Rapid Experimentation & Experience Prototypes

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design thinking process

Empathize
Define
Ideate
Prototype
Test

You are here

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
- usability test
- survey

What will someone actually do
What they might do

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

The 4-Hour Workweek

Timothy Ferriss
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

**Measured Variables**

- **Prototypes**
  - Behavioral measures:
    - Wins
    - Misses
  - Also recorded preferences via interviews w/ each person

**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)?

**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
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

3 main reasons to prototype

Before you move into prototyping, make plan:
- What questions do you have about the effectiveness of the ideas?
- What is your working hypothesis about what will happen?
- What kinds of observations would validate your hypothesis?
- What experience prototype(s) do you need to create for these observations?
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.”

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**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?

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**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**

- 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**

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

  *this is where you start thinking about your prototype*

- 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
Situation: LifeMoves, a program for homeless families, wants to provide text message services after people leave 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.

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

Participants: Target participants, how many, recruiting strategy, compensation.

Materials: Devices, software, supplies, other needed items.

Procedure: Sequence of events, start, stop, duration.

Analysis plan

Open Issues:

• •
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?

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?

4 | push content

5 | discussion group
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.

- independent variable example: location of virtual store
- confounding variable example: types of items in virtual store
- dependent variable example: how much food is purchased
- experiment results: ???

you do it (10 min)

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

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