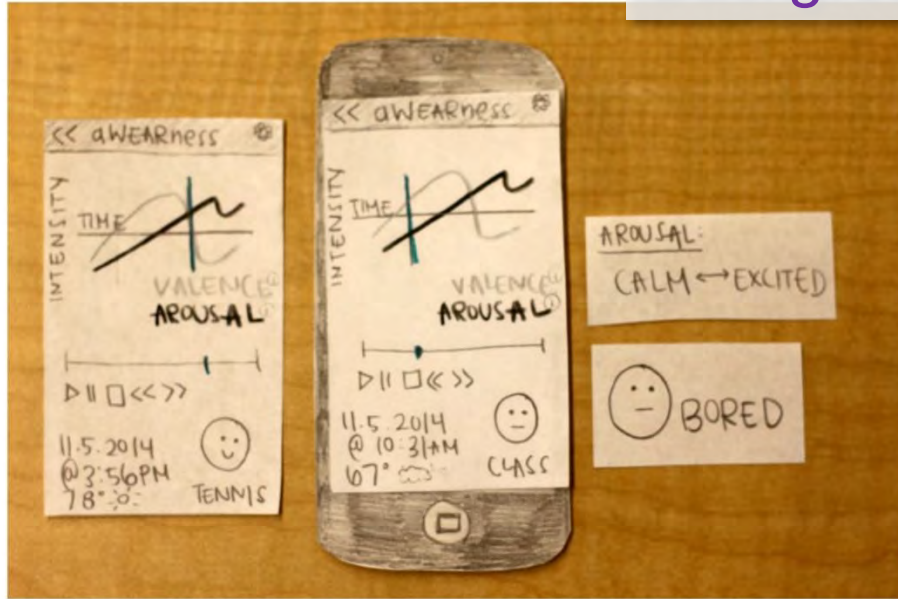
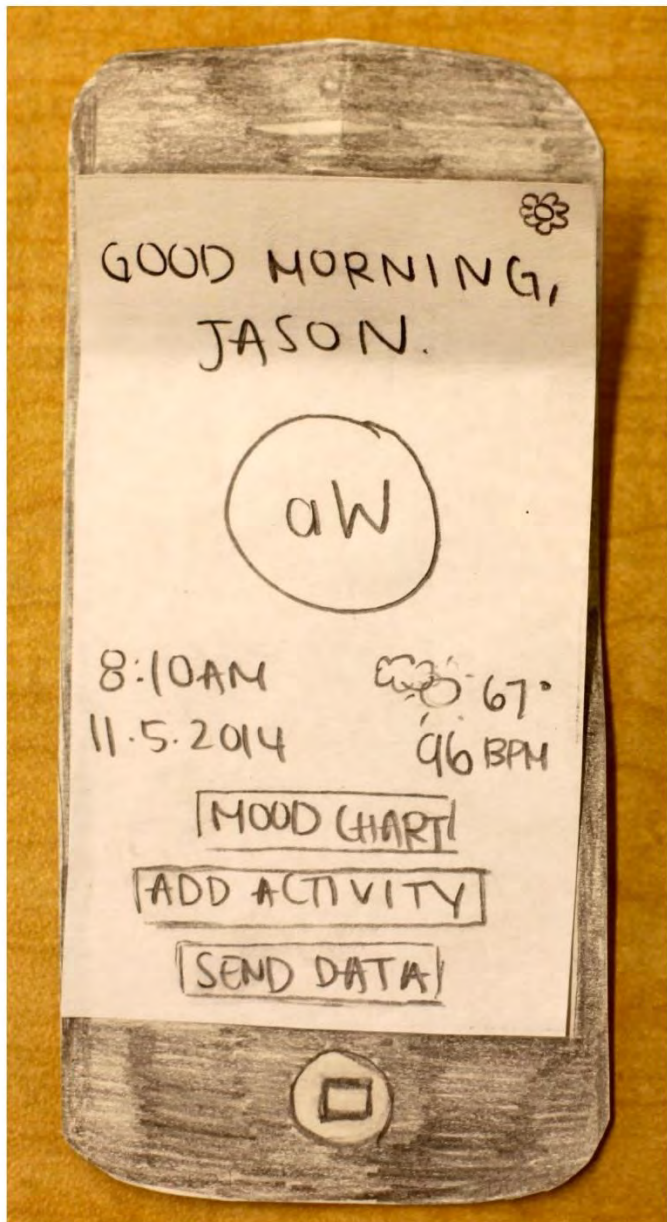
Testing - Results

Artificially
Increase
Contrast

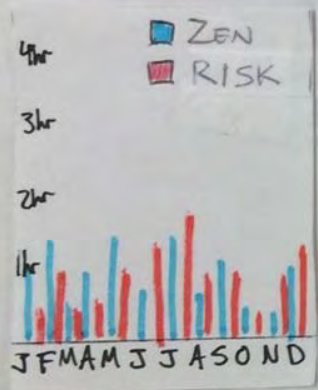
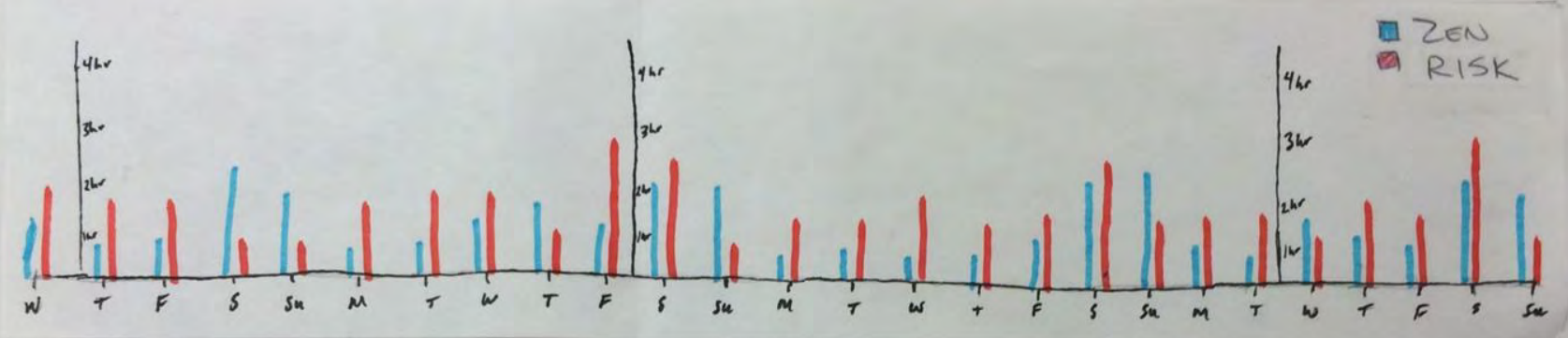
- **Heuristic Evaluation**
 - High Severity Issues
 - Example: “Go Shopping” mode was useless
- **User Testing**
 - High and Medium Severity Issues
 - Example: Takes too long to get to “Add Item”
- **Design Mockup Critique**
 - Low Severity and Aesthetic Issues
 - Example: Home screen too cluttered



Background



Background



| | | | |
|-----|------|-------|------|
| DAY | WEEK | MONTH | YEAR |
|-----|------|-------|------|

Legend: ZEN (blue), RISK (red)

-30 MIN

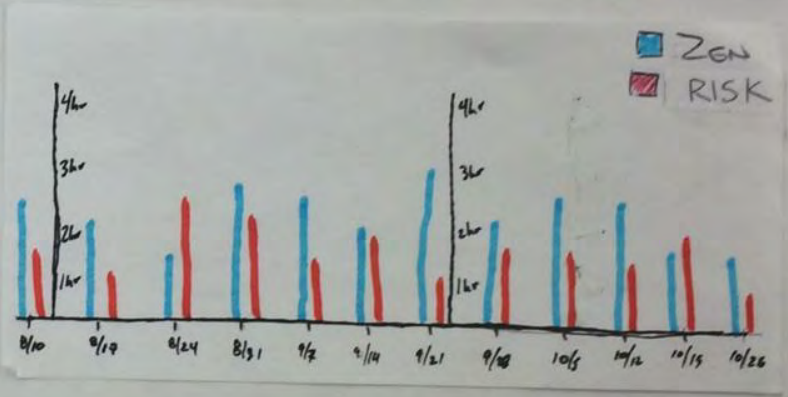
-22.5 MIN

-15 MIN

-7.5 MIN

12 AM

SOUND
HISTORY
ANALYSIS
SETTINGS



Final Paper Prototype

IEP-Connect Classroom

Many Screens
on One Slide

K.F. > Goals | Accommodations |

All Students > K.F.

In Progress

Write Paragraph Under 7m

Make Eye Contact

IEP Goal: Student will maintain eye contact appropriately during conversation

• •

K.F. > Goals | Accommodations |

All Students > K.F.

In Progress

Write Paragraph Under 7m

| C | . | / | % |
|---|---|-------|---|
| 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 |
| 8 | 9 | Enter | |

K.F. > Goals | Accommodations |

All Students > K.F.

Previously Tracked

Write Paragraph m

Score on Math Test %

• •

K.F. > Goals | Accommodations |

All Students > K.F.

Previously Tracked

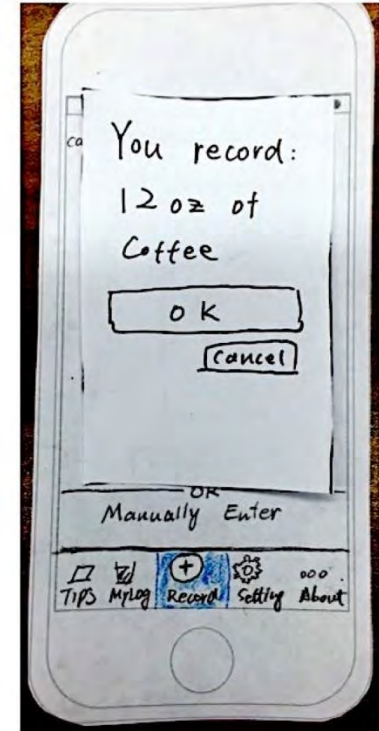
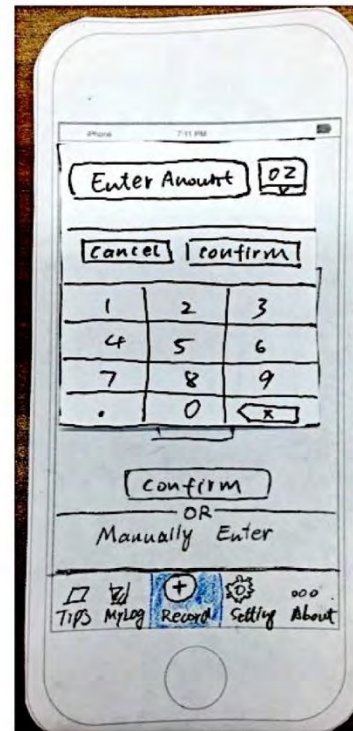
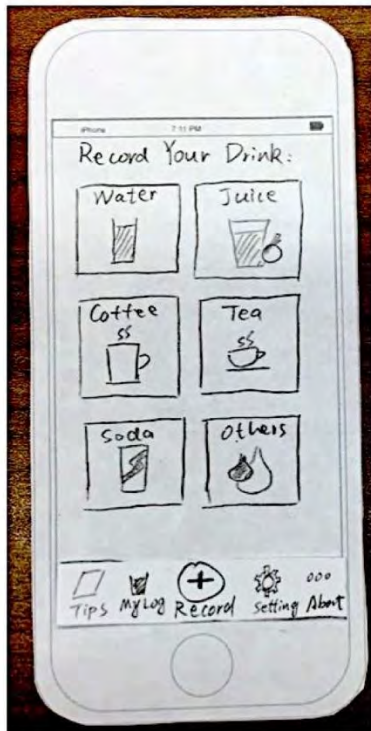
Score on Math Test %

• •

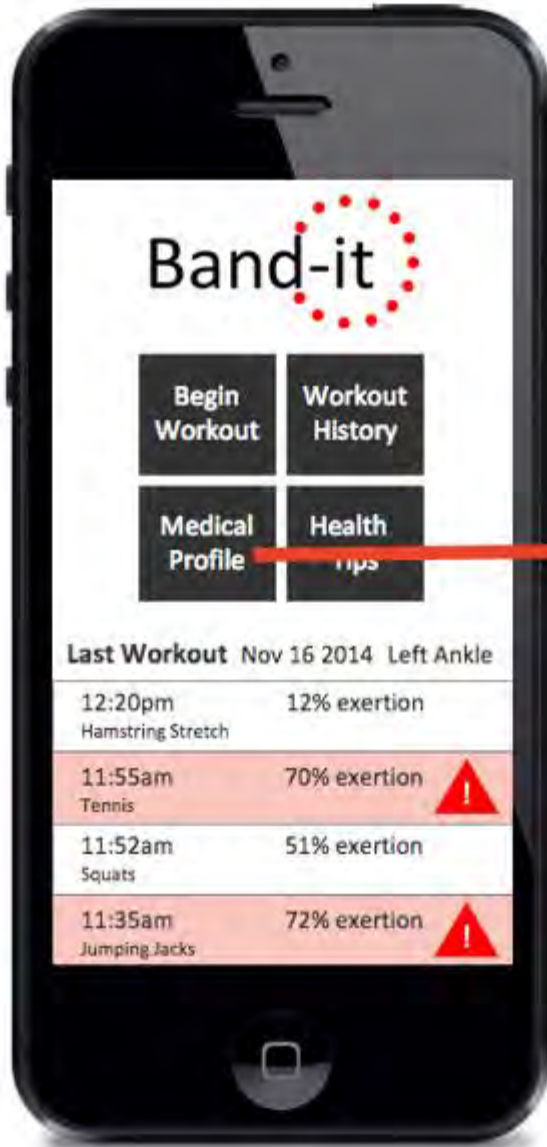
Final Paper Prototype

Task2 - Record Water Intake

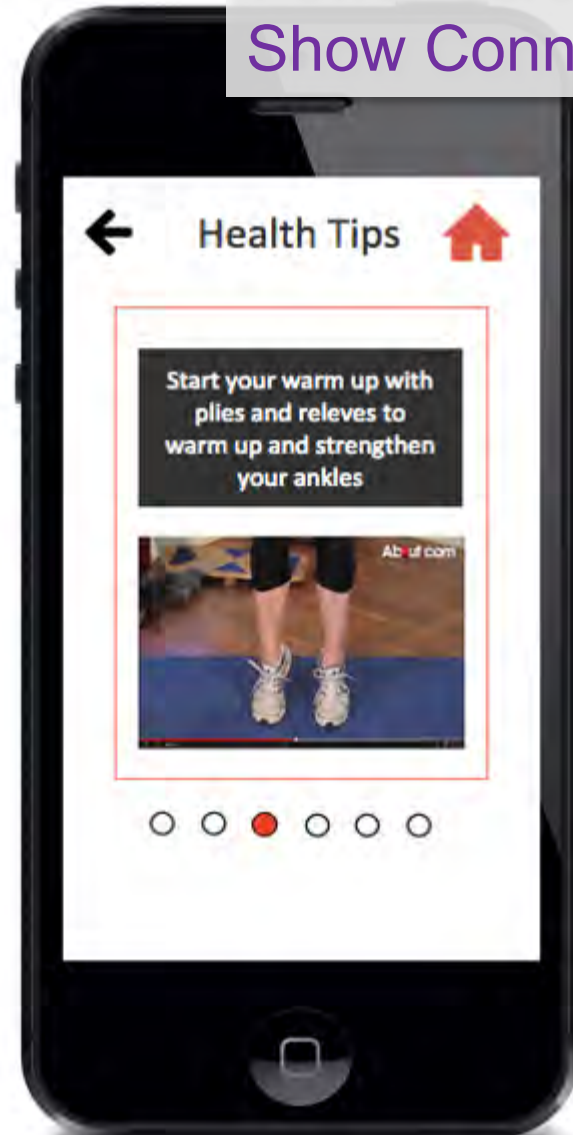
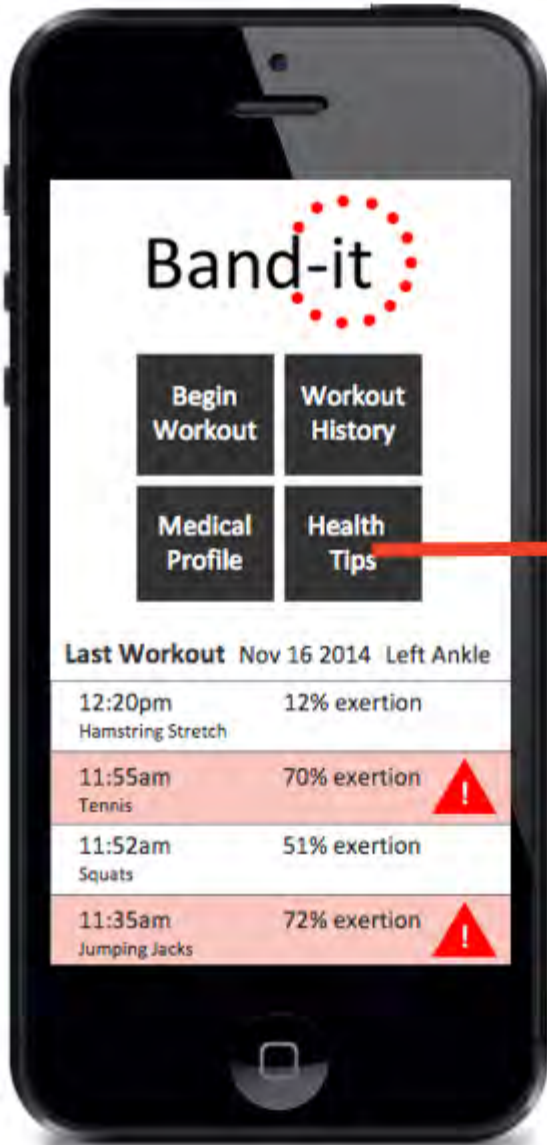
Many Screens on One Slide



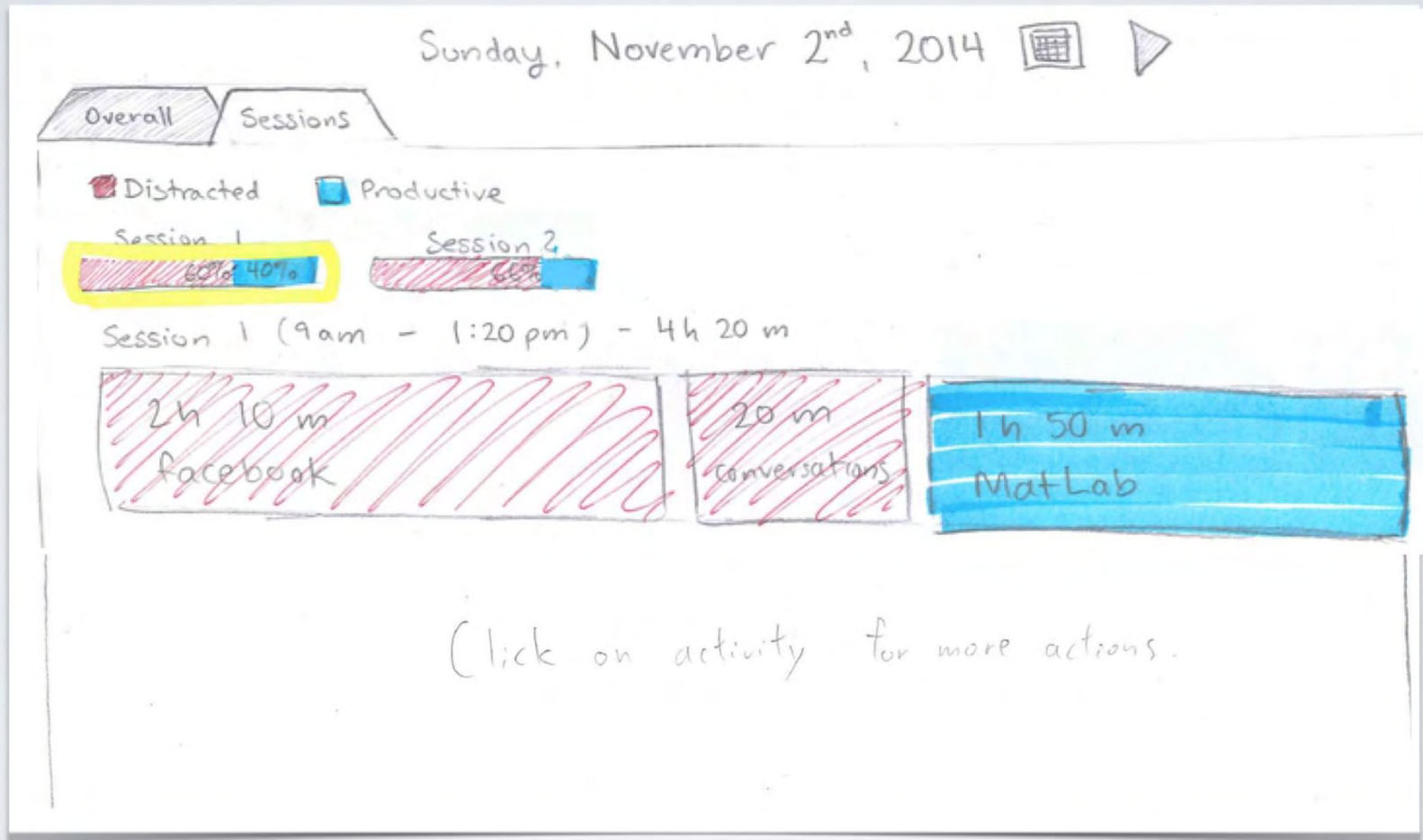
Fewer Screens,
Show Connections



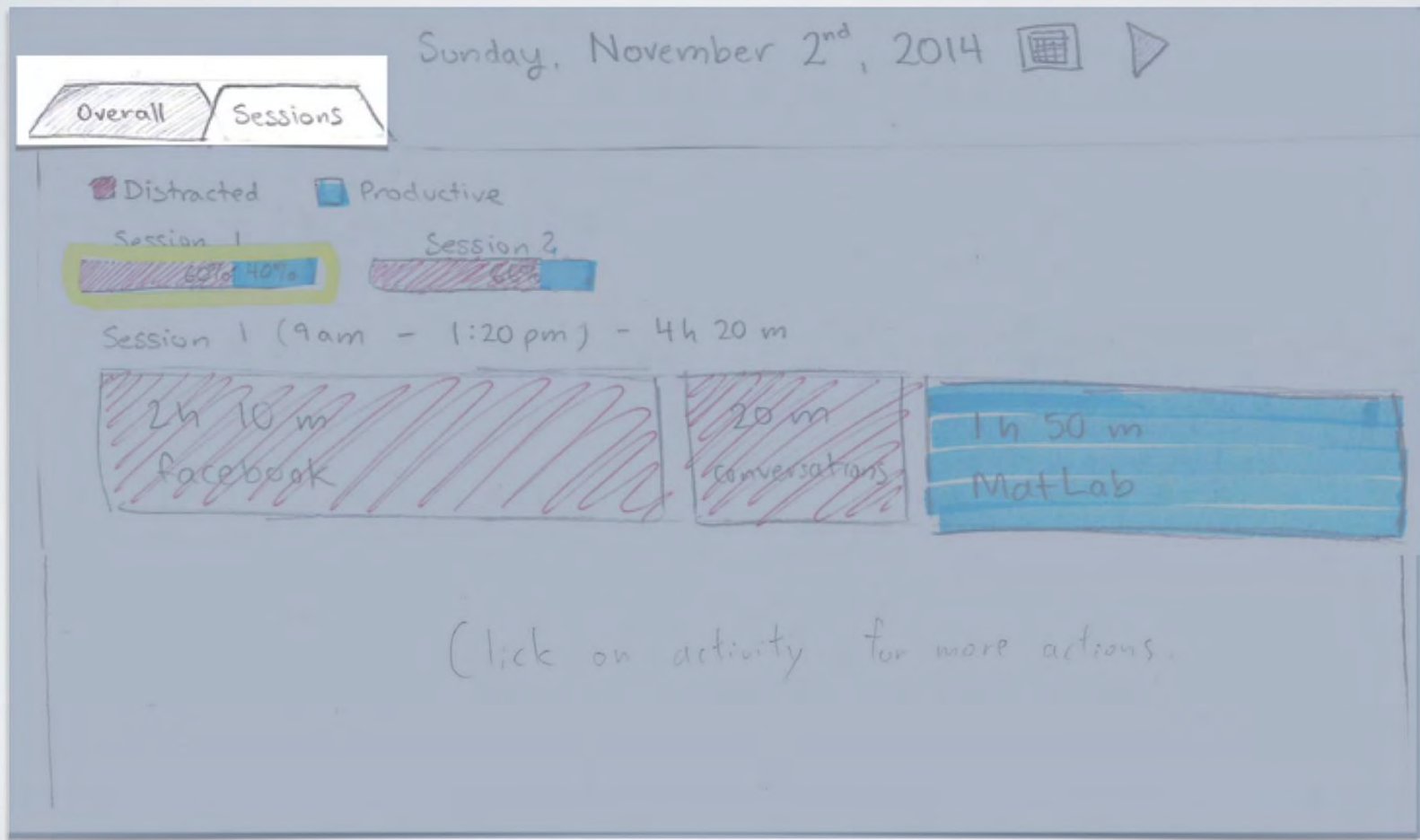
Fewer Screens,
Show Connections



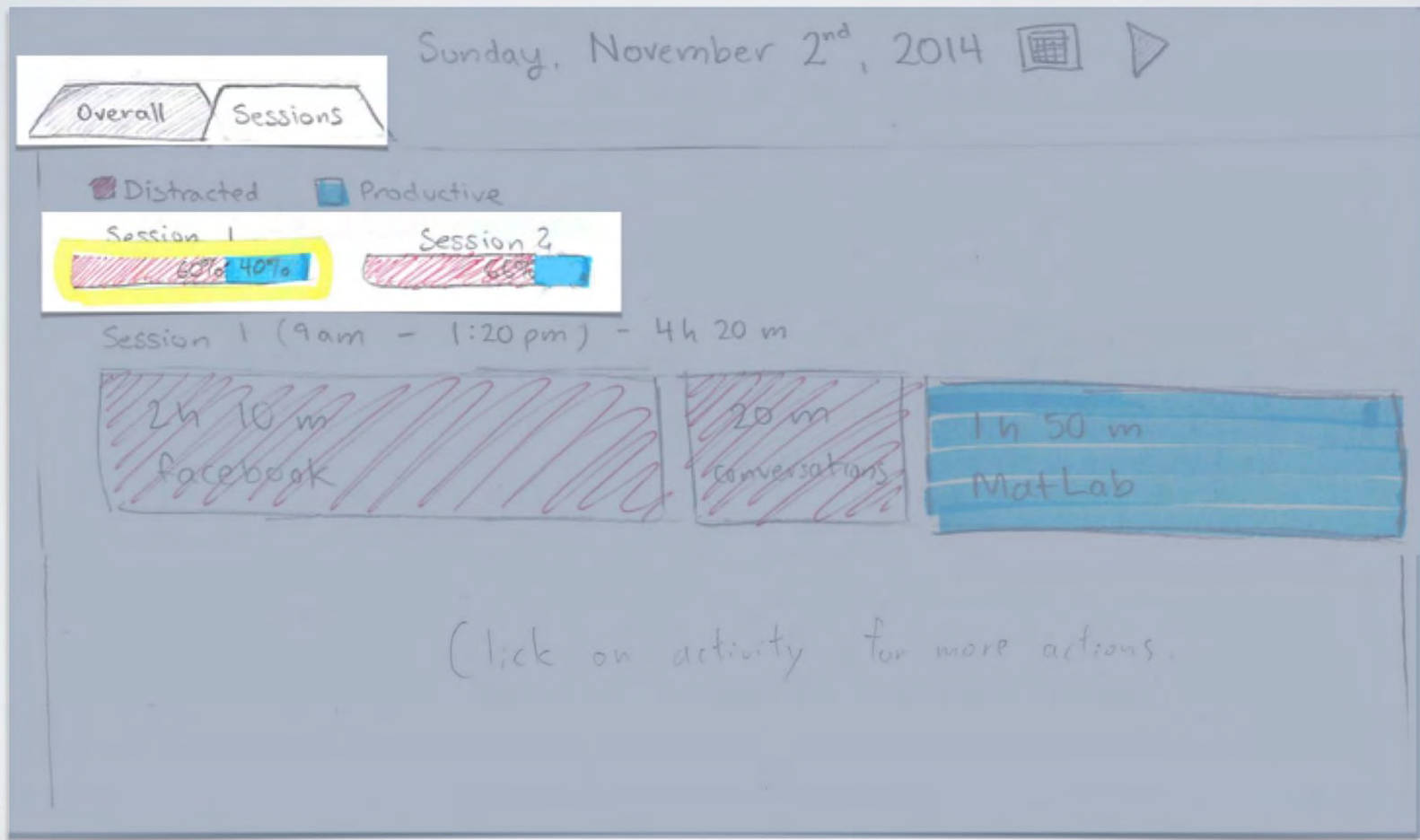
IMPROVED DESIGN



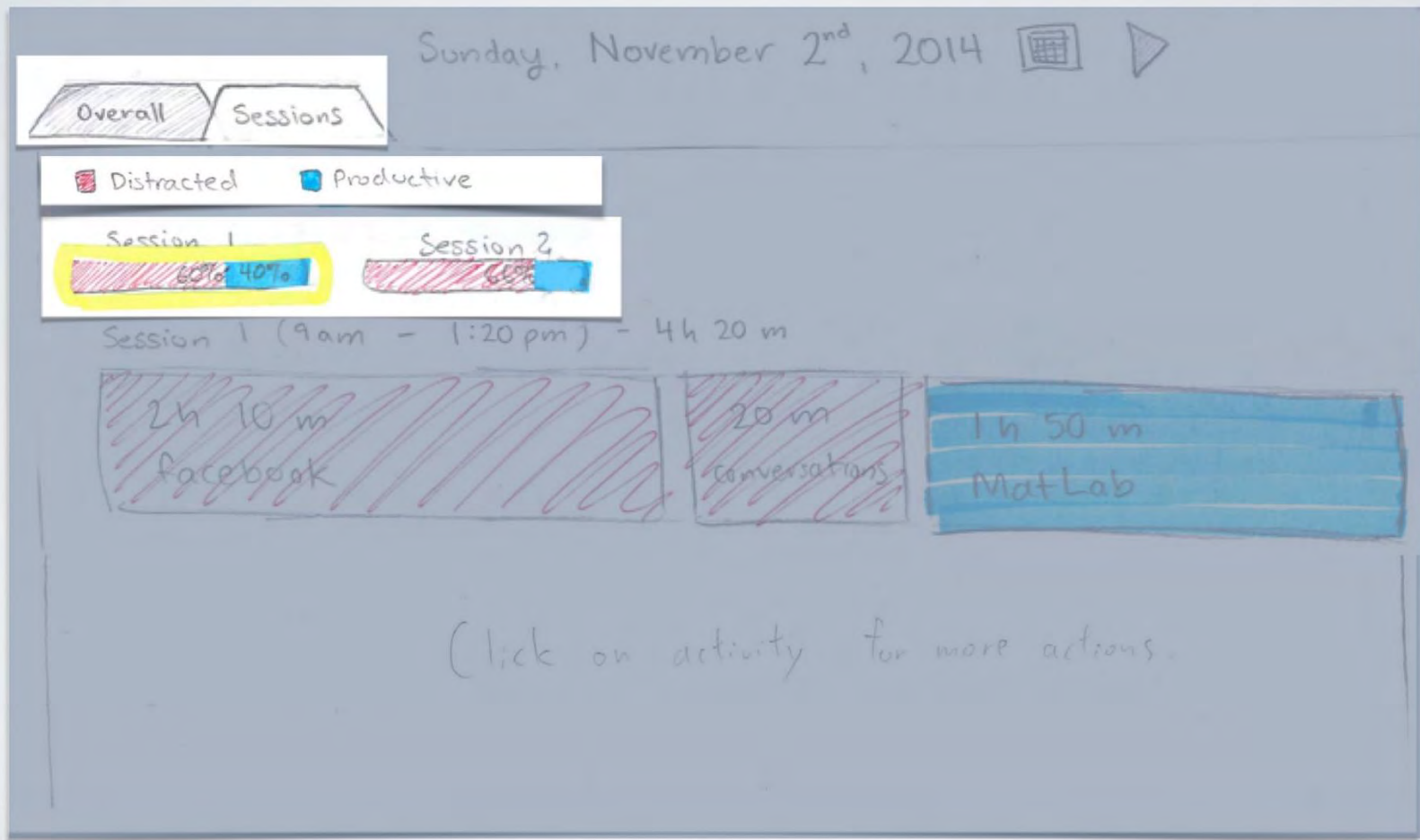
IMPROVED DESIGN





IMPROVED DESIGN



IMPROVED DESIGN



IMPROVED DESIGN

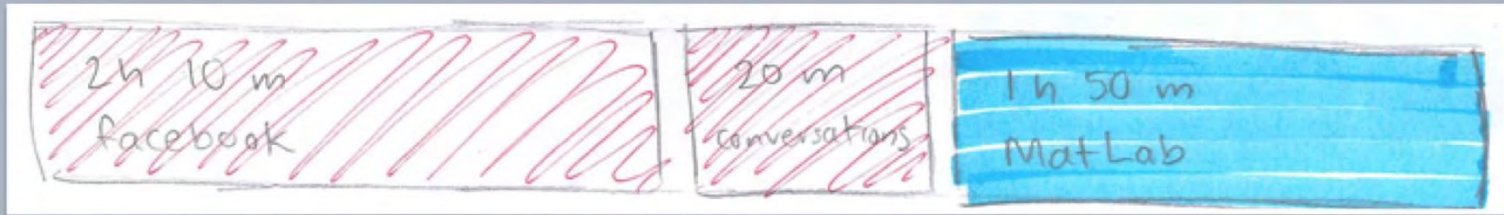
Sunday, November 2nd, 2014  

Overall Sessions

 Distracted  Productive



Session 1 (9am - 1:20 pm) - 4h 20 m



(click on activity for more actions.)

IMPROVED DESIGN

Sunday, November 2nd, 2014

Overall

Sessions

 Distracted  Productive

Session 1

60% 40%

Session 2

65%

Session 1 (9am - 1:20 pm) - 4h 20 m

2h 10 m
facebook

20 m
conversations

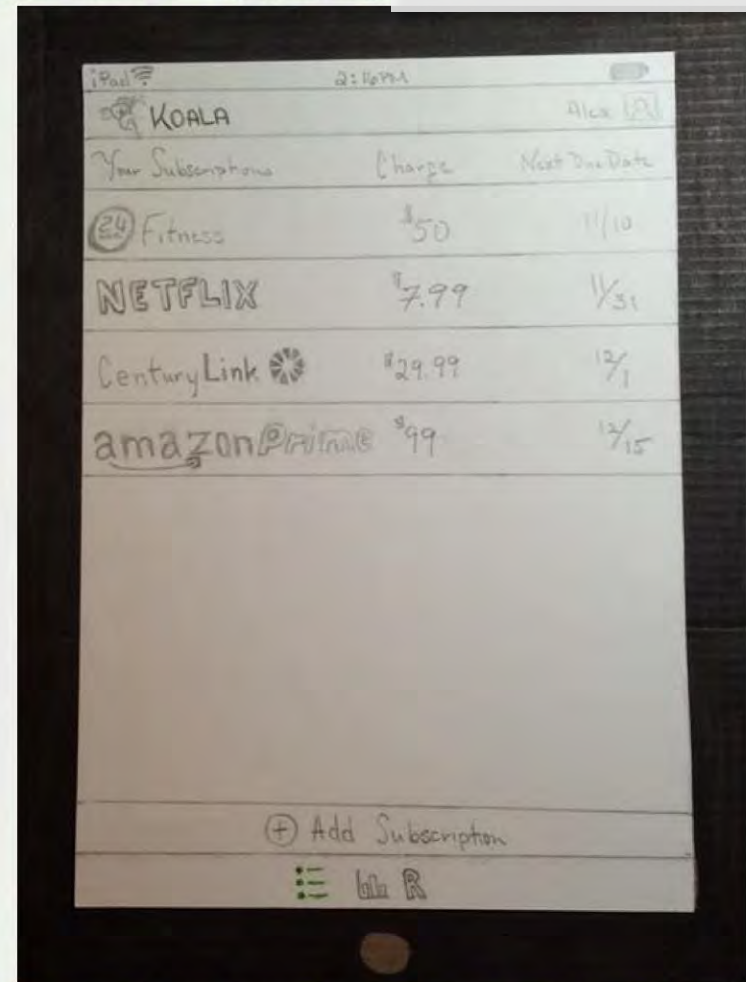
1h 50 m
MatLab

Click on activity for more actions.

Initial Paper Prototype

Task 1: Is Netflix worth it?

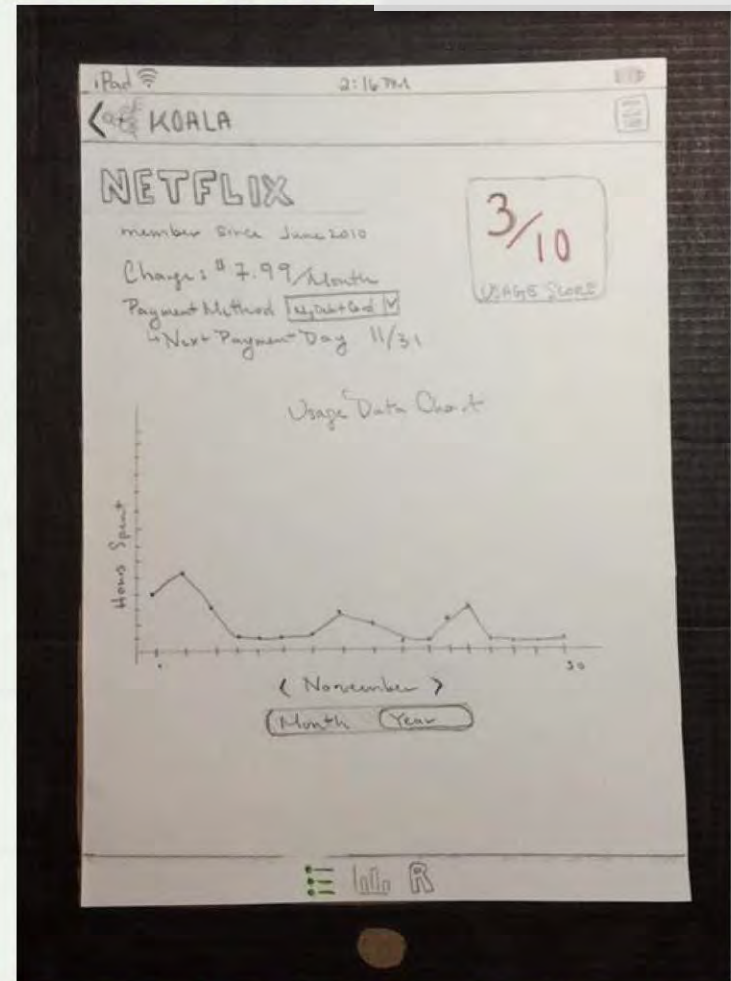
1. **View the Koala homepage**
2. Navigate to Netflix Detailed View
3. View your Usage Score for Netflix
4. Go to Settings
5. Click "Unsubscribe"
6. Return to homepage



Initial Paper Prototype

Task 1: Is Netflix worth it?

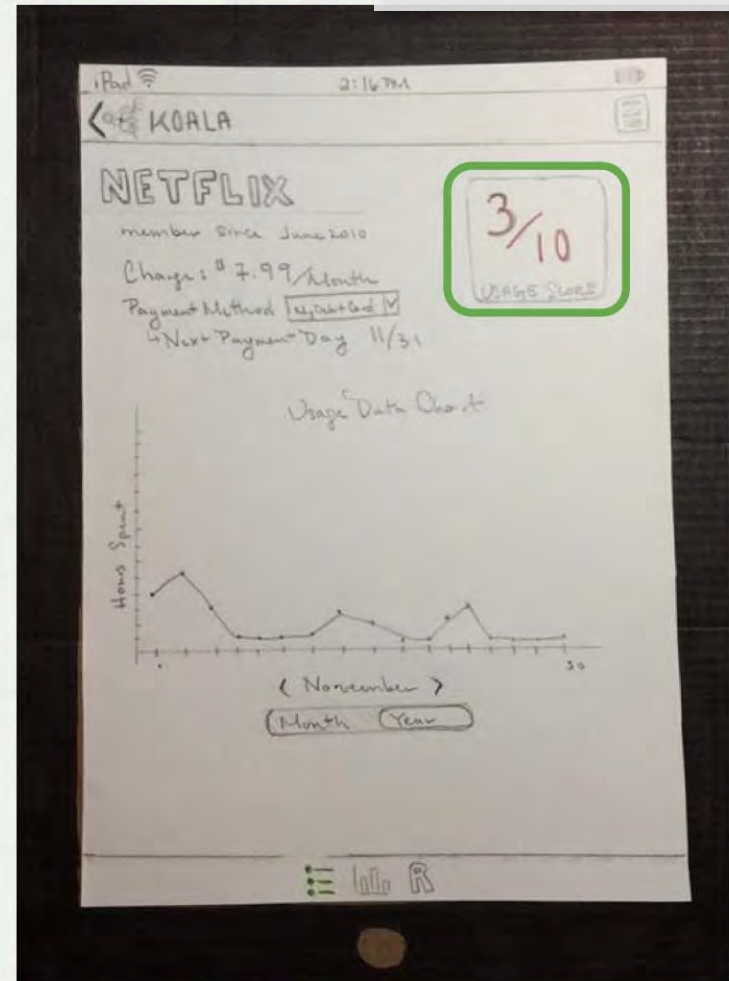
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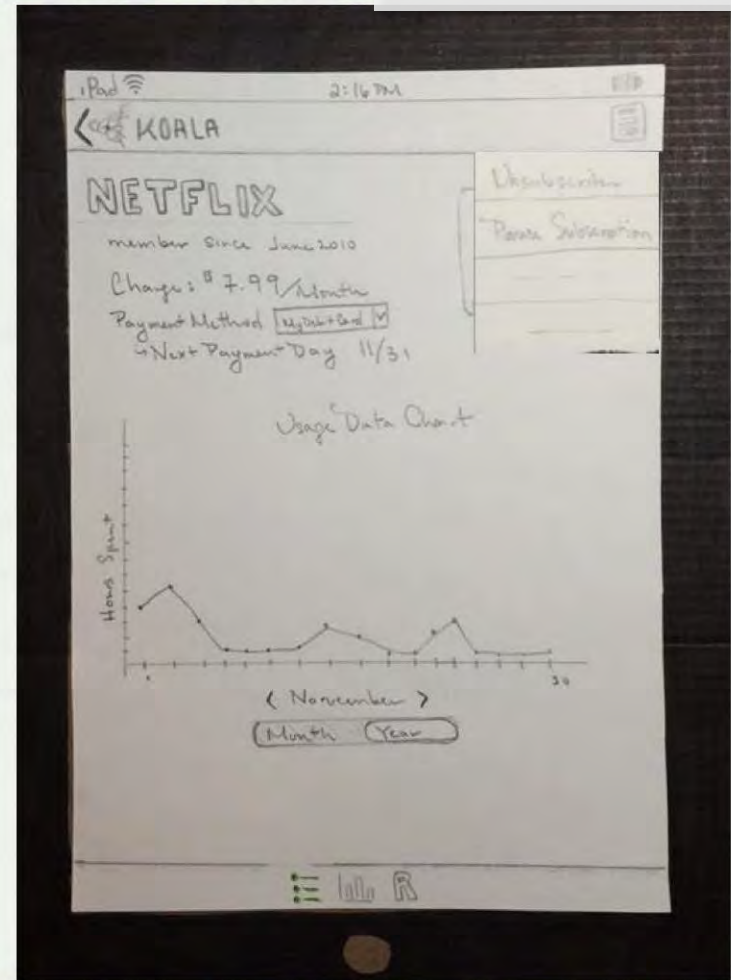
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Initial Paper Prototype

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- 4. Go to Settings**
5. Click "Unsubscribe"
6. Return to homepage



Initial Paper Prototype

Task 1: Is Netflix worth it?

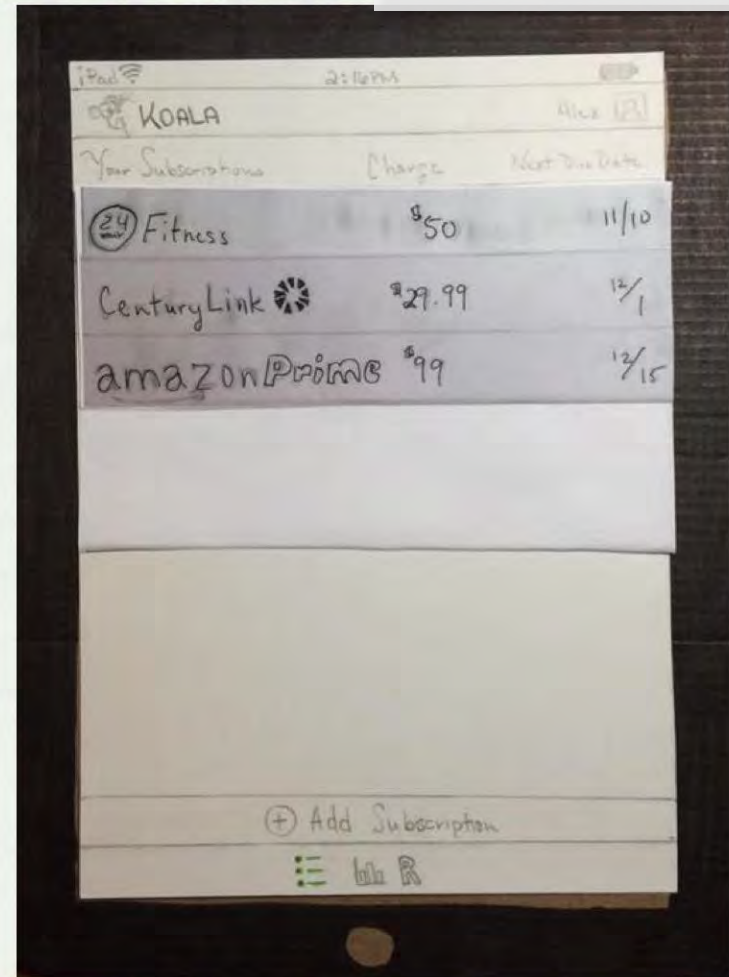
1. View the Koala homepage.
2. Navigate to Netflix Detailed View
3. View your Usage Score for Netflix
4. Go to Settings
- 5. Click "Unsubscribe"**
6. Return to homepage



Initial Paper Prototype

Task 1: Is Netflix worth it?

1. View the Koala homepage.
2. Navigate to Netflix Detailed View
3. View your Usage Score for Netflix
4. Go to Settings
5. Click "Unsubscribe"
- 6. Return to homepage**



VIEWPROGRESS

Interface
Animation



PROBLEM

Gratuitous
Animation

~~LUNCH - \$5.49~~

COFFEE - \$3.49

MOVIES - \$11.20

~~COFFEE - \$3.89~~

~~ICE CREAM - \$4.42~~

DINNER - \$7.79

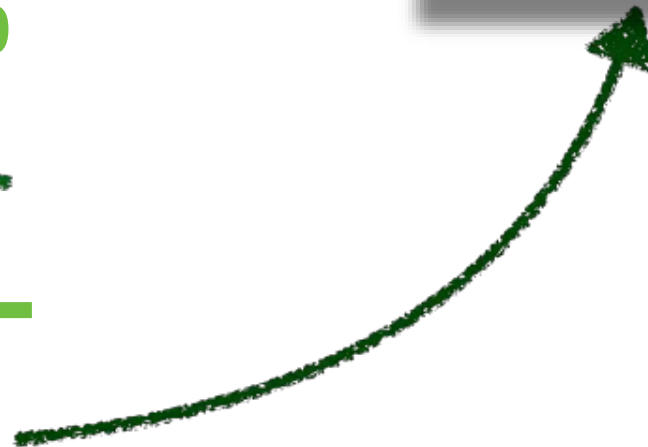
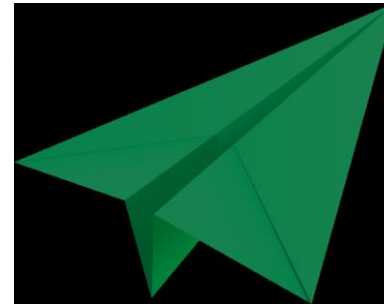
~~COFFEE - \$4.89~~

BOWLING - \$10.20

~~KIT KAT - \$0.99~~

~~BRUNCH - \$11.42~~

BEER - \$4.00



Problem

Check the
Projector

A lack of awareness about the long-term
implications of noise exposure

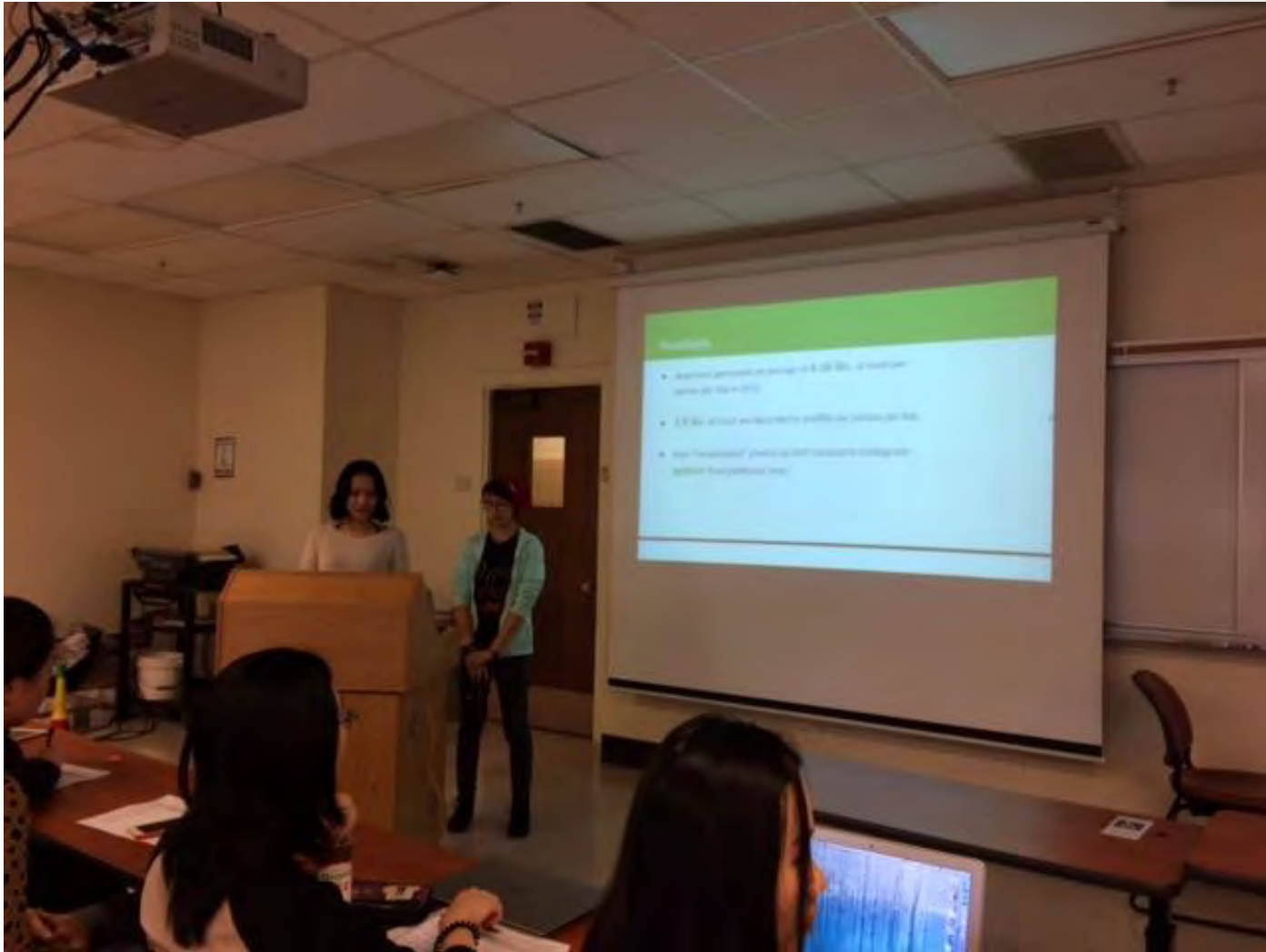
Finishing
Slide

KACHING



Delivery

Jessica
and Jess



Timing

“An 8 minute time limit will be strictly enforced”

7:40

10:00

8:30

10ish

8:45

10:15

9:00

11:00

9:00

11:45

9:45

13:00

You have 7 minutes
We do not have this overflow

Today

Examples / Tips / Critique for Presentations

In-Class Design Exercise

In-Class Design, Prototype, Test

Design and prototype a touchscreen alarm clock to be deployed in a very high-end hotel brand. Your alarm clock should be immediately usable for tired, busy, or just-don't-want-to-be-bothered travelers who will spend zero time learning your interface.

In addition to displaying the current time, your design should include basic functionality for:

- turning the alarm on/off
- setting the wake-up time
- anything else you think is appropriate

Guests will interact with the alarm via a touch panel.

Task Design is Important

The goal of a test is to figure out how a person interacts with an interface in the wild...

There are two possible explanations for why a test does not find significant problems:

- The interface does not have significant problems

- The test itself has significant problems

Task Design is Important

Testing is not entirely in the wild

As a part of focusing the test, you often need to give a person a somewhat artificial task

The artificiality of the task may influence how people interact with an interface...

...and thus may influence the outcomes and insights gained through user testing

Bad: Artificial Subgoals

People using the design “in the wild” may not necessarily form these same subgoals

The task should give one top-level goal, a people should form their subgoals while pursuing this

Now you want to choose the type of paper you want to print your document on. Lets imagine that Bin “B” has the paper you want to print your paper on, please complete this task.

Now set the darkness of your copies to about 50% dark. After setting the darkness, you decide you want to print 2 sides of copies on two sides of paper. Please complete this task.

Bad: Artificial Ordering

Without an artificial ordering of information or subgoals, people might not proceed in this order

The ordering might also be biased towards the layout of the interface, which would conceal any problems with finding the appropriate control

- Enter in 10 copies, with lightness set to 10%.
- Choose 1 sided to 2 sided, use paper source bin A.
- Cover sheet needed, using paper bin B for cover sheet.
- Set stapling feature on and collating on.
- Start printing.

Bad: Changing the Task

The task is to make copies, and this happens to involve entering information in the copier interface

But this task description is an data entry task,
“Here is some information. Put it in the interface.”

- Make 23 copies
- With collate
- Cover sheets
- Default darkness
- 1 Sided-> 1 Sided

Bad: Giving the Answers

Tells the person what terminology the interface uses, which they might not otherwise know

lighten = contrast, sorted = collated?

You are a teacher and are trying to make 40 copies of a one-sided magazine article that is 10 pages long for your class tomorrow. Due to the large number of copies, you print the article double-sided, in other words 10 page article would be printed on 5 sheets of paper. Due to the high contrast of the article, you must lighten the copy, in other words change the contrast. You then want the copies to be collated and stapled.

Good: Giving Context

Giving realistic context through scenarios can reduce the artificiality of the task

It's your first day in the office, starting a new job. You would like to make some copies of several documents that your boss gave you to browse through. Your colleague in the next cubicle tells you that you need an access code to make copies. The code is 5150. You walk over to the copy machine at the end of the hall and realize that it is not the Xerox copier that you are accustomed to... Make 2 copies of the "Company Annual Report".

Consider: Under-Specified Tasks

Many realistic goals are under-specified, as people have only a general idea what they want

By under-specifying the task, you can elicit realistic confusion and decision-making

You just finished fixing up the old hot rod in the garage and now its time to sell her. Make a couple copies of the pictures you took to **send into the used car sales magazines. It's ok that they're in black and white** but maybe you should lighten them up a bit. Your account billing code is 5150.

Task Design Summary

Task design is difficult and important

Poorly designed tasks mask interface failures

Have others help you “debug” them before testing

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 11:
Tasks in Testing

James Fogarty

Eunice Jun

David Wang

Elisabeth Chin

Ravi Karkar



Tuesday / Thursday

10:30 to 11:50