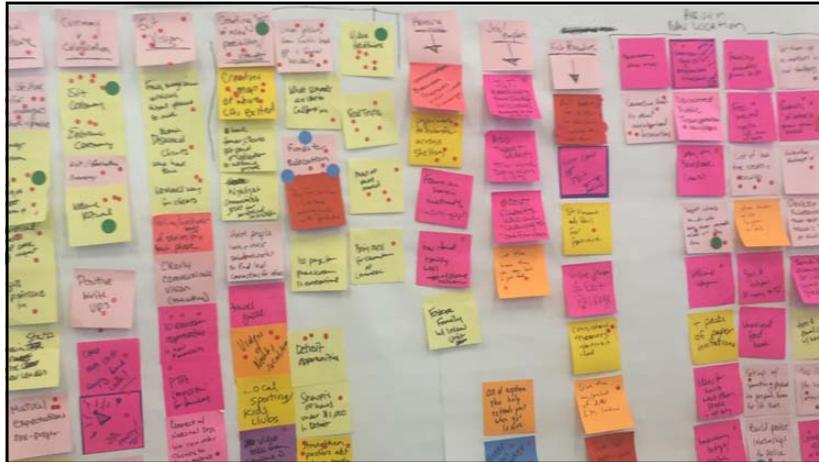
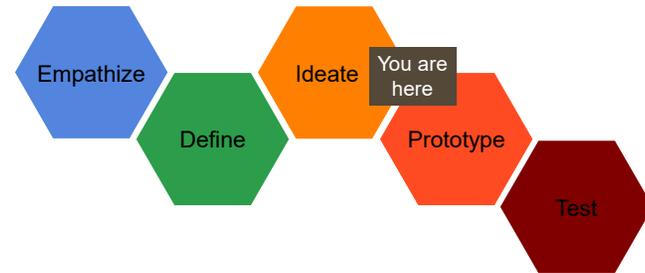


# Rapid Experimentation & Experience Prototypes

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## design thinking process



how do you know if  
you are on the right track?

## rapid experimentation

a method for assessing if your ideas meet people's needs by testing targeted experiential prototypes

## feedback methods

rapid experiments

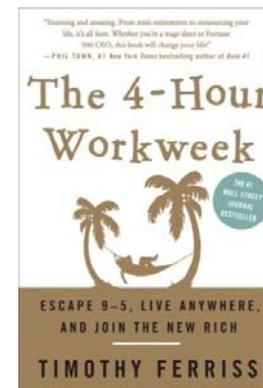
what will someone actually do

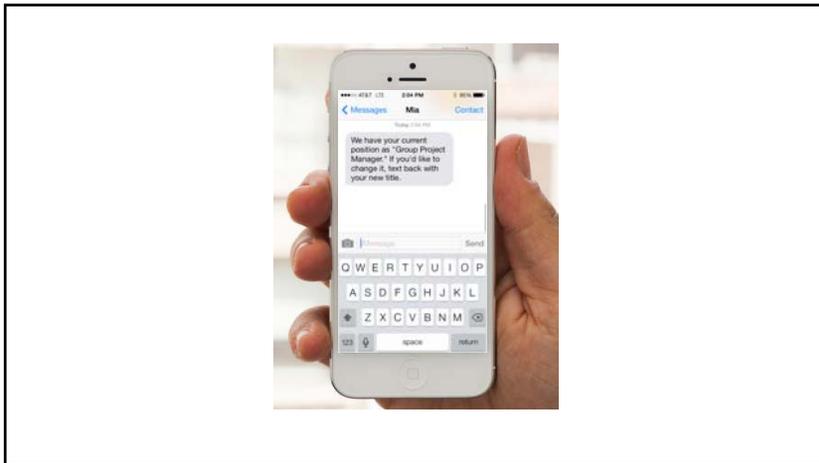
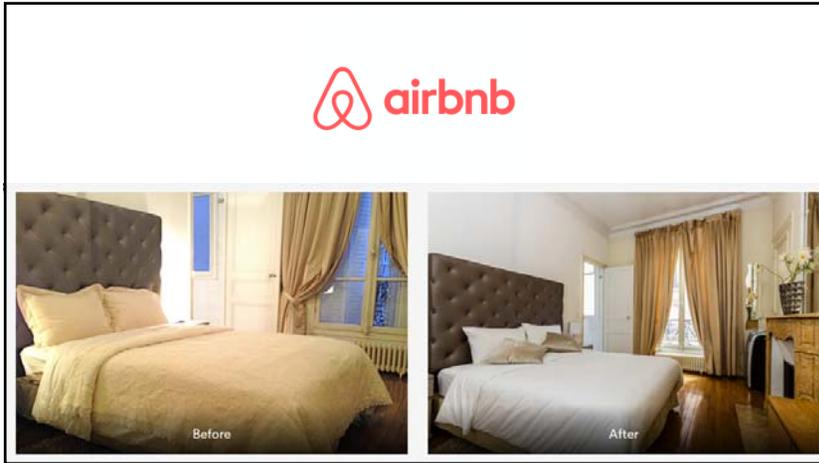
usability test

survey

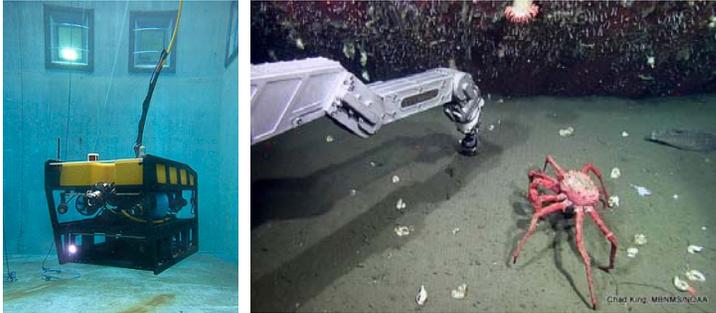
what they might do

rapid experiments separate what customers **say** from what they **do** in the real world

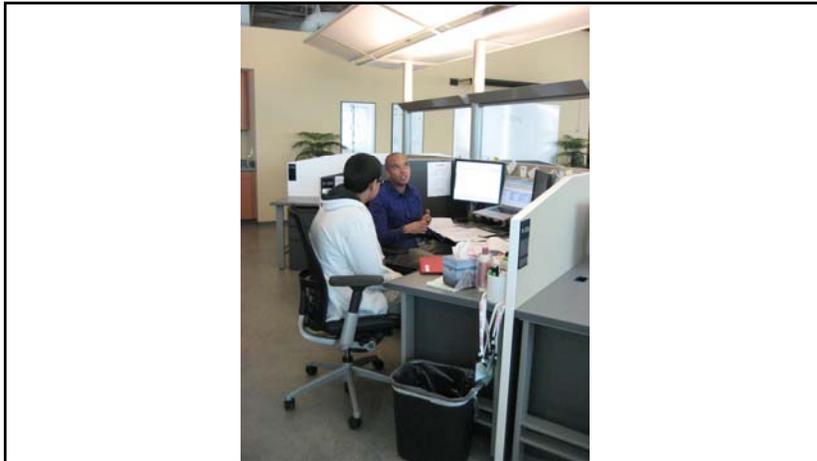




## ROV



## ROV

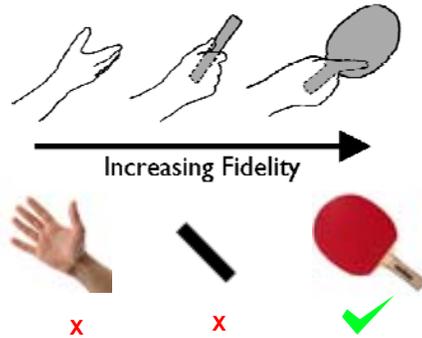


## what is an experiment?

- a scientific procedure—a controlled empirical test of a hypothesis
- hypotheses include:
  - A causes B
  - A is better, bigger, faster than B
  - A changes B more when we do/provide X
- requirements:
  - independent variable that can be manipulated
  - dependent variable that can be measured
  - random assignment to condition (conservatively)

## a well designed study

- **Question:** How does the presence of a (realistic) physical controller influence video game play and experience?
- **Hypothesis:** High prop fidelity will improve the experience.
- **Manipulated Variable:** Prop fidelity
- **Random sample:** 18 right handed, non-technical subjects



## a well designed study

### Prototypes



### Measured Variables

Behavioral measures:

- Wins
- Misses

Also recorded preferences via interviews w/ each person

## designing experiences

- the goal is to evoke “real” behaviors in “real” situations
- the scenario must be
  - believable
  - immersive
  - natural
- and, allow you to test/measure what you need to



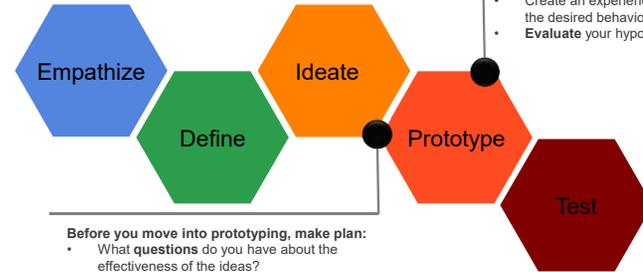
## What can an experiment test?

- does my intervention have the desired (and not undesired) effects?
- are people going to behave the way I think they will based on my needfinding research?
- will people do/use this given all other choices/demands available?
- can people figure out how to use/do it?
- which design is better (at any of the above)?

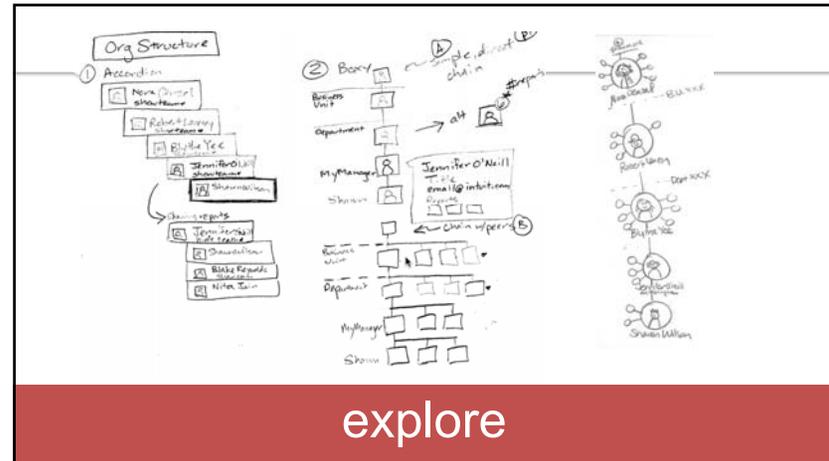
## Steps to running an experiment

1. Make a list of all the questions you have about the efficacy of the idea
2. Select the most critical question to success
3. Generate a hypothesis
4. Design an experiment to test your hypothesis
5. Create the experience prototype to support the experiment

## design thinking process



## 3 main reasons to prototype





creating an experiment

- the process
1. Make a list of all the questions you have about the efficacy of the idea
  2. Select the most critical question to success
  3. Generate a hypothesis
  4. Design an experiment to test your hypothesis
  5. Create the prototype to support the experiment

## 1. generate a list of questions

### implicit bias

the concepts we generate often have implicit assumptions about how people will respond and what people will do

“People are more likely to act when they see a staged photo of an AirBNB.”

“People won’t be upset when they visit an AirBnB and it looks a bit different than the photo.”

### play devil’s advocate to your bias

- what are the crucial questions or assumptions that could make or break the success of your idea?
- what are all the questions you have about how this could work?

### example: airbnb photos

Questions:

- Do apartments with professional photos get rented more frequently?
- Do all the rooms in the house have to be photographed for this to work?
- Will people find the staged photographs dishonest after they stay at a place and leave bad reviews?
- How will homeowners and photographers arrange the appointment?

## you be the devil's advocate (10 min)

- think through the assumptions underlying your concepts and crucial questions that, if answered, would give you more confidence in your design
- capture 6-12 critical questions about the idea

## 2. pick a question

## how to pick

- most critical to answer first for the user experience
- validates the match between need and solution
- specific enough to be tested rapidly
- avoids confounding the results
- NOT
  - too broad and high level "Does everyone like it?"
  - too technical "Is it technically feasible?"
  - too logistical "How will I implement it exactly?"

## example: airbnb photos

### Questions:

- Do apartments with professional photos get rented more frequently?
- ~~Do all the rooms in the house have to be photographed for this to work?~~
- ~~Will people find the staged photographs dishonest after they stay at a place and leave bad reviews?~~
- ~~How will homeowners and photographers arrange the appointment?~~

### you do it (5 min)

- Adjust your questions as needed
- Pick 1 to focus on for testing

## 3. create a hypothesis

### create a hypothesis

- for your selected question, write down a hypothesis for what you think will happen
- examples:
  - When X happens, at least Y% of people will do this behavior
  - People will use this at least x number of times
  - People will respond more to A than B
  - People will react with [this emotion] when they are experiencing idea X

### you do it (3 min)

- Create a hypothesis for your selected question
  - examples:
    - When X happens, at least Y% of people will do this behavior
    - People will use this at least x number of times
    - People will respond more to A than B
    - People will react with [this emotion] when they are experiencing idea X

## 4. design an experiment to test your hypothesis

### design the experiment

based on your questions & hypothesis, generate ideas for an experiment that might answer your question

this is where you start thinking about your prototype

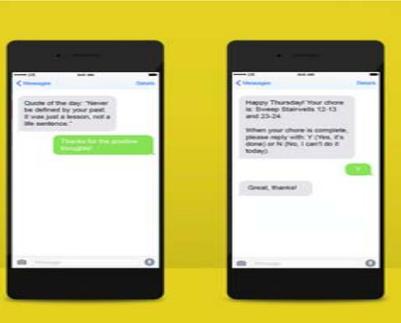
### design the experiment

- have a divergent discussion on ways to test that hypothesis, e.g. situations that would evoke those choices, experimental design
- choose one of these as the basis for your experiment and discuss how to prototype it

### design the experiment

- the goal is to create “real” behaviors in “real” situations
- the scenario must be
  - believable
  - immersive
  - natural
- AND, allow you to test/measure what you need to

## example: A/B test



**Situation:** LifeMoves, an program for homeless families, wants to provide text message services after people their program. They also want to track who remains housed and why.

**Idea:** Several competing ideas for SMS services.

**Questions:** Will people engage more with SMS service A or B? Will engaging with A or B result in more people taking follow up surveys.

**Hypothesis:** People will engage more with B and a higher percent will fill out the surveys.

**Experiment:** Run a text message service for 2 weeks with participants, intermittently sending surveys.

**survey ≠ experiment**  
 people are notoriously bad at predicting (and remembering) their own behaviors

## snacking study



## you do it (10 min)

- Think of an experiment to test your hypothesis
- Use the Experiment Planning worksheet
- Fill it out up to the Experiment Overview

### EXPERIMENT PLANNING WORKSHEET

BIG IDEA

QUESTION

HYPOTHESIS

EXPERIMENT OVERVIEW

DETAILED EXPERIMENT DESIGN

1. Participants (target participants, how many, recruiting strategy, compensation, additional people, etc.)

2.

3. Running study (length, plan for input during study if needed)

4. Analysis plan

OPEN ISSUES

1. x  
 2. y  
 3.

example worksheet

measure twice, cut once:  
planning to measure the results

plan for measurement

the logistics are going to take  
longer than you think

plan for recruiting

- How are you going to get participants?
- Is it organic or do you have to find the target audience somehow?
- Do they need to be compensated? When? Will this impact your results?
- Quant vs. qual sample size



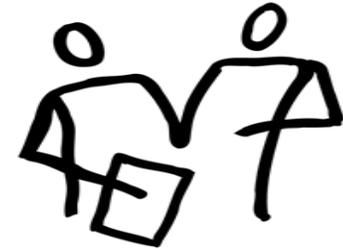
## plan for materials

- What prototype(s) do you need to create?
- Is there anyway to quickly automate it? How much work will it be?
- Make a list of **everything** you will need to find/buy/create



## plan for running the study

- Will someone need to man/monitor it all times? Who will that be?
- Are there intermediate check-ins?
- What happens if things go wrong?
- Do you need to debrief participants?



### SCENE-PROPS-ROLES TOOL

#### SCENE of the experience

how do you make where you are feel like the "real" setting/context?

#### PROPS in the experience

what are the rough versions of the physical things?

#### ROLES involved in experience

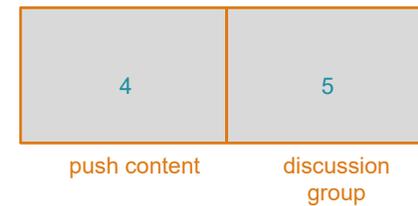
what are the roles of those "creating" the experience? who are "receiving" the experience? (save these notes for feedback)

## plan for analysis

- figure out how you're going to analyze your data
  - what conclusions will you be able to draw from the data?
  - will you interview participants after? when?

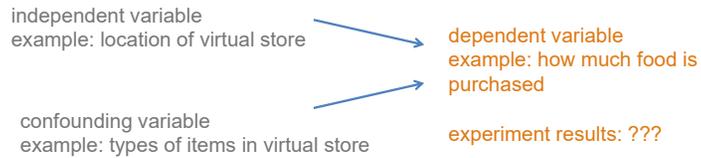
Did they fill out the survey?

How many times did they post in condition B?



## confounding variable confusion

A confounding variable is another variable whose effect on the dependent variable cannot be separated from the independent variable in the study.



## you do it (10 min)

- Fill out the Detailed Experiment Design and Open Issues for your project

### EXPERIMENT PLANNING WORKSHEET

#### BIG IDEA

#### QUESTION

#### HYPOTHESIS

#### EXPERIMENT OVERVIEW

#### DETAILED EXPERIMENT DESIGN

1. Participants (target participants, how many, recruiting strategy, compensation, additional details, etc.)
2. Preparing for study & prototype creation (including any required software, supplies, additional details, etc.)
3. Running study (length, plan for night during study if needed)
4. Analysis plan

#### OPEN ISSUES

1. x
2. y
- 3.

## Create the experience prototype



run the experiment  
&  
analyze your results

## Homework

- Optional: Run your experiments on this week on more people
- Design and run 3 experiments
  - The experiments can be brand new or an evolution on what you did this week
  - For each make an experiment worksheet
  - Run each experiment on 3 people (2 of 3 people should be in our target audience for each experiment)
  - Come to class ready to run an experiment on our classmates