

Megan Cunningham

Design Thinking

Friday, February 24, 2023

4:34 PM

#### #4 Institution

Student loan institutions

- \$ prints <sup>more int</sup>  
<sup>less int</sup> principal X bad
- " less int  
<sup>more</sup> principal X better

1/11/22 Week 2: Info + Design

way of solving problems

Art + science → design

thing, process, knowledge

information as.

info  
always designed

What might we design?

docs

processes

infographics

physical envs

lib progs

web interfaces

Multimedia stories

etc...

1/11/22

Design empathy is powerful tool  
for innovation.

↑ employee sense of purpose  
good for  
systemic challenges

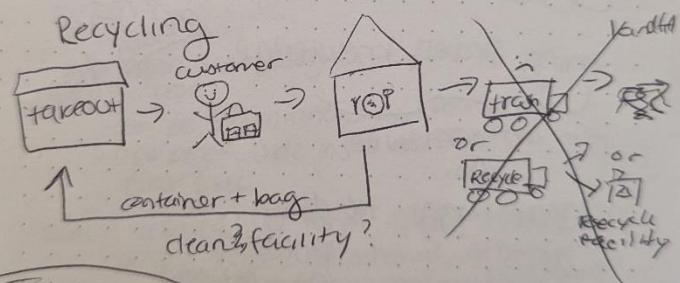
## WEEK 1 Design NB

What would I redesign?

### #1 Object

food packaging that is often plastic

### #2 Process



### #3 Place

Apartment staircase too narrow  
for normal couches (even in  
modern/newer buildings) -  
can't fit couch

## • Design Thinking For Social Innovation

problem(s) - info overload  
place of "rules"  
inconsistent branding/style

info signage

Step 1: Empathize  
- observed users  
- interviewed "  
- shadow users

etc...

Step 2: Define (the problem)  
- signage audit - text, location,  
usefulness, etc..

Step 3: Ideate  
- test ideas + gather feedback  
- engage w/ users @ each stage

Step 4: Prototype

- low cost  
- experiment designs

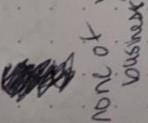
Step 5: Test  
- can be simultaneous w/ prototyping  
- are people able to see the sign? is msg  
clear? etc

SDN - created uniform style, clear msgng  
+ set types (directional, deification,  
regulatory, instructional, informational)

## • Design Matters - Lynda Barry

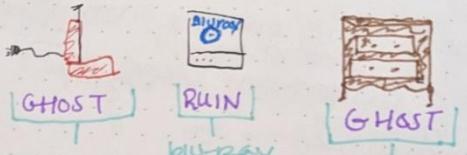
discovery: open-frame of mind

drawing shouldn't  
be judged



2

## Design Nb Exercise #2 GHOSTS + RUINS



electronics  
with cords

design made  
use easier of  
Mobile electronics  
by removing  
cords

Other cordless  
inventions  
-phones  
-speakers  
-computers  
-headsets/mics

> Learned:



blue ray  
DVD  
player



old dresser

internet/wifi  
streaming  
Made accessing  
content +  
easy/affordable/  
convenient

other ex:  
-music  
-files/docs  
-games  
↳ though  
gaming systems  
still relevant

GHOST

RUIN

GHOST

old dresser

dresser good  
quality but  
not as stylish

sometimes  
older things  
more sustainable

why? → \$

- humans like convenience
- ghosts/ruins exist partly because they were made to last
- designs are iterative because human problems similar today as they were before - at their core
- sometimes designs solve subsequent problems than originally intended

W

(Int)



usability inspection      Analytical (not empirical)  
                                Experts (not sys users)

Testing + Timing      Formative - testing along the way  
                            Summative - testing @ the end

## Testing Techniques

### ① Heuristic Evaluation

- 80% of problems w/ 20% of the effort

### ② Cognitive Walkthrough

### ③ Usability Testing

Steps:

1. decide what you want to learn
2. Find users
3. Create a protocol
4. Plan data collection

What to measure?

- task completion rate/time
- critical errors
- non/crit "
- error rate
- task level satisfaction

# Empathize

Friday, February 24, 2023  
4:41 PM

WEEK #3

1/17/22

## Design Thinking Process

### ► step 1: Empathize

understanding  
"users"  
(people) → human-centered  
design

ethnography → science of understanding a culture

- observing a culture from the outside can allow you to see things that you may not have been able to otherwise

methods { interviews  
observations  
"shadowing"  
focus grps

### (Interviewing)

structured / semi structured/  
you are not the expert unstruct.

Protocols -

1. Begins & ends w/ gratitude
2. Explain the study + why you want them to participate
3. Begin w/ easy ques. to est. rapport  
q. ask them for stories
4. let them know when/how to see impact

Interview Practice (keep the interviewee in charge)

Topic: Smart watch tech resist the urge to fill silence

High-level Ques: sit down follow up ques

- Which smart-watches do you use?

- Why do you use/wear a smart watch?

- What are the best features of the watch? ~~or worst?~~

- Do you wear the watch to sleep? Why/why not?

- How long have you owned a smart-watch?

- Did you always own the same brand?

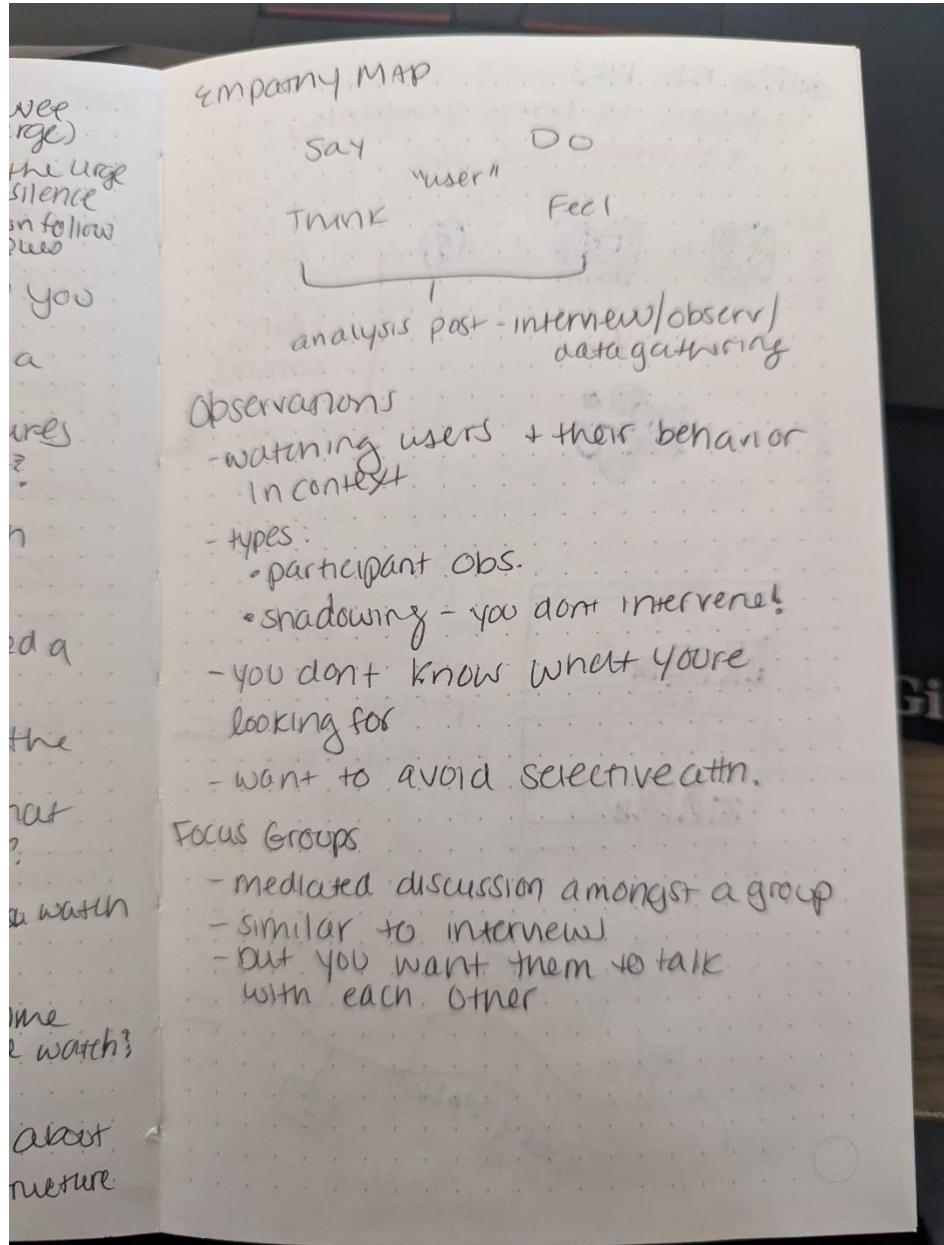
- Are there any features that you wish the watch had?

- Any issues with the ~~design~~ watch design/feel?

- Describe any periods of time where you stop wearing the watch.

Rapport:

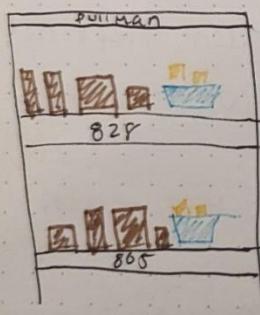
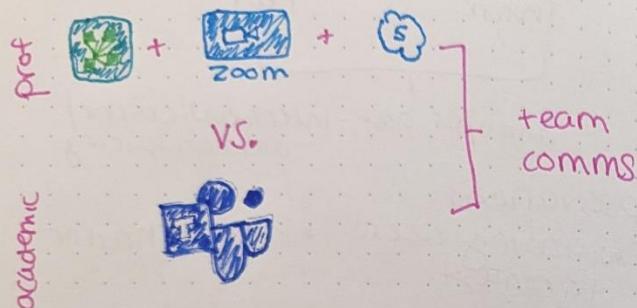
- - Interview purpose - curious about smart watch usage
- tell them about interview structure
- ask about concerns





## design nb wk3

↳ designs in home, academic,  
+ professional life



## Interview. Lessons learned

- it was easy to sit in silence - easier than I thought
- some of the questions were too specific - needed broader questions to get more into
- was hard to capture everything w/ typed notes - recordings could be useful

→ At work we use multiple media types for team comms vs. one main type at school.

- the prof one is more complex + requires multi checks
- the prof one is done for specific purposes

→ my apt complex organizes our packages by building/number

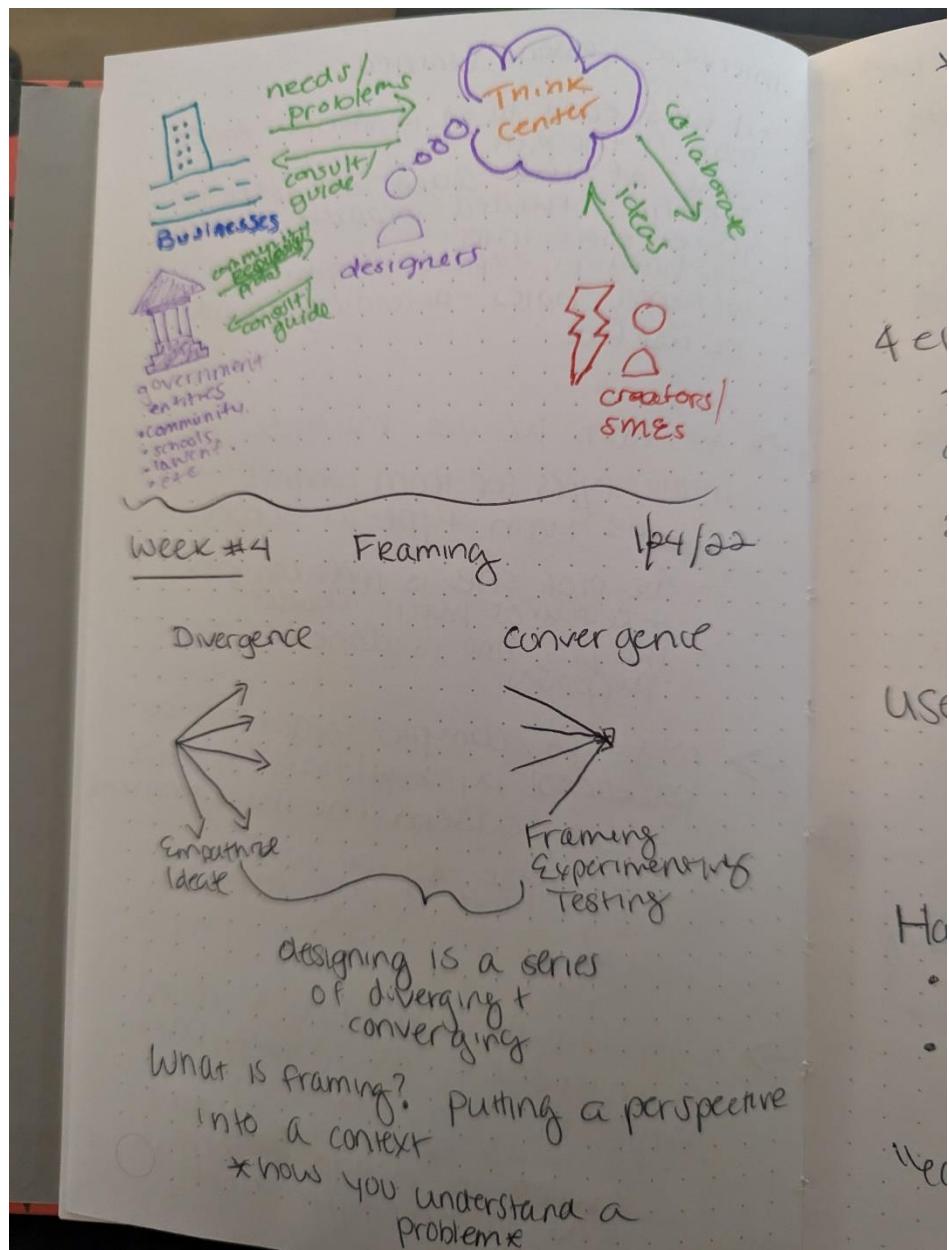
- easy system for org/comm
- low risk key for access
- don't have to bug employees

→ I try to walk everyday + found it interesting that many parks have a "story walk" for kids so I haven't used

- interesting design to engage kids in healthy/beneficial activities

# Define/Frame

Friday, February 24, 2023  
4:42 PM



\*figuring out what the problem is\*

- 1. Focus on the user
- 2. to develop prob
- 3. Keep it broad
- 4. Make it Manageable

{  
prob  
stmt+  
stmt

4 elements of a Prob. Stmt:

1. Who experiences the problem?
2. What is the problem they experience?
3. Where does the problem happen?
4. Why does it matter?

use the WHY? Method

↳ helps  
gets to the root  
of the problem

Habituation

- opens room to learn new things
- but can stop us from noticing problems

"easy to solve a problem everyone

see, but its hard to solve

a problem that almost no one sees"

Design N° exercise #4



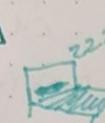
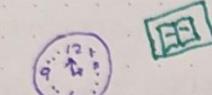
"... tried to eat"

①



"... food everywhere  
messy hands"

②



③

Planned  
with



2am

④



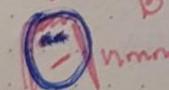
→



+  
elbow  
grease  
(so much  
scrubbing)

⑤

option ? option  
A      B



mm

⑥



10 hrs a day

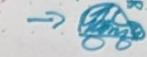
- headaches  
- tired  
- eyestrain

⑦ Day 1

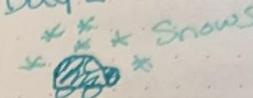


CAR Wash

all clean



Day 2



Snows

Day 3



dirty  
again!

- salt  
- dirt

⑧

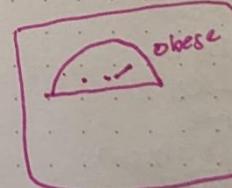
meditation sleep  
- working out

therapy - happiness

steps away  
healthy diet  
reduction

Reading?

⑨



obese



"just lose weight"  
"just eat healthy"

provider bias  
trying not to get an eating  
disorder ... again  
NOT heard



## Reframing

#5 indecisive - can't make a decision

↳ why?

- because poor options achieve the goal / similar
  - because I am a people pleaser and don't mind letting others choose
  - because I want to avoid conflict / additional work debating
- I think that the problem behind my indecision is around avoiding hurting other's feelings or causing extra work by debating options that I don't have strong preference for.

#9 Overwhelmed / can't find right direction to be healthy

- health providers info provided not working for me
- because health is not a "one-size-fits-all" but is treated as such
- because diabetes runs in my family and causes health anxiety for me

I think the underlying problem is that health care providers focus on treatment of problems rather than prevention and often give advice that's the same for everyone with the problem - which doesn't work.

Week

• ge

Tech

• Bi

• E

• I

Ideate

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4:42 PM

WEEK 5: Ideas

1/31/22

- getting to know the space  
Techniques

- Brainstorming

- generate as many ideas as possible
- don't criticize ideas → praise them
- use "yes, and" language → build on ideas
- one convo at a time
- keep it moving
- keep a record

- Brain Walking

- start by writing prompts related to idea
- team members think about each prompt + ideas for each prompt

- Design Provocations

- exploring wild + (prob) untenable solns
- challenges your assumptions
- techno-centric - invokes tech in unexpected ways

### BodyStorming

- pretend to do the thing you want to understand
- experiment w/ what it would be like to use a design

### Worst Idea

- worse idea you can come up with
- discuss why they're bad/wrong
- "negative design patterns"

### Wishing

- "I wish that ..."
- "The person I interviewed wishes that ..."

design nb #5

Ideation -

2/3/22

Problem #1 - decision making / people pleasing  
preferences decision challenge game that improves decision making  
app app

roaching on being own advocate

buzzer anytime not being own advocate

inclus  
one is to in

Symptom  
to unders  
detected  
of dise

laws for  
breaks  
phys

decision  
time

tip of the  
day  
flip a coin  
for all  
choices

cats.

Run I m  
perdecision  
, can't make

problem

incent  
people  
med

more fi  
in he

home  
check  
stress  
like  
b

better  
other  
to no  
on

you  
bigc  
de

get ri  
cal  
on r

Problem #2: Health care focuses on treatment v.s. prevention

incentivize people who pursue med degrees better understanding of herbs & supplements

more flexibility in health affordability w/care

home health checker, that checks state health stress, bp, hr, etc... recs by differn efile that patient can bring us it being def by network

better training of health prof to not focus only on weight

\$ capitalism big corps influence on food prices

get rid of calories on nut. labels

include things one is susceptible to in checkups

Symptom trackers to understand freq. detect early onset of disease

laws for health breaks - mental, physical, etc.

include DNA testing in insurance cost

implement "blue-zone" lifestyle - Make it the norm

training on health anxiety disorder improve health education

more time to get outside "ganify" outdoor activities for kids

carry a don't weigh me card

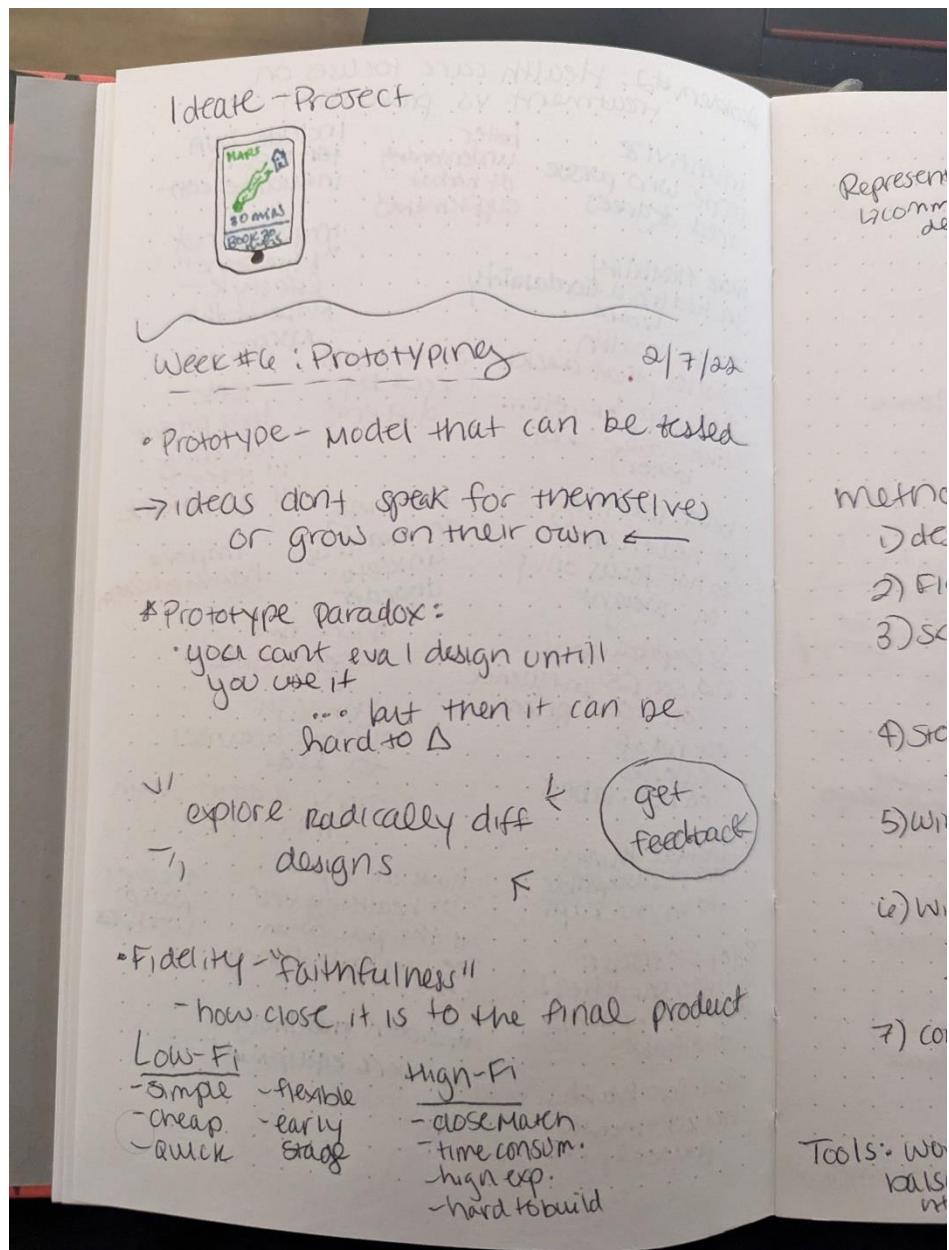
have all types of health experts at the prac @ an office multiple during visit

consider treadmills as work equipment

therapy pods @ workplace

# Prototype

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Represent  
120mm de

metodo

1) de

2) Fi

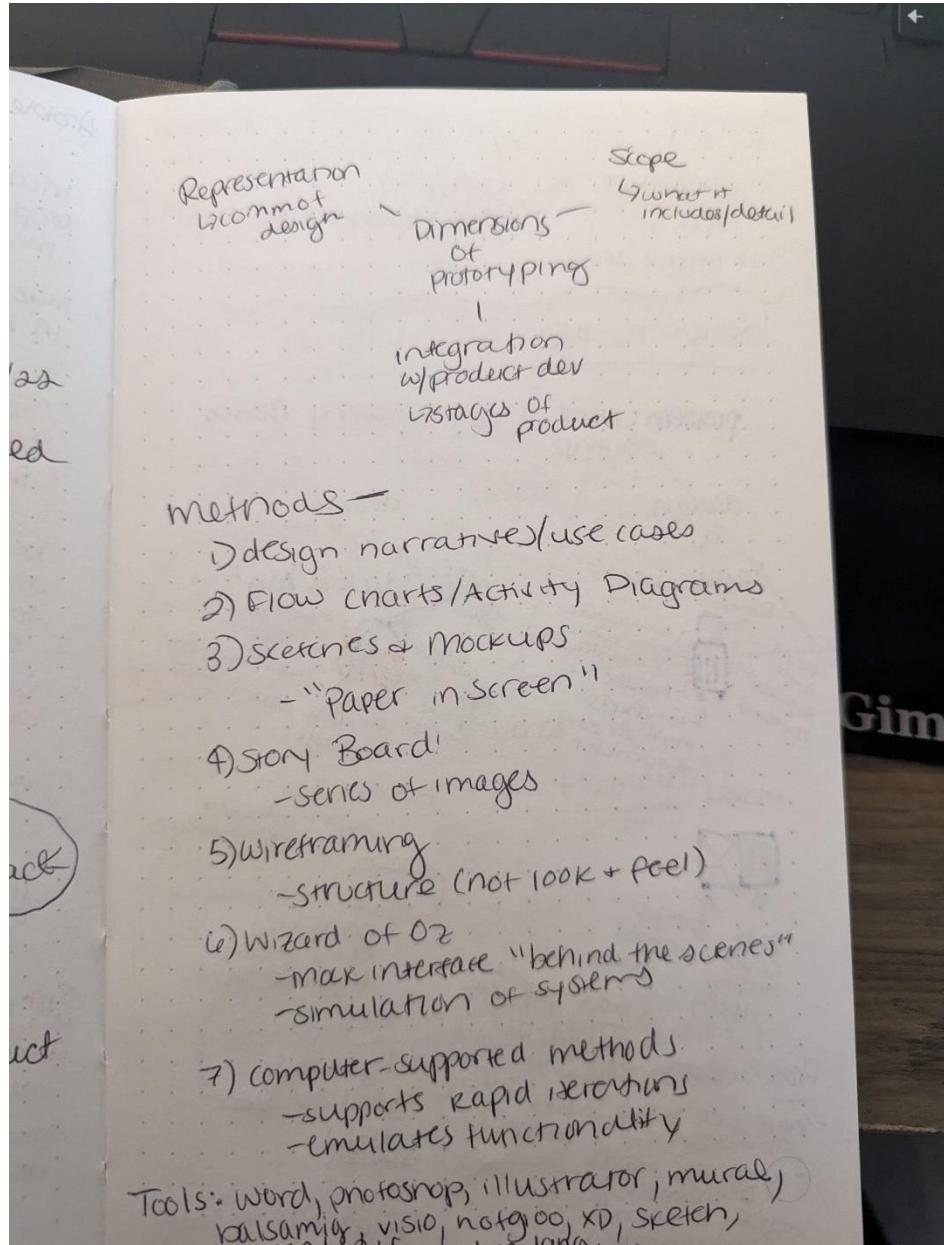
3) sc

4) Sre

5) Win

6) W

7) Co





10-3-1

- prototype 10
- Pick 3
- Fully dev 1

Apples approach

design no #6

**problem:** Need a way to carry items on trip

design  
a



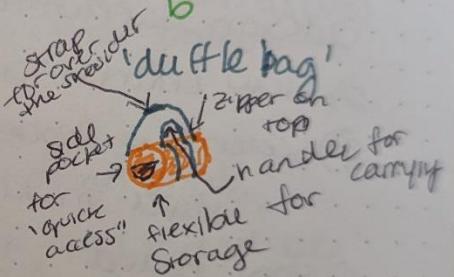
inside



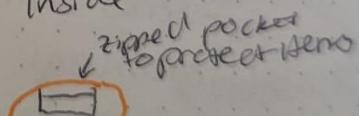
Pros  
- hard shell more protective  
- good for travel  
- easy to carry long distances

Cons  
- bulky  
- may be more than you need

design  
b



Inside



Cons  
- not as flexible  
- bulky

Pros  
- light weight  
- good for short trips  
- flexible

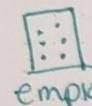
Cons  
- hard to carry long distances

Week

Test

Focus

## PTO for Reading



→ makes deal  
with insurance  
company to  
get people reading  
for health

↓  
Rolls out  
Read for  
PTO to  
employees

Benefits: Up to 2 PTO per  
quarter  
• 300 hrs of reading  
logged + 30 min call  
session with insurance  
professional on  
the impact of reading  
in their life per quarter  
• 600 hrs of reading  
+ 30 min call session  
= 2 days



→ Learns about  
Read for  
PTO

→ Reads for  
300 hrs  
per quarter

employee  
(non-reader)

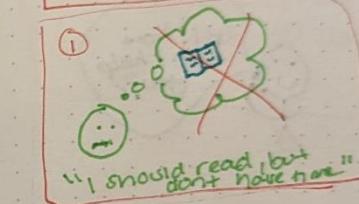
calls insurance  
professional  
to tell about  
experience

→ submits  
PTO to  
HR

→ HR SPS  
provider  
day off

## Reading Rewards

(Log reading)



① "I should read, but  
don't have time!"

② Free PTO  
for reading!



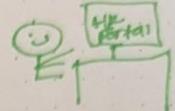
③ "I guess I could  
try to read  
for some extra  
paid vacation!"

## Reading Rewards Welcome, user123



"Wow, this is so rewarding. I'm glad that my company cares about my health + well-being!"

⑥

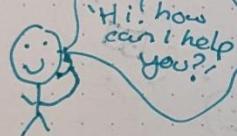


- \* logs reading
- \* call req checked off
- \* submits PTO request

⑤



\* calls insurance rep



"Hi! how can I help you?"



"Yes, calling to tell you about my reading experience. I find that the program motivates me. Additionally, I feel less stressed and am getting better sleep!"



"That's great! I will mark the requirement as complete!"

⑦

congrats! Your PTO request was approved. You have 1 year to use the day off.

⑧

## Reading Dashboard for employers

200 employees have submitted PTO for reading

100 were approved for 1 day

20 were approved for 2 days

50% reported **less stress**  
80% reported **better sleep**

# Test

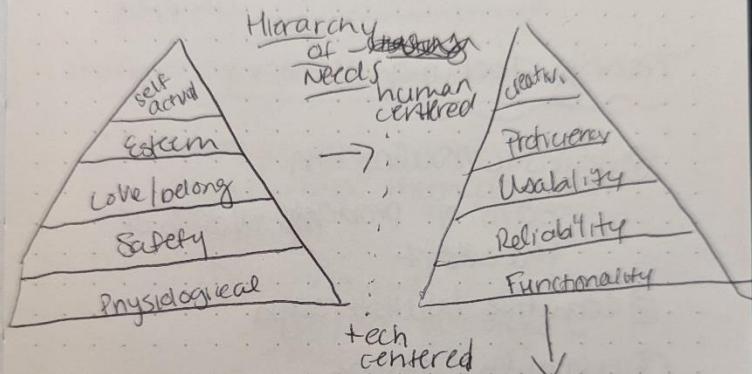
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## Week 7 : Testing

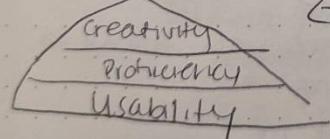
2/16/22

### Testing Theory :

- usability testing
  - evaluating a product/svc by testing w/ representative users



Focus



Usability

the extent to which a product can be used by specified user to achieve goals w/ effectiveness, efficiency, & satisfaction in a specified context

usability inspection      Analytical (not empirical)  
                                Experts (not sys users)

Testing + Timing      Formative - testing along the way  
                            Summative - testing @ the end

## Testing Techniques

### ① Heuristic Evaluation

- 80% of problems w/ 20% of the effort

### ② Cognitive Walkthrough

### ③ Usability Testing

Steps:

1. decide what you want to learn
2. Find users
3. Create a protocol
4. Plan data collection

What to measure?

- task completion rate/time
- critical errors
- non/crit "
- error rate
- task level satisfaction

what to test?

- paper protot.
- functional "
- early releases
- major revisions

use what you learned  
↳ fix the problems

### Proficiency + Creativity Testing

\* Proficiency - design that empowers people - helps them do better

→ Testing:

① Experiments

- \* compare outcomes
- \* meas. impact on learning; engag.; motivation

② Field Studies/Deployment

- \* understand how ppl use design in natural setting
- \* hi-fi

\* Creative design - facilitating interaction in innovative ways

→ Testing:

③ Ethnographic - interviews, observe

④ Longitudinal studies to meas. adaptability

⑤ Psychological instruments to meas. emotional states



## Week 7: design nb

### Redesign - testing

#### 1. Current

oven



Air fryer oven



combine

can  
toggle  
which to  
use & have  
diff settings



#### 2. Banking - log in to multiple sites

PNC

JPMC

Ally

Etrade

Vanguard

all in one

api end point  
that you enable  
via phone auth or  
you enable

Your Assets!

Total Bal.  
Worth: \$16,000  
Total Cred  
Bal: \$500

> PNC

> JPMC

> Ally

> Etrade

> Vanguard

Your Assets!

> PNC

Check \$200 transfer  
Sav \$1000 transfer  
Card123 \$100 PAM

> JPMC

> Ally

> Etrade

> Vanguard

# Design Ethics

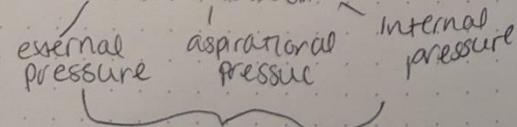
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Week 8

+ values

4/22/22

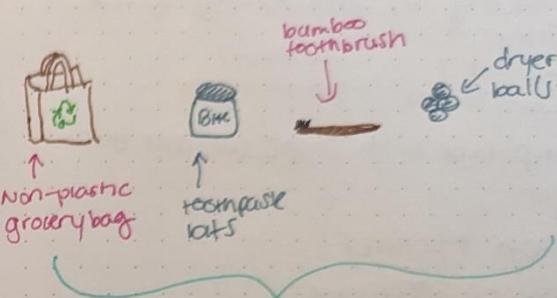
- Normally we think of design in terms of actions + functionality
  - \* values lens is diff - focuses on "who we are" w/ a design - ways of being
    - \* we shape our tools & they shape us
- Value sensitive design lab
  - \* add values into the design process
  - \* what if we don't like someone's values?
- add in virtue perspective
- innovate responsibly
- Center for Humane Tech
  - \* Problem w/ Humanity
    - "paleolithic emotions, Medieval institutions, god-like technology" (EO Wilson)
    - \* Need systemic soln
    - \* end systemic surveillance capitalism
    - \* △ how tech is built



ask transformational  
questions

design nb wk8

"values" lens



"Eco-friendly" designs

Virtues

- pro-environment
- mostly easy to use
- often re-usable - don't need to keep repurchasing or buy often

Ethical dilemmas

- doesn't address it at a systemic level
- not always cost-effective compared to less environmentally friendly options
- Not always accessible to the majority

# Speculative Design

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4:53 PM

## Week 9: Speculative Design

3/2/28

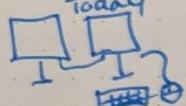
- Exploring vs Solving problems
- Asking vs Answering ques.
- Forms:
  - Stories      • scenarios
  - Artifacts    • vision videos
- Empathize with people who don't exist  
Yet
- Design Futures
- How to speculate?
  - look @ current tech/trends
  - Ask - what if..?
  - Back-cast - get info from the past
  - consider the ecosystems  
"Big Pic View" - how systems fit together
  - determine social/cultural implications

design no. WK #9

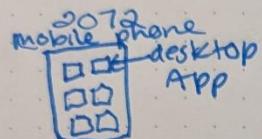
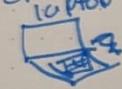
8/4/22

## Future 2072

Computers  
today



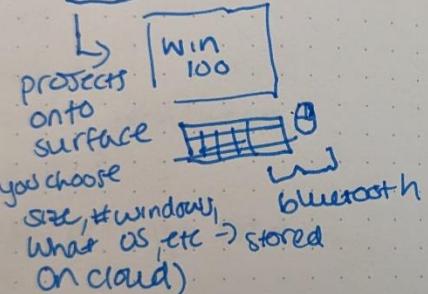
or laptop



mobile phone

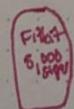
desktop

APP

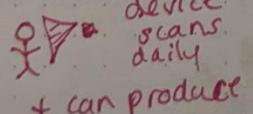


### SMART Watches

Today



2072



device scans daily

+ can produce

stats:

steps, HR, HRV, resting blood sugar, cals consumed/burned, hormones, stress level)

### Parallel Parking

Today

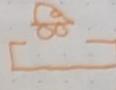


spot

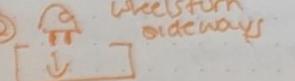
wheel turn at angle

spot in front of spot

2072

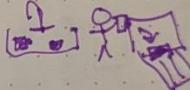


① press parallel park button



### Loading the dishwasher

Today



2072



press button for mug sink sort mug into dish washer below

# Participatory Design

Friday, February 24, 2023  
4:53 PM

## Participatory Design

Week 10  
3/7/22

des

- \* those destined to use it play a critical role in designing it
- \* political - geared to value input from traditionally disempowered groups
- \* serve people equitably

### How? Workshops

↳ generates new ideas

↳ steps:

- ① Break the ice
- ② Talking about issues for investigation
- ③ Gathering design ideas
- ④ Wrap up

\* Diff from traditional design by creating a 2 way design discussion

### Design tips + Tricks

- color tools: <https://color.adobe.com/>
- serif better for long text
- sans-serif " " short
- uxpro.cl
- use grid layouts

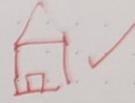
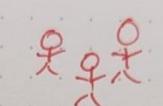
Week 10  
3/7/22

## design nb #10 - Safari



} all in one system  
• smoothies  
• food processor  
• blender

Movers



+ Subscriptions  
for hair products  
+ hand wash

How I think about design?  
(compared to start of  
class)

similar: I find designs that simplify  
as 'good' + 'bad' designs complicate  
life, easy for me to identify  
problems in 'bad' designs

different: less focus on just design  
as objects but expanded interest in process,  
better able to empathize with users  
speculative approaches, problem as  
stated not always design prob.