

Design in the Real World

DCI580 • DCI780

August 23, 2017

I did not direct my life. I didn't design it. I never made decisions. Things always came up and made them for me. That's what life is - B. F. Skinner

Failure

Failed Haiku

Five syllables first

Second one has seven more

A failed Haiku!

**Words related to design
(silently)**

**Now talk and discuss and come up
with a sentence that captures your
group's thinking**

Now convert into a haiku!

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A bit about **me**

Punya Mishra

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my
dream



my
dream

& I'm scared of roller
coasters and horror films!

Love science & math



Introductions

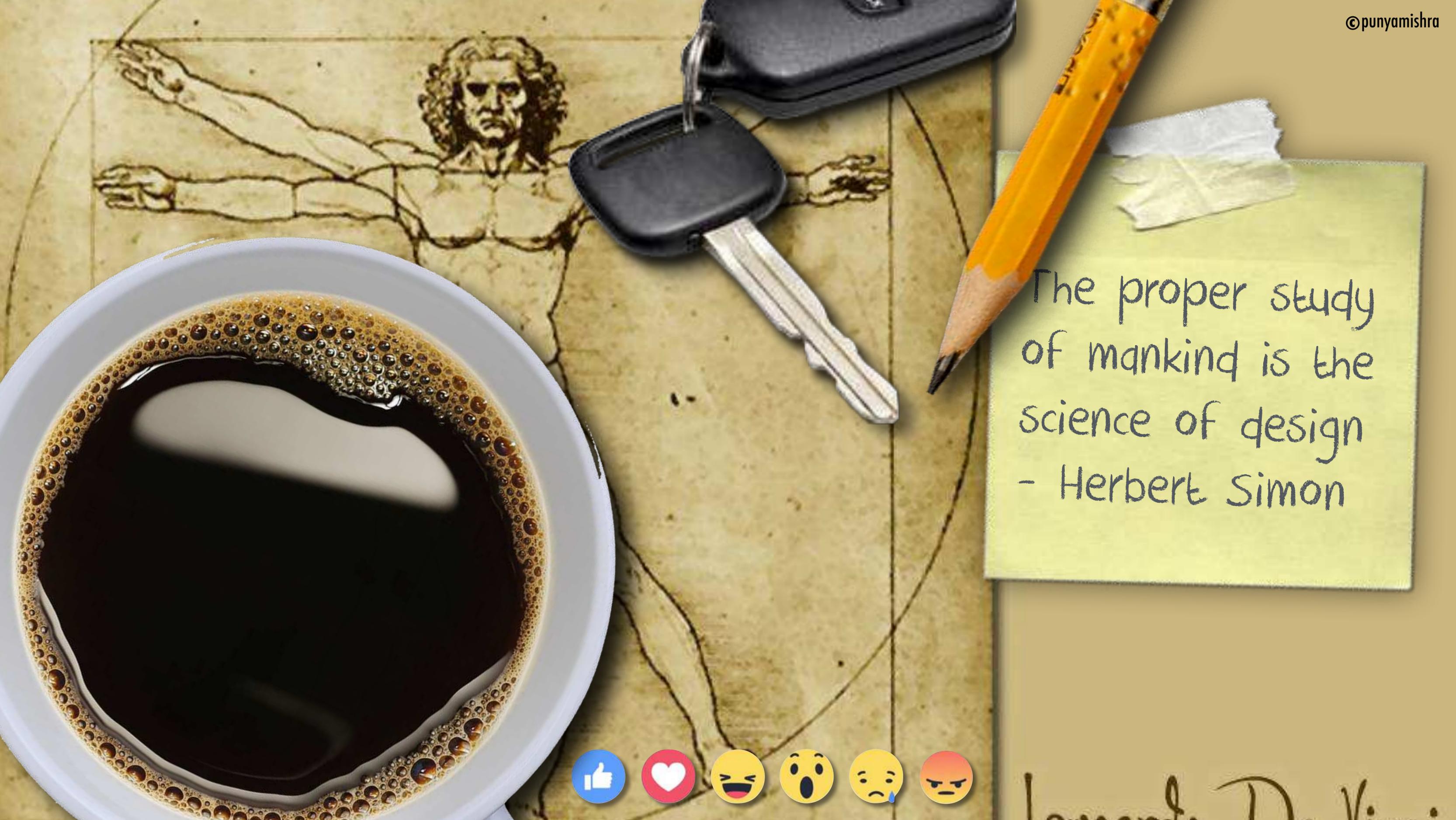
Living in a world of artifice

Almost everything around us is designed
Even the most surprising things

Strange Statement of the day:
My kid's school has a zero-technology policy!

“Design is the fundamental **soul**
of a man-made **creation**”

—Steve Jobs



The proper study
of mankind is the
science of design
- Herbert Simon



Leonardo D. Vinci



As with most media from which things are built,
whether the thing is a cathedral, a bacterium,
a sonnet, a figure or a word processor,

ARCHITECTURE DOMINATES MATERIAL

To understand clay is not
to understand the pot.
What a pot is all about
can be appreciated
better by understanding
the creators and users
of the pot and their need
both to inform the material
with their meaning and
to abstract meaning
from the form

DESIGN IS POETRY

...much more than simply to assemble, to order, or even to edit: it is to add value and meaning, to illuminate, to simplify, to clarify, to modify, to dignify, to dramatize, to persuade, and perhaps even to amuse. To design is to transform prose into...

Paul Rand



The goal of

A DESIGNER IS

to listen, observe, understand, sympathize, empathize, synthesize, and glean insights that enable him or her to 'make the

INVISIBLE

visible'

Hillman Curtis

The context (MLFTC)

Arizona State University

**A New
American
University**

Education and Leadership is established on West campus.

1994



Ira and Mary Lou Fulton

2006

School of Educational Innovation and Teacher Preparation is established at the Polytechnic campus.



Mary Lou Fulton Teachers College

ARIZONA STATE UNIVERSITY



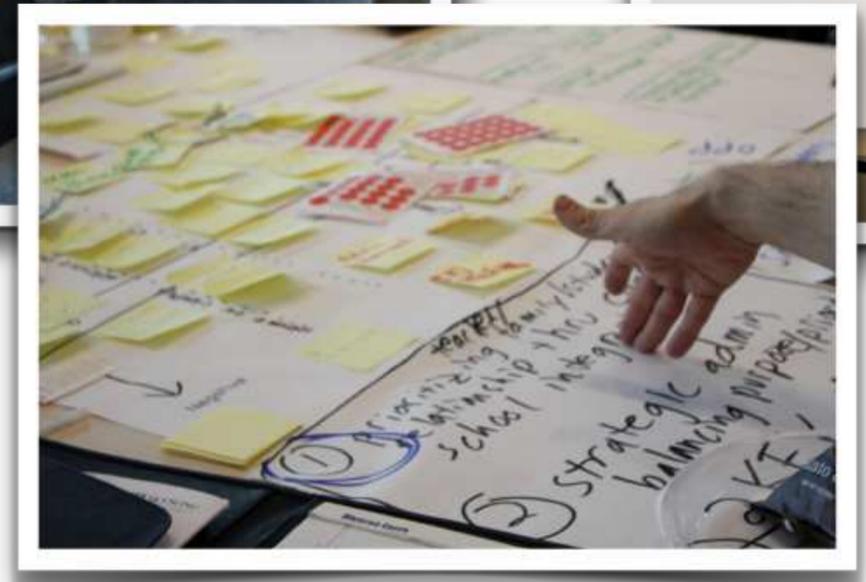
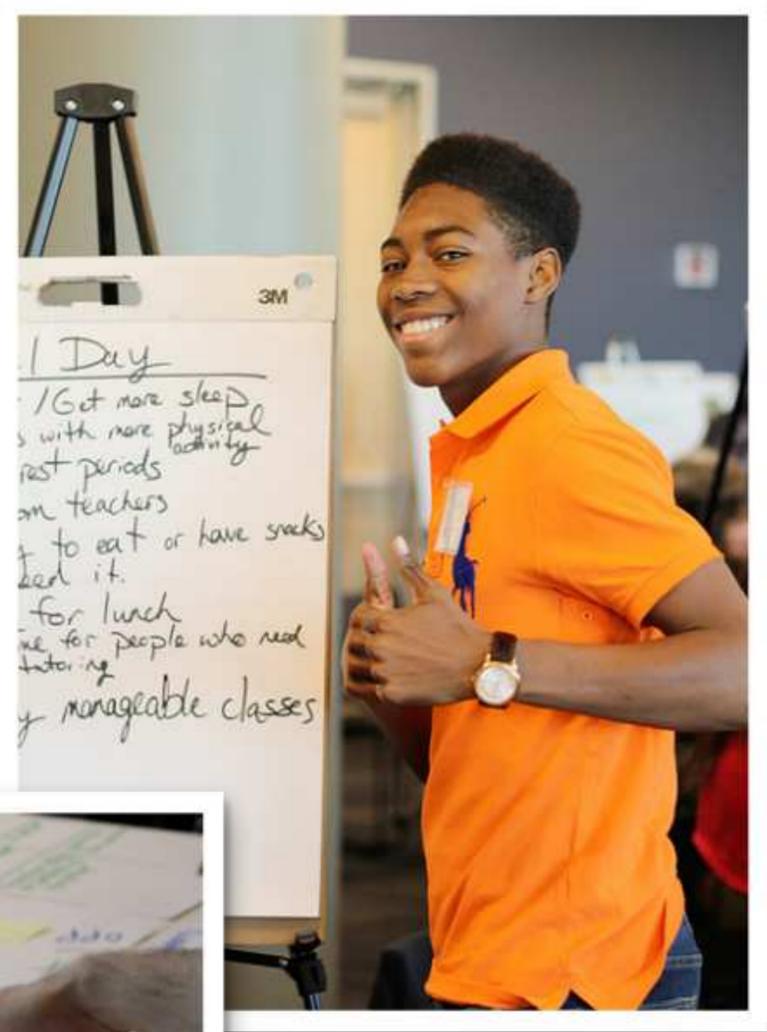
Rusty and Rosie Lyon (BAE, 1953) donate \$1 million to establish the Rosie Lyon Scholarship Fund, which provides financial aid to Arizona students attending the College of Education.



College of Teacher Education and Leadership opens classes at the Downtown Phoenix campus.



A \$2.7 million donation establishes the Murry and Cary Walker Scholarship to support



Leadership
Intrapreneurship
Design Thinking

Design matters

From Garr Reynolds:

Knowledge workers (accountants, teachers, engineers, doctors, retailers, front office staff, whatever) are all designers

...design is about humans creating great works that help or improve the lives of other humans, often in profound ways, and often in ways that are quite small and go unnoticed.

Good design changes things.



Paul Bennett

The blinding glimpse
... of the bloody obvious.

Finding yourself
...in the margins

Having beginners mind
Reframing the ordinary

Picking battles big
enough to matter

... and small enough to win.

Good / Bad Design

(a bi-weekly feature)

August 24, 2008, 7:06 PM |  70 Comments

How Design Can Save Democracy

By RICHARD GREFND JESSICA FRIEDMAN HEWITT

Richard Grefé is the executive director of [AIGA](#) and Jessica Friedman Hewitt is the managing director of its [Design for Democracy](#) program.

As the 2008 presidential election approaches, [state and local election officials are increasingly concerned](#) about having enough ballots, workers and equipment to handle the predicted high turnout. And with millions of new voters expected to head to the polls, ballot design will be more important than ever.



[Related Interactive: Ballot Design Problems and Solutions](#)

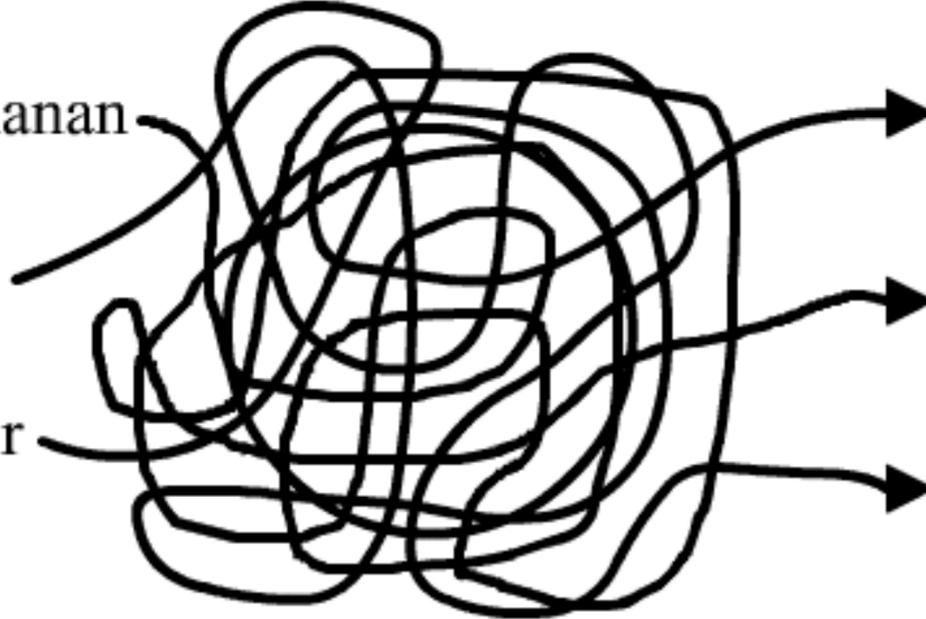
Official Florida Presidential Ballot

Follow the arrow and Punch the appropriate dot.

Bush



Buchanan



Gore



Nader



Good / Bad Design

Confusion over Palm Beach County ballot

Although the Democrats are listed second in the column on the left, they are the third hole on the ballot.

(REPUBLICAN) GEORGE W. BUSH - PRESIDENT DICK CHENEY - VICE PRESIDENT	1 →	
(DEMOCRATIC) AL GORE - PRESIDENT JOE LIEBERMAN - VICE PRESIDENT	5 →	← 4
(LIBERTARIAN) HARRY BROWNE - PRESIDENT ART OLIVER - VICE PRESIDENT	7 →	← 8
(GREEN) RALPH NADER - PRESIDENT WINONA LA DUKE - VICE PRESIDENT	9 →	← 9
(SOCIALIST WORKERS) JAMES HARRIS - PRESIDENT MARGARET TROVE - VICE PRESIDENT	11 →	← 10
(NATURAL LAW) JONAS RAGELIN - PRESIDENT NAT GOLDHABER - VICE PRESIDENT	13 →	
		(REFORM) PAT BUCHANAN - PRESIDENT EZOLA FOSTER - VICE PRESIDENT
		(SOCIALIST) DAVID McREYNOLDS - PRESIDENT MARY CAL HOLLIS - VICE PRESIDENT
		(CONSTITUTION) HOWARD PHILLIPS - PRESIDENT J. CURTIS FRAZIER - VICE PRESIDENT
		(WORKERS WORLD) MONICA MADREHEAD - PRESIDENT GLORIA La RIVA - VICE PRESIDENT
		WRITE-IN CANDIDATE To vote for a write-in candidate, follow the directions on the long stub of your ballot card.

Sun-Sentinel graphic/Daniel Niblock

<http://www.asktog.com/columns/042ButterflyBallot.html>

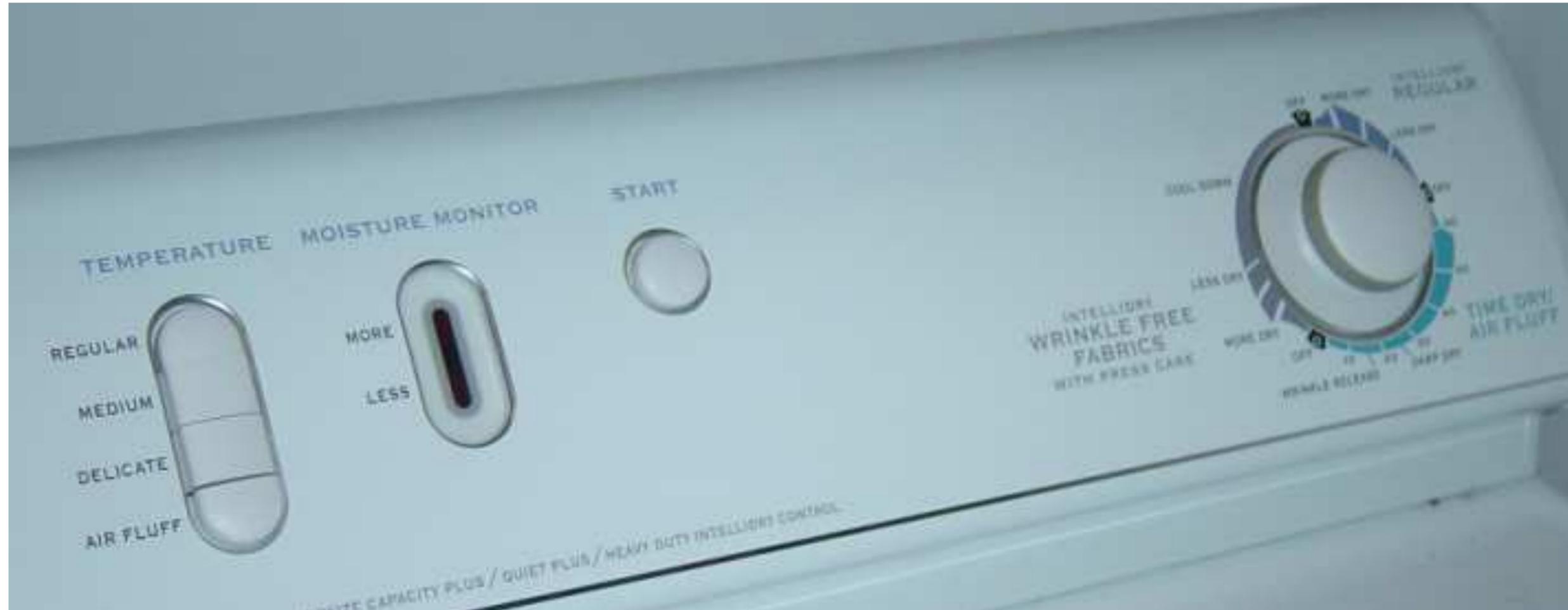
Good / Bad Design

Expensive Maytag washer and dryer unit in Punya's house



- Using the washer seems reasonably straightforward
- The sequence of steps goes from the left:
 - The knobs on the left let you choose water level, choose wash/rinse (temperature), and finally to customize the cycle... so far so good.
- And then you reach the big knob. Well, choosing the wash (colors, whites, or delicates) is easy. But what do you do to start the machine?
- This part is counter-intuitive. You have to PULL the knob outwards to start washing. Not great interface design, but hey once you know what to do it ok.
- The fun really begins when we get to the dryer!

Punya's washer/dryer contd.



- Once again the beginning is straightforward. Start once again from the left (choose temperature).
- And then, do I press the button in the center to start? But there is a knob up ahead (just like the washer)... maybe I should just go ahead.
- Ah, the knob is similar to that on the washer. So I guess this is what I have to do. Just turn the knob to the option I want and then pull it up and we should be all set... right?
- **WRONG!** What does happen?

This is what happens!



When you pull the knob. It comes off. The actual way of starting the dryer (once you have turned the knob to the setting you want) is by going back to the left and pressing the start button

So the question is, why did the designers of this system create this difference between the interfaces of the washer and the dryer! Why a start button in one case and not in another? The difference may seem trivial but the number of times I have pulled the knob out is not funny.

Example III: Visual proof in mathematics

- Consider summing up consecutive odd numbers.
So for instance

(one item)

$$1 = 1 = 1^2$$

(two items)

$$1 + 3 = 4 = 2^2$$

(three items)

$$1 + 3 + 5 = 9 = 3^2$$

(four items)

$$1 + 3 + 5 + 7 = 16 = 4^2$$

-

- and so on...
 - In other words the sum of consecutive odd numbers is always a square of the number of odd numbers being added!

So how do we prove this...

- Mathematically we would start as follows...

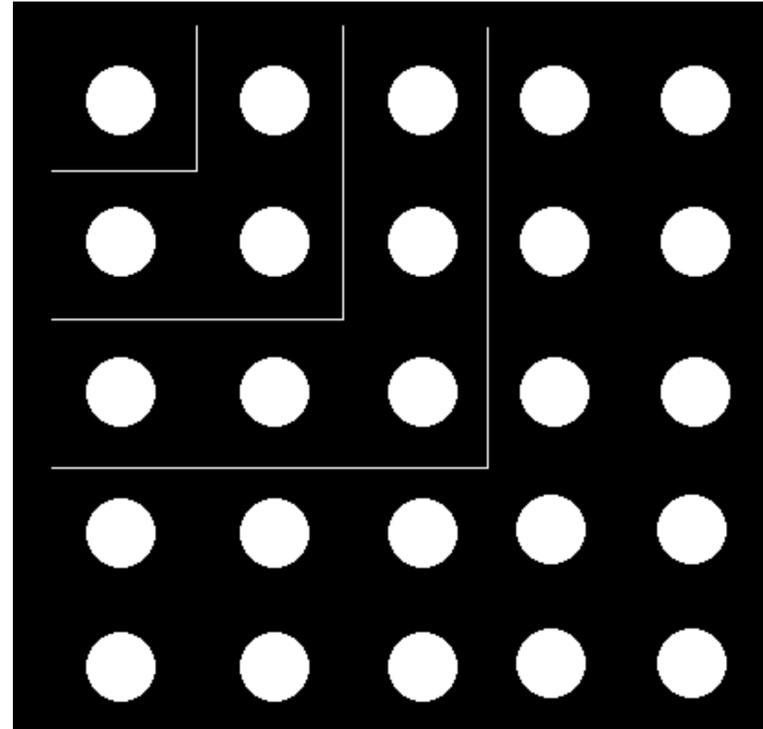
$$\sum(2i-1) = n^2 \text{ For } i = 1, 2, 3, \text{ and so on till } n$$

Proving something like this requires
mathematics, and hard work ...

Now consider the following visual proof...

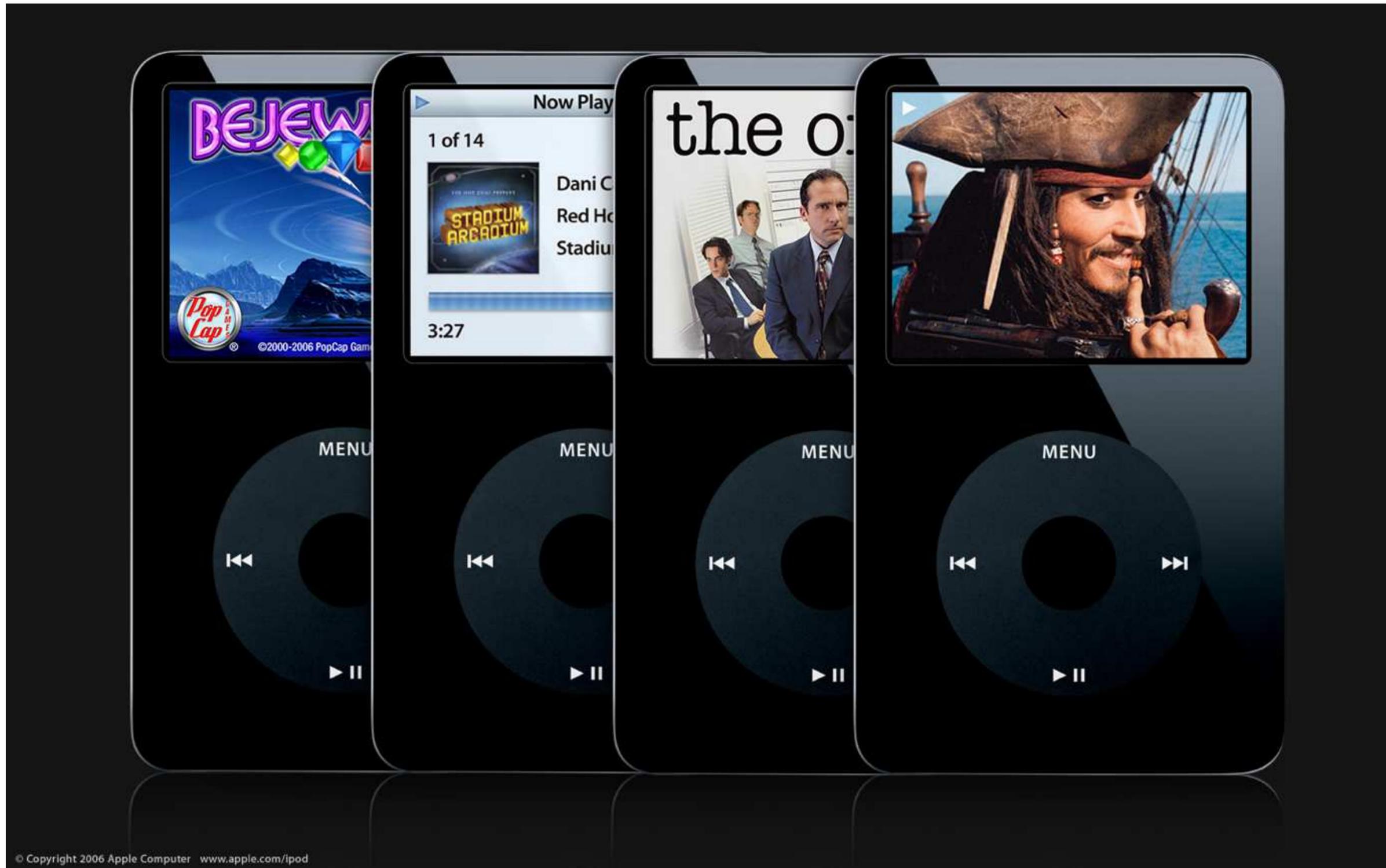
Sum of consecutive odd numbers

- Look at the following image.
- Q. How many dots are there in each L-shaped figure.
- A. 1 in the first, 3 in the second and so on



- Now consider what we get when we combine the first L shaped figure (the one with 1 dot) with the next one (with 3 dots). We get a certain kind of shape—a square! So $1 + 3 = 4$ (or 2^2)
- The same holds true as we keep adding larger and larger L shaped figures (i.e. consecutive odd numbers). It is visually obvious that we will have a square number each time!

The iPod & iTunes (and now iLife)



... Small

- Men's room at Schiphol airport (Amsterdam)



The course...

All the gory details

8/23	The idea of design
8/30	Design Thinking
9/6	Our relationship to things. (Intro to design project)
9/13	Wicked problems
9/20*	The roots of innovation - social (Book review due)
9/27	The roots of innovation - individual
10/4	Aesthetics, emotion, design
10/11	Creativity
10/18	Design & Users (Mapping experience due)
10/25	Design in Society I
11/1	Design in Society II
11/8	Learning by Design
11/15	Design Based Research (Intro design due)
11/22	
11/29	Last Class (Design project & final paper due)

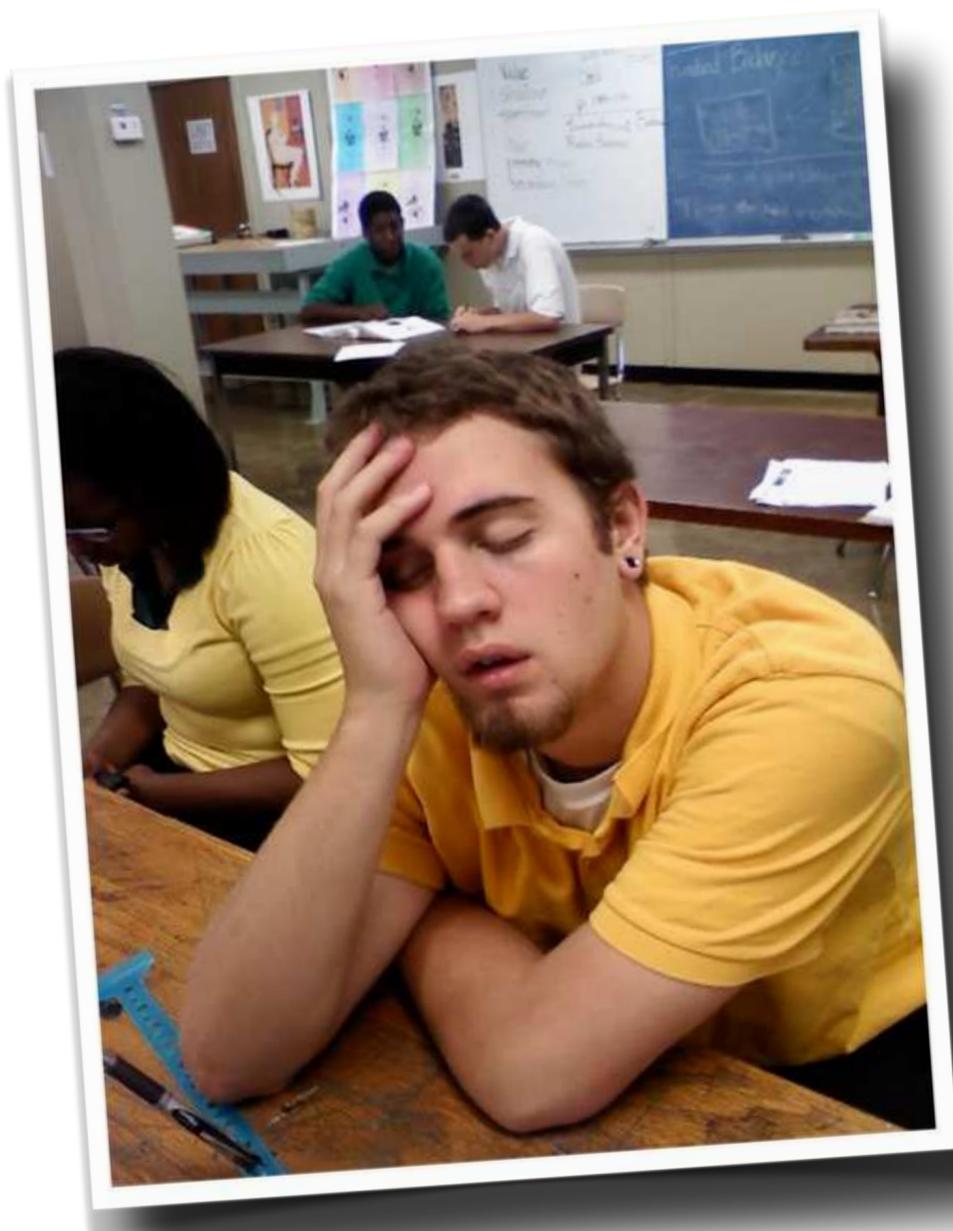
What *is* this

Design Thinking thing anyway?*

* *and why should we care?*

Design Thinking is a collaborative, open-ended approach that helps us creatively figure out a way, when we don't exactly know where we are going or even where we need to go...

There are are many different models of design thinking. The most standard model has 5 key steps - though there are those who argue that these steps are too constraining and actually the design process is more fluid than that. But before we get into the details of design thinking we need to understand the history of the idea. Back in the 1950's engineers realized that...



Lecture...

Boring!!!



Lecture...

Design Thinking

Quick search and report... Look up the person & the idea

Report back with a short description of person/idea and a key quote

- ▶ Herb Simon / *Sciences of the Artificial*
- ▶ Buckminster Fuller / *Design Science*
- ▶ Nigel Cross / *Designerly Ways of Thinking*
- ▶ Don Norman / *User Centered Design*
- ▶ Rittel & Webber / *Wicked Problems*
- ▶ Donald Schon / *Reflective Practice*
- ▶ David & Tom Kelly / *IDEO*
- ▶ Jane Fulton Suri / *Empathetic Observation*
- ▶ Ezio Manzini / *Slow Design*
- ▶ Koln International School of Design & Livework / *Service Design*

STEP 1: Breakfast

STEP 2: TAKE OVER THE WORLD

Everyone
designs who devises
courses of action aimed
at changing existing situ-
ations into preferred
ones - Herbert
Simon

Need soon

Website address for your work space

All assignments will be hosted there

Link to your reflection google doc.

To be maintained through the semester

The Assignments

- Creative explorations in design and technology (in 3 parts)
- Applying design thinking to a real problem
- Reflections on design and learning

Creative Explorations in Design and Technology

Three Parts (done sequentially over the semester)

- **Book Review Podcast:** In pairs
- **Mapping an Emotional Experience** (individual)
- **Designing an intro to Design Thinking**

Applying Design Thinking to a real problem

2 real design problems

1. Teacher Academy

Client Cindy Ballantyne,
Clinical Assistant Professor, Teacher
Education Program Manager, MLFTC

2. Digital Playground

Client: Sean Leahy
Director Technology Initiatives, MLFTC

Summary Reflections on Learning and Design

- Final paper for the course
- Approximately 5 single spaced pages (around 2500 words)
- Summary of learning/Reflections about design
- You will work on it throughout the semester, taking notes periodically in a Google doc
- Near the end of the semester, you'll synthesize and summarize these notes into a final reflection

Good/Bad Design

- For every synch session a pair of participants will present examples of good | bad design taken from their lives
- Examples **must** be discovered by the participants from their own lives (not copied from the internet)

Read n Tweet

- We will working with Steve Zuiker's class (that meets on Monday)
- Tweet out quotes, thoughts etc. from readings etc. with the hashtags #MLFTC #Design

Readings

- Each person will email questions, issues, topics from the readings to the group by Monday night.
- Punya / Melissa will collate and bring to class, and that will be the foundation of the discussion

Today

- Pair up and choose a book for your review podcast
- Think about design teams for Applying Design Thinking to a Real Problem activity

Next week*

The idea of design

- Simon, H. A. (1996). The sciences of the artificial. Cambridge, MA: MIT Press.
 - Chapter 1: Understanding the natural and artificial worlds
 - Chapter 5: The science of design: Creating the artificial
- Plattner, M. Introduction to Design Thinking: Process Guide

Questions?

Before we leave...

Remember to start your Google Reflection doc
and take some notes from today...

Thanks