design
aesthetic
Blade boxes!
A bit of Mechanical Engineering

Engineering estimation

order of magnitude or range of values
A bit of Mechanical Engineering

Baselines

1 W
100 W
1 kW
10 kW
100 kW
1 MW
10 MW

kW = Thousand W
MW = Million W

MIT Building 39
Estimation Game

How many Prus across the Harvard Bridge

Pru height?

~230m

Harvard bridge length?

~620m

between 2 and 3
Estimation Game

Cost per kernel of popcorn at the theatre?

price of bucket?

volume of bucket?

volume of popped corn kernel (packing factor)?

~0.25–1¢ per kernel
Estimation Game

Tooth Tunes Battery weight?

how often should you change toothbrushes? how often and long should you brush?

how much power does it require?

AA battery energy: 10kJ
AA battery mass: 20g

~20–40g (1–2 AA batteries)
Estimation Game

Mechanical Bull in House?

power requirement for mechanical bull?

standard voltage in house?

standard circuit breaker current?

240V x 30A = 7200W
120V x 15A = 1800W

~ sure
Estimation Game

Hot dog in the Easy Bake?

\[ Q = mC_p \Delta T \]

50–200g and 20–60°C

Power of Easy Bake
Sketch Model Review!

12–16 people reviewed each concept
Sketch Model Feedback

testing play value!
Sketch Model Feedback

Feedback is the important part, not the scores

Download from course website

old folks!
Play Testing!

Boston Children’s Museum
Next Play Testing

Wednesday 3:30–5:00PM at MIT Museum

Bring your sketch models
Aesthetic

Sensory Perception

Why do we like certain things?

Is this subjective?
Power of Aesthetics

Aesthetically pleasing objects enable you to work better. Products and systems that make you feel good are easier to deal with and produce more harmonious results.

—Norman
Which do you prefer?
Which do you prefer?
Which do you prefer?
People will buy what looks better as long as they believe it works well enough.
People will buy what looks better as long as they believe it works well enough and if it looks really good, it doesn’t even need to “function”
Product Aesthetic

aesthetics are important in product design

purely aesthetic products

self image

first impressions

shelf presence
Product Aesthetic
Form
Color
+ more
Syntax
consistency in form vocabulary

in font choice
in color choice
in form language

I'll always find you

I'll always find you
Syntax

importance of form vocabulary
Product Aesthetic

Form

Color

+more
Symmetry

it is natural to find symmetry aesthetically pleasing
Symmetry
why?
Symmetry and Balance

symmetry

balance
Proportion
Golden Ratio 1: 1.618
Proportion + Form language
Consistency!
Proportion + Form language

Consistency!
Proportion + Form language

Consistency!
Complexity

Aesthetic Value

Complexity of Activity

laymen

experts
Complexity

Complexity of Activity

Aesthetic Value

laymen

experts
Complexity

Aesthetic Value

- laymen
- experts

Complexity of Activity
Color

- Primary
- Secondary
- Tertiary
Color

- Primary
- Secondary
- Tertiary

- Analogous
- Complementary
Color Pairing

Analogous
Color Pairing

Complementary
Color Branding

John Deere

THE HOME DEPOT

IKEA

Coca-Cola
Color Branding

Hungerectomy

Sody Pop
Aesthetic and Multiple Senses

All products are multimodal

Controlling all the modes

Product Coherence
Aesthetic and Multiple Senses
Taste + Smell
Aesthetic and Multiple Senses
Sound + sight

McGurk Effect
Aesthetic and Multiple Senses
Narrative + sound

The Yakety Sax Effect
Aesthetic and Multiple Senses
Narrative + sound (or not)
Multi-Sensory Product Aesthetics
Lab

Coming to lab is important

Showing up is 80% of life.
—Woody Allen

Attendance in lab is critical to the course, and three missed or late arrival at labs (more than 15 minutes) without prior arrangement will result in an F grade.

—2.00b Syllabus
Assignment for lab

Carefully review the feedback for your team’s two concepts

Find two strong points and two weak points about each concept

Think of one way of improving each concept based on feedback and play testing

Write all of this in your notebook and bring to lab this week
Assignment

If you play tested at the museum…

Update the rest of your team, before lab if possible!
In Lab

Bring laptops!

Bring sketch models!

Reviewing pros and cons of the ideas and improvement suggestions

Narrow to one concept


a good designer isn’t afraid to throw away a good idea
Looking ahead...

Next review: April 19th

As a team, build two more-refined models:

- a works-like
- a works-like or looks-like

At least one model is play-able for play testing (April 21st)

What's the main technology?
Play Testing

Wednesday 3:30–5:00PM at MIT Museum

Bring your sketch models
Estimation Game

Hot dog in the Easy Bake?

\[ Q = mC_p\Delta T \]

50–200g and 20–60°C

Power of Easy Bake
Estimation Game

Hot dog in the Easy Bake?

Q = mC_pΔT

50–200g and 20–60°C

Power of Easy Bake

5–10 min without losses
Estimation!
is a **super important** thing!
design
aesthetic