

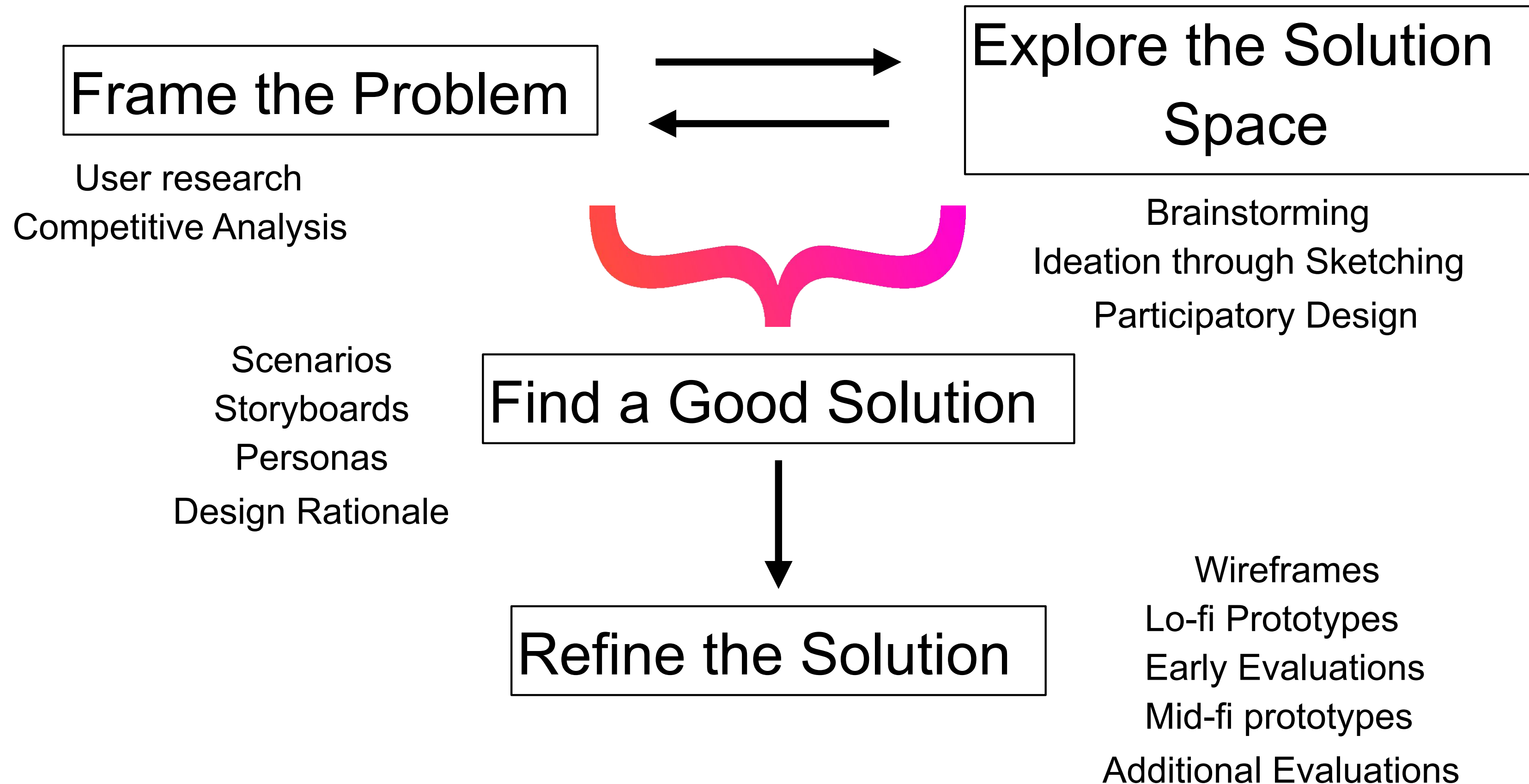
CSE 428

Human Computer Interaction

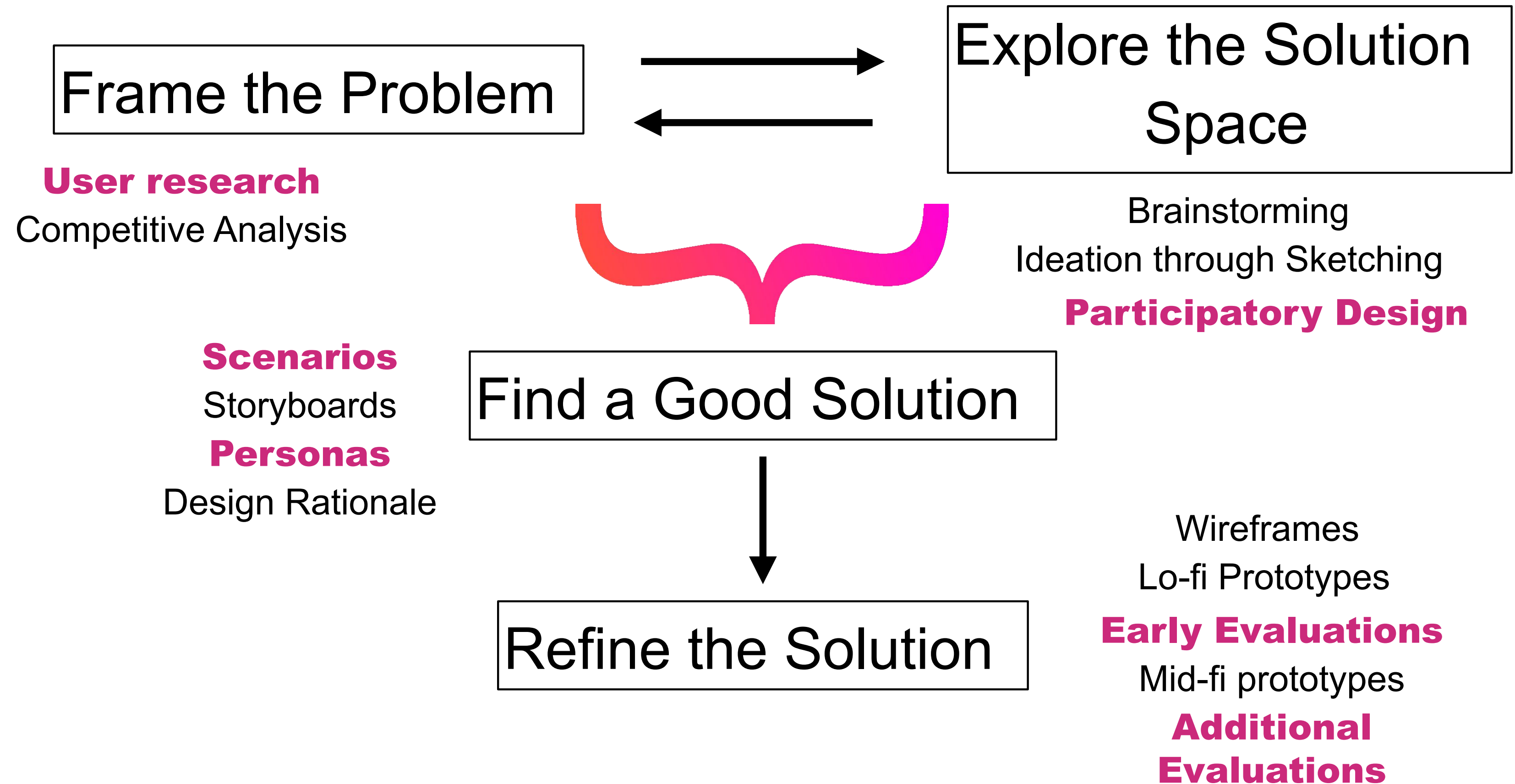
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Design Process

Design Process in a Nutshell



User-Centered Design



**Why do we need to center users
in design?**

Silicon Valley's \$400 Juicer May Be Feeling the Squeeze

Two investors in Juicero were surprised to learn the startup's juice packs could be squeezed by hand without using its high-tech machine.

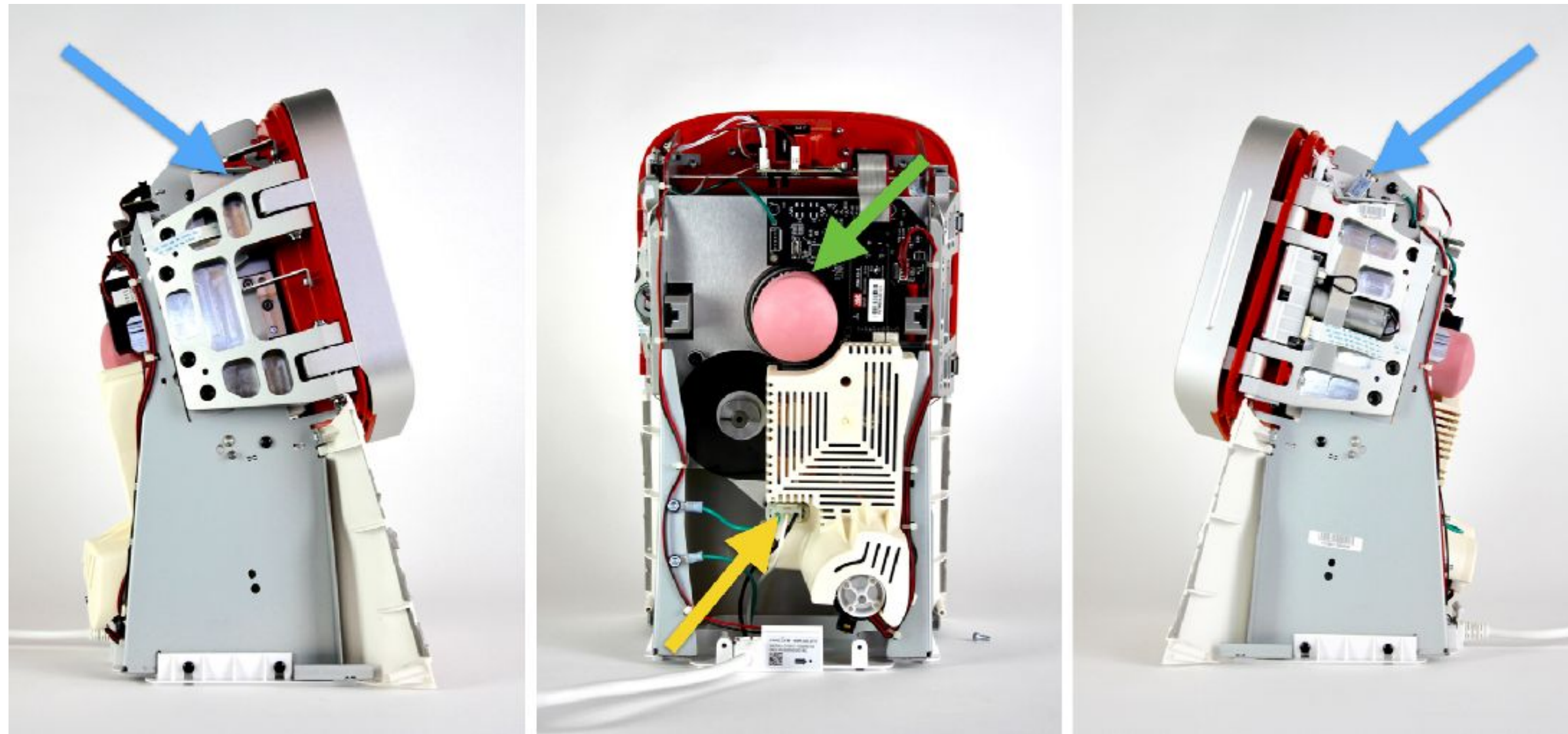
By **Ellen Huet** and **Olivia Zaleski**

April 19, 2017, 2:00 AM MST

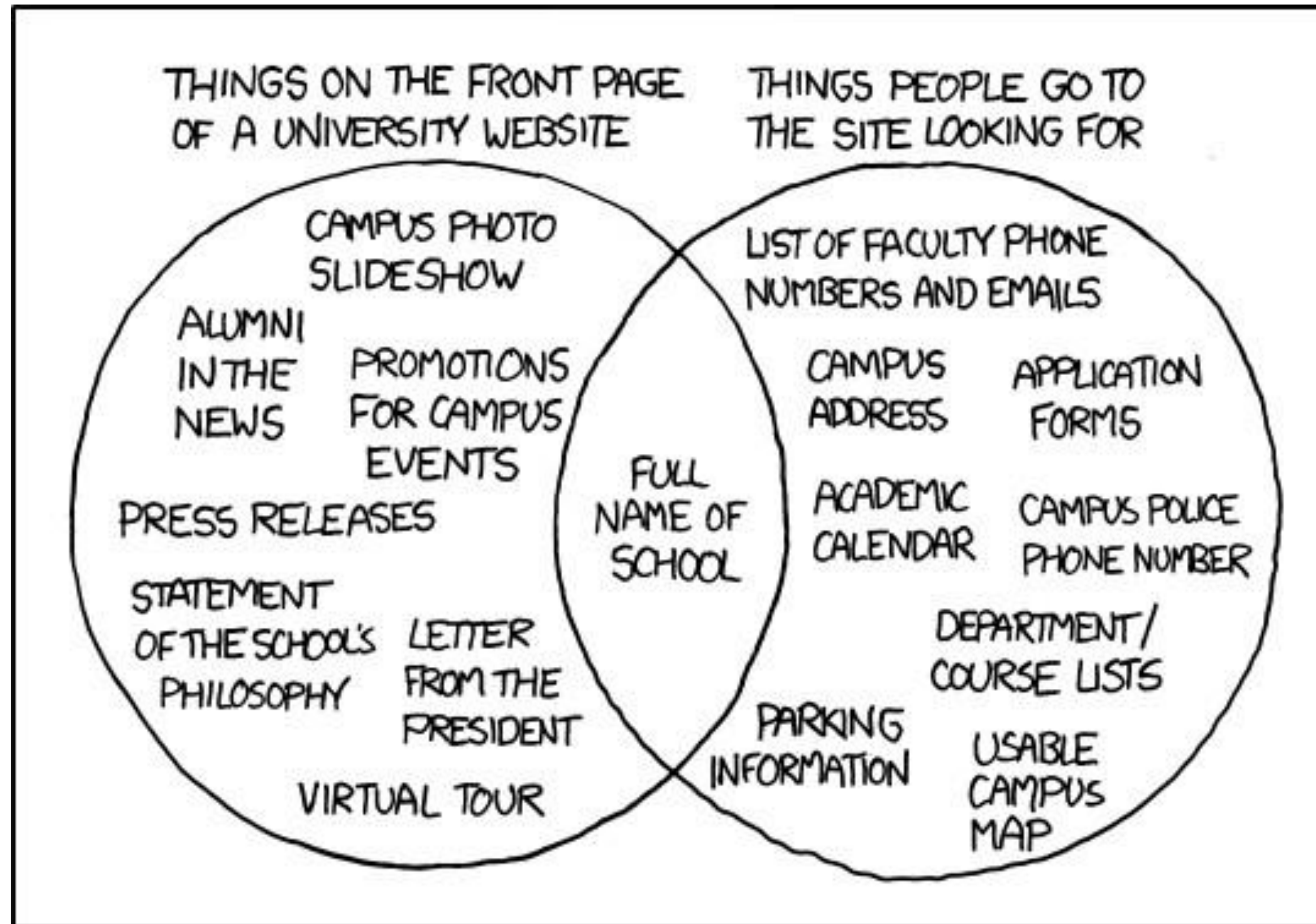
One of the most lavishly funded gadget startups in Silicon Valley last year was Juicero Inc. It makes a juice machine. The product was an unlikely pick for top technology investors, but they were drawn to the idea of an internet-connected device that transforms single-serving packets of chopped fruits and vegetables into a refreshing and healthy beverage.

Doug Evans, the company's founder, would compare himself with Steve Jobs in his pursuit of juicing perfection. He declared that his juice press wields four tons of force—"enough to lift two Teslas," he said. Google's venture capital arm and other backers poured about \$120 million into the startup. Juicero sells the machine for \$400, plus the cost of individual juice packs delivered weekly. Tech blogs have dubbed it a "Keurig for juice."

But after the product hit the market, some investors were surprised to discover a much cheaper alternative: You can squeeze the Juicero bags with your bare hands. Two backers said the final device was bulkier than what was originally pitched and that they were puzzled to find that customers could achieve similar results without it. Bloomberg performed its own press test, pitting a Juicero machine against a reporter's grip. The experiment found that squeezing the bag yields nearly the same amount of juice just as quickly—and in some cases, faster—than using the device.

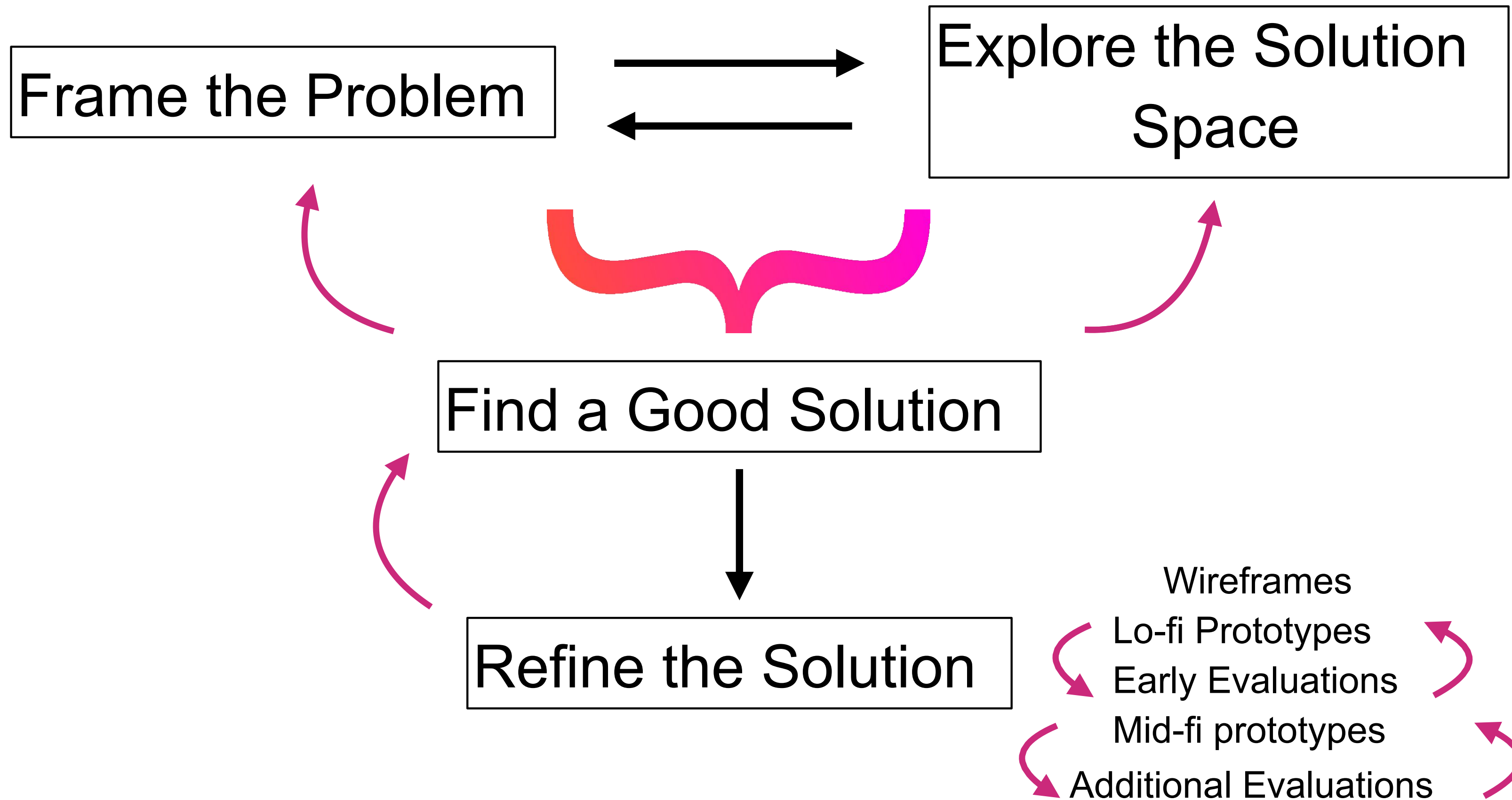


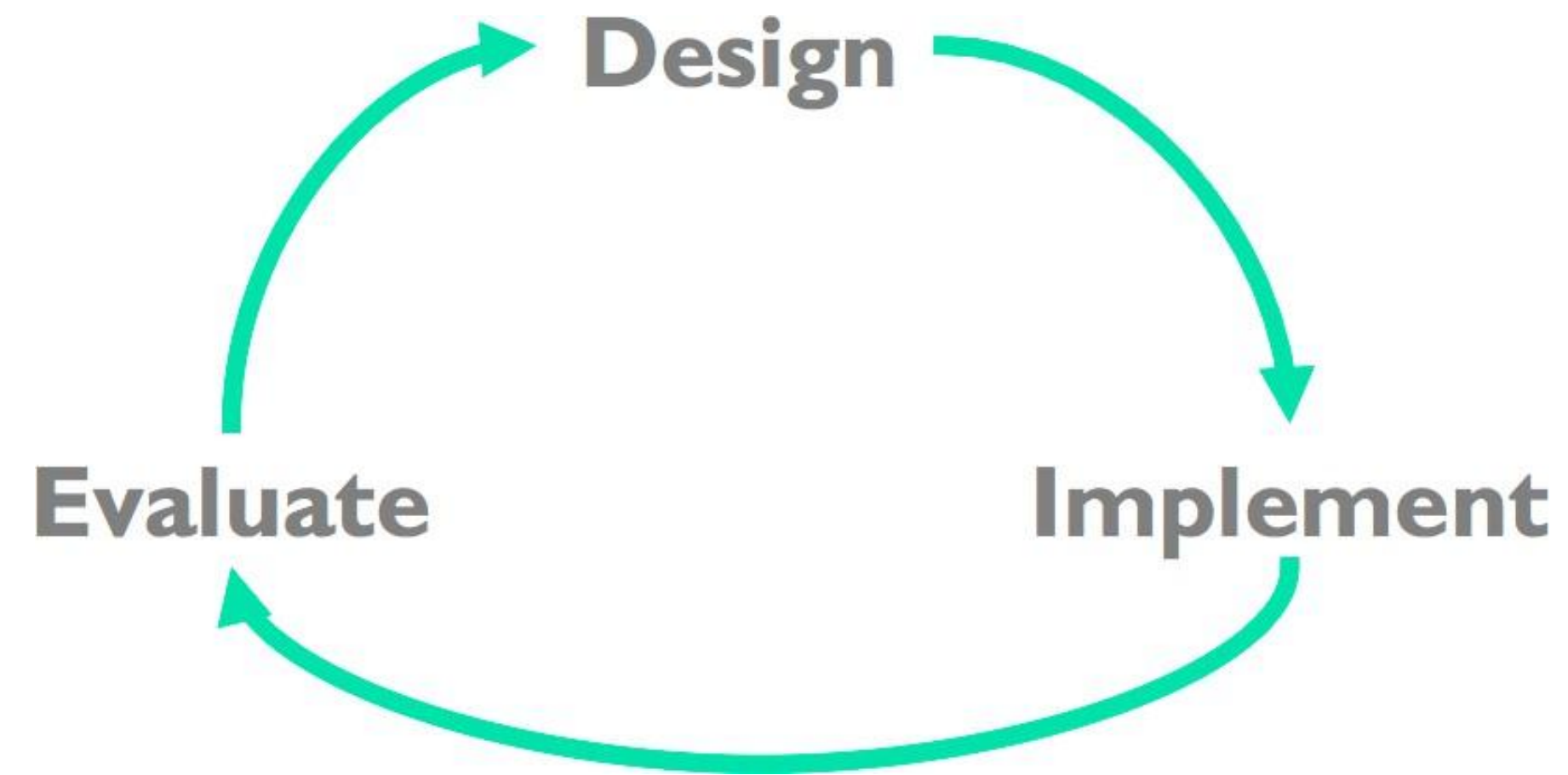
ts



**But how do we add users' feedback
to our process?**

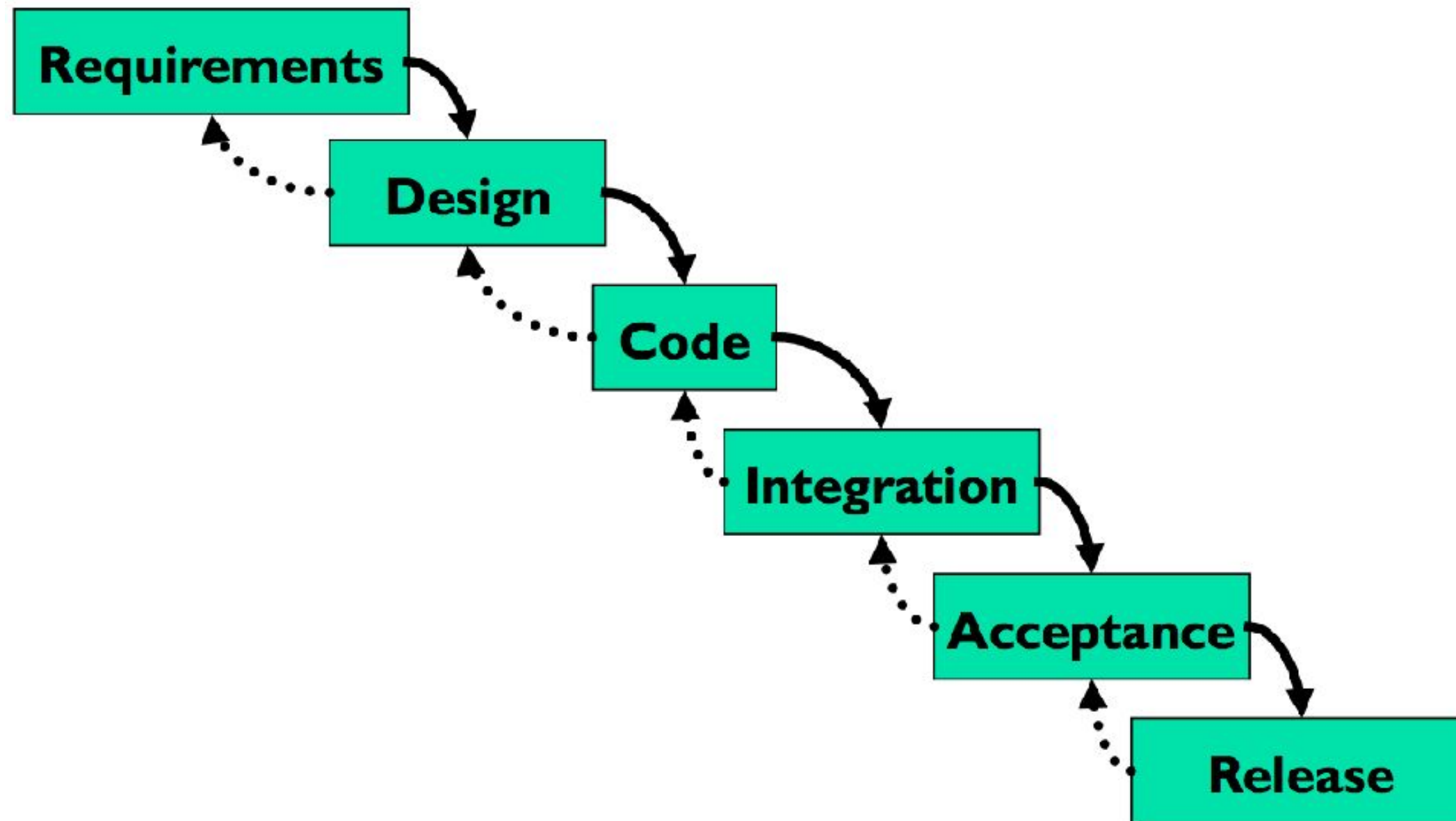
Iterative Design





Iterative Design

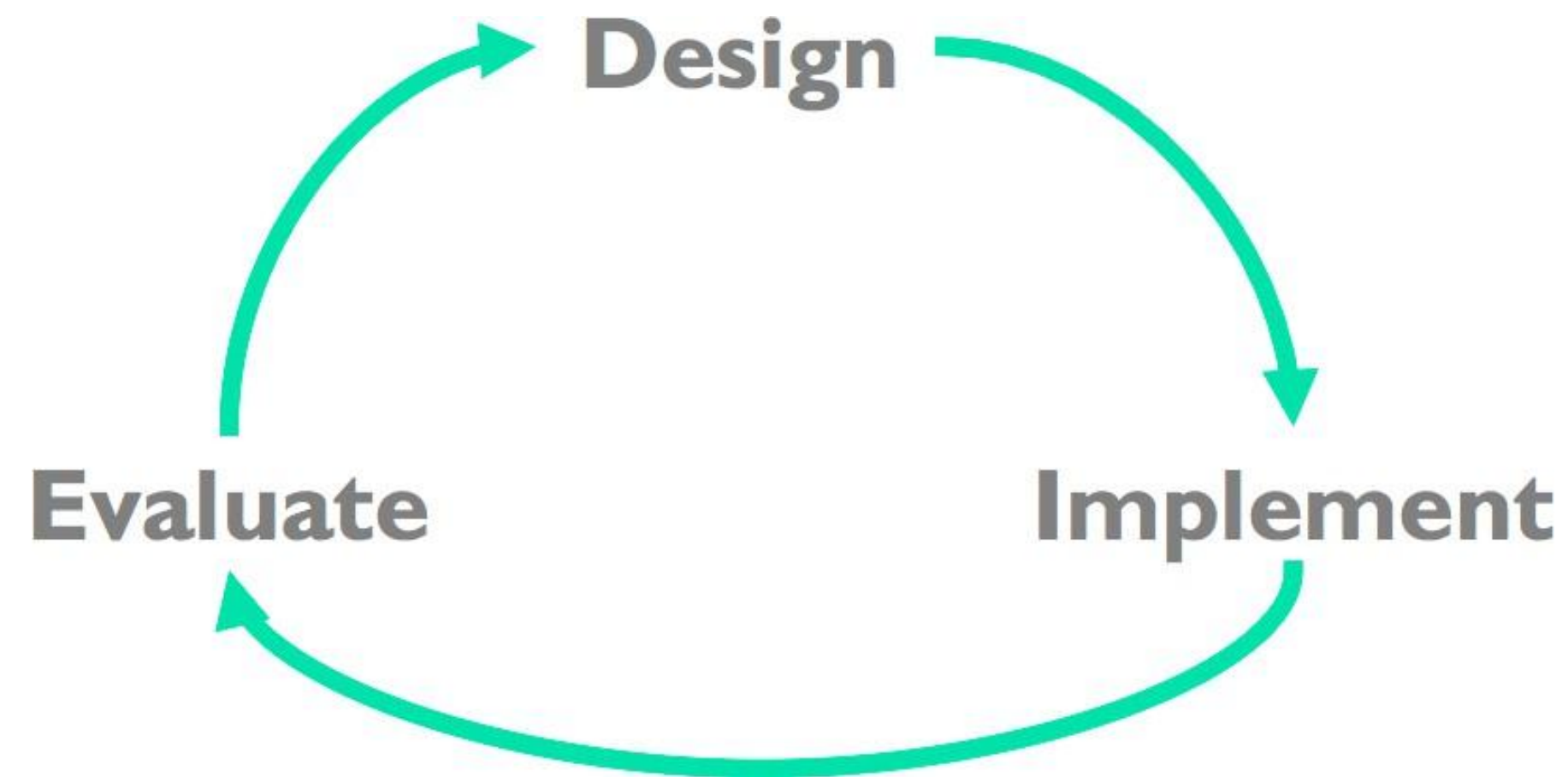
Traditional Waterfall Model



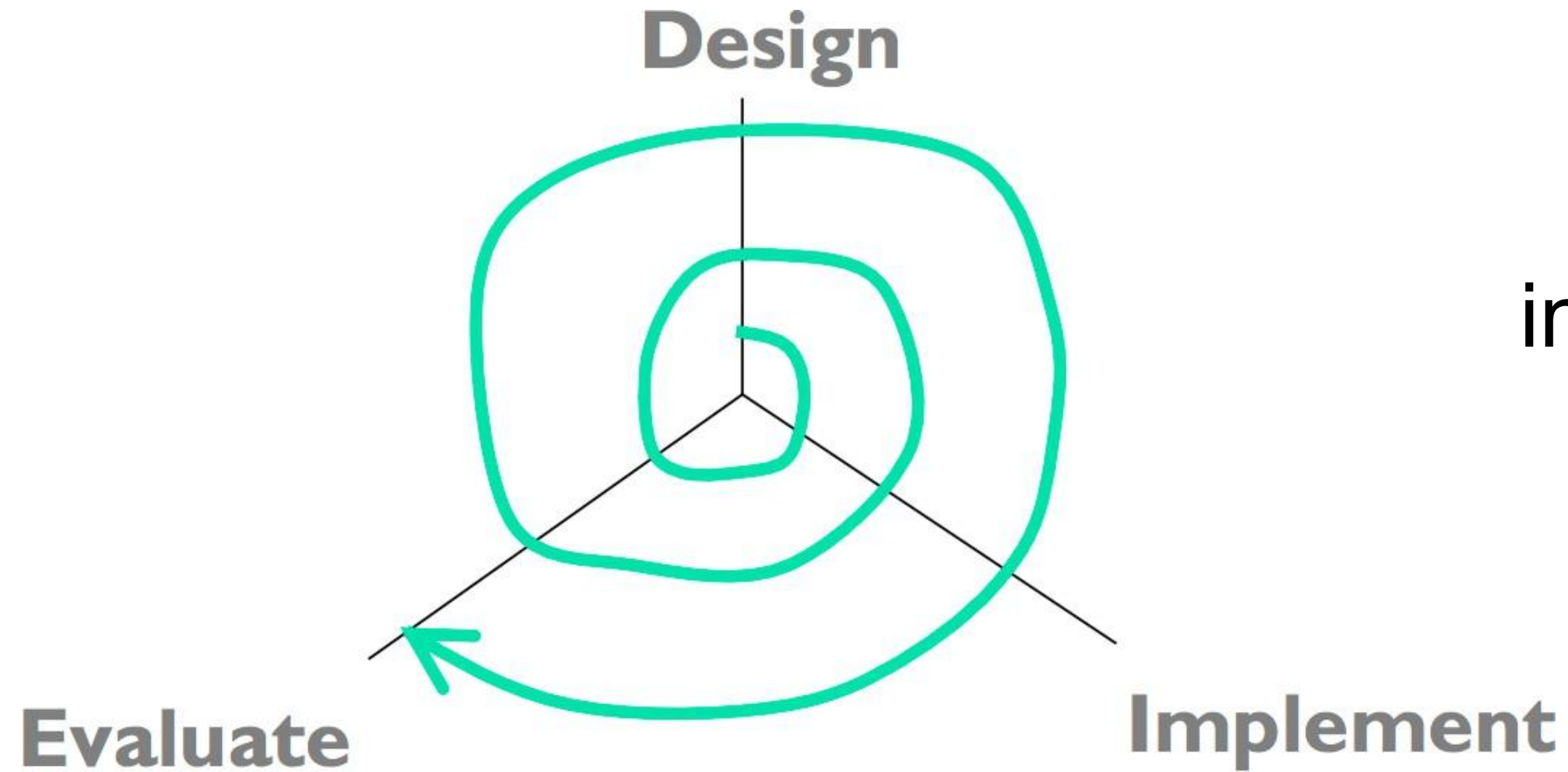
Why is the waterfall method bad for designing UIs?

- User interface design is risky
- Users are not involved in validation until the acceptance test at the end
- UI flaws often cause changes in requirements and design

Iterative Design



- You won't get it right the first time!



Spiral Model

increases in fidelity with
each iteration

Examples of Early Prototyping

Sketches

Logo

Home

Calendar

Classes

- 6.831
- 6.0AT
- 6.111
- 6.001

Your Classes: Edit

Grades Thusfar

▼ 6.831	95	Inf
Exam Subtotal	NA	
Project Subtotal	NA	
Assignment Subtotal	95	
Misc Subtotal	NA	
► 6.0AT	75	Input
► 6.111	80	Input
► 6.001	62	Input

This Week:

You have 6 assignments due.

▼ Monday	2	
6.001 Pset 3	@ 12AM	Complete
6.111 Lab 1 report	@ 6PM	
► Tuesday	3	
► Wed	0	
► Thurs...	1	

6 FotoTrip - Mozilla Firefox

Trip Management: España 2006 Home

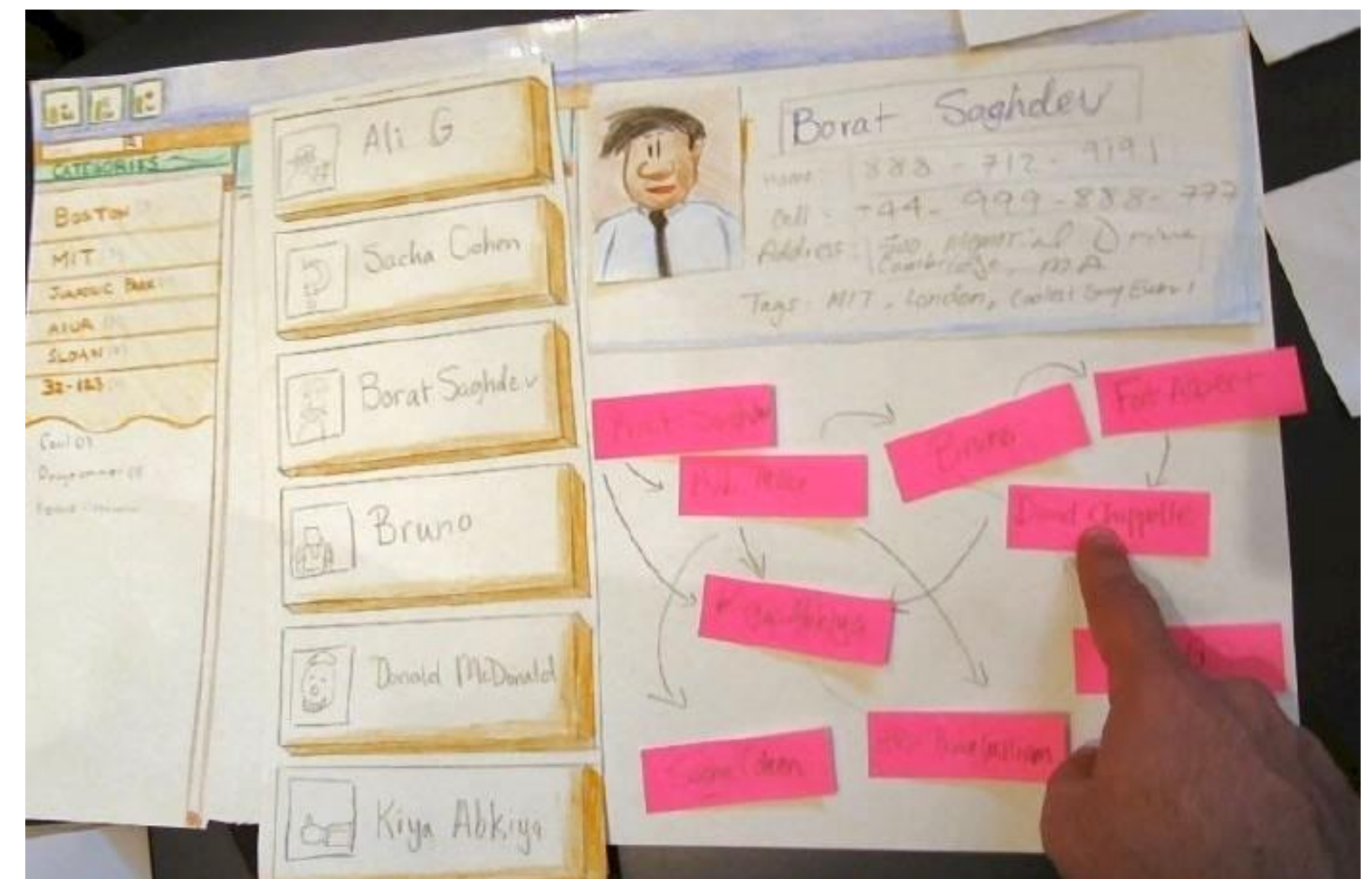
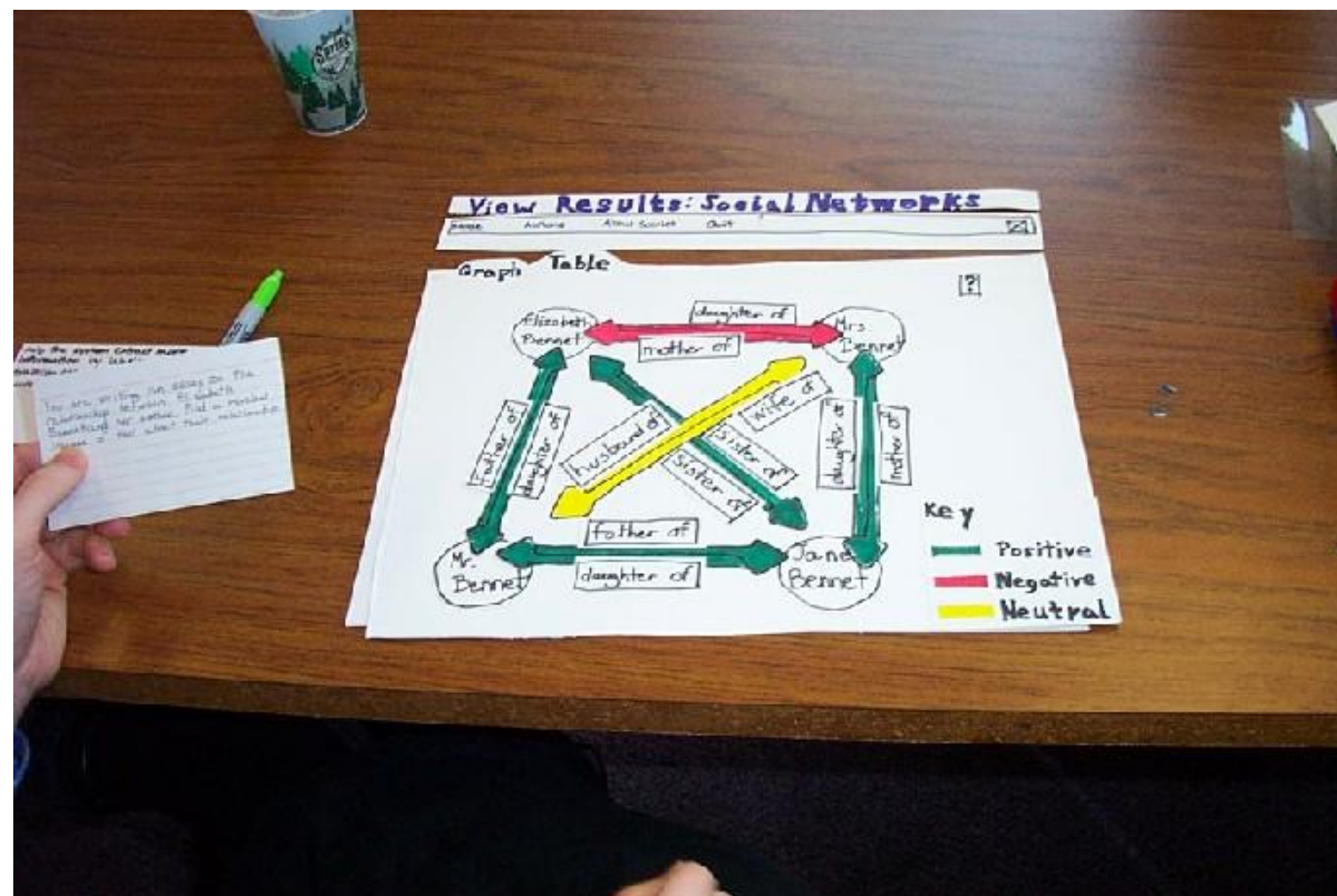
Upload Photos | Add Locations | **Geotag Photos** | Chronological order | Properties

Locations

- Madrid, Spain
- Barcelona, Spain
- Granada, Spain
- Mallorca, Spain

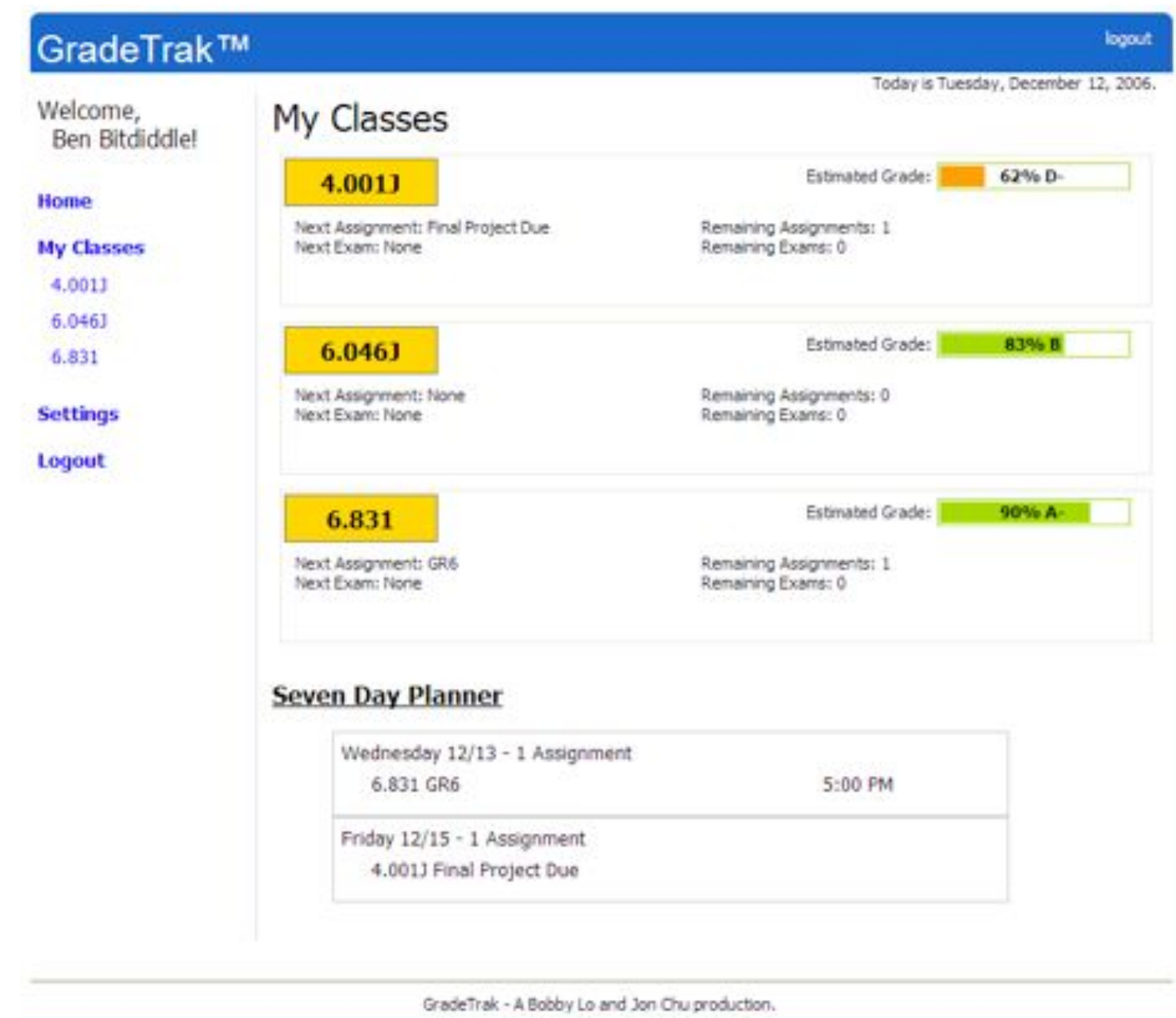
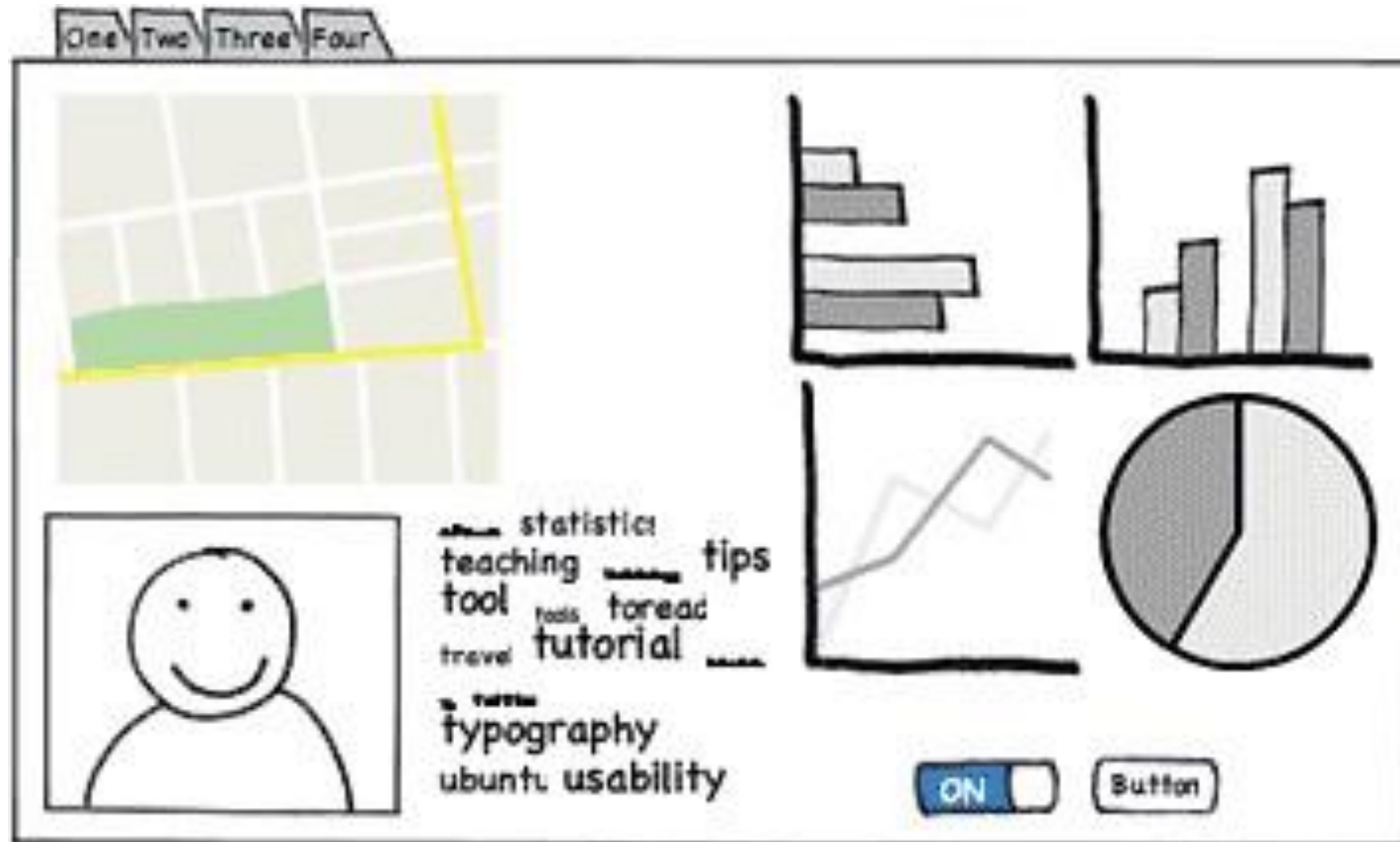
Examples of Early Prototyping

Paper Prototypes



Examples of Early Prototyping

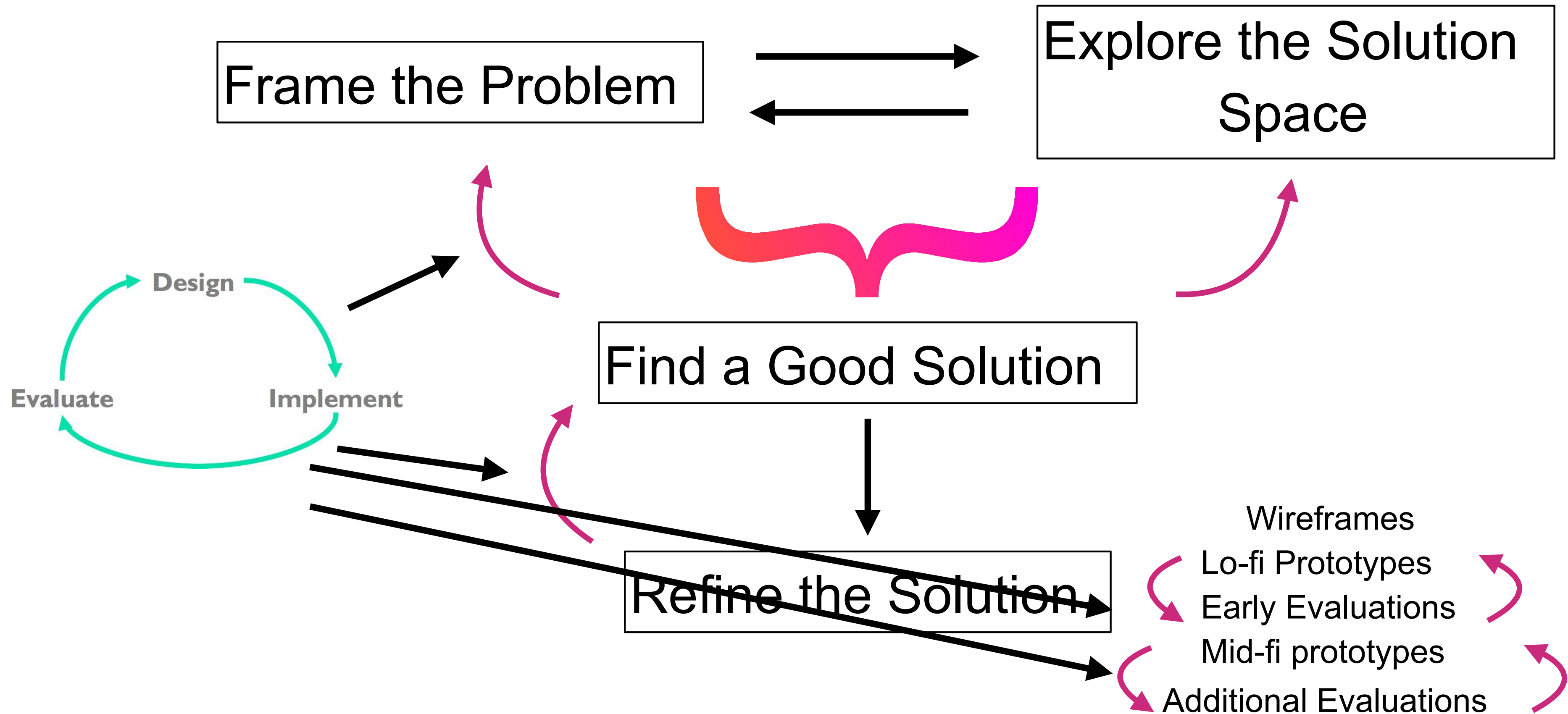
Wireframes and Digital Mockups



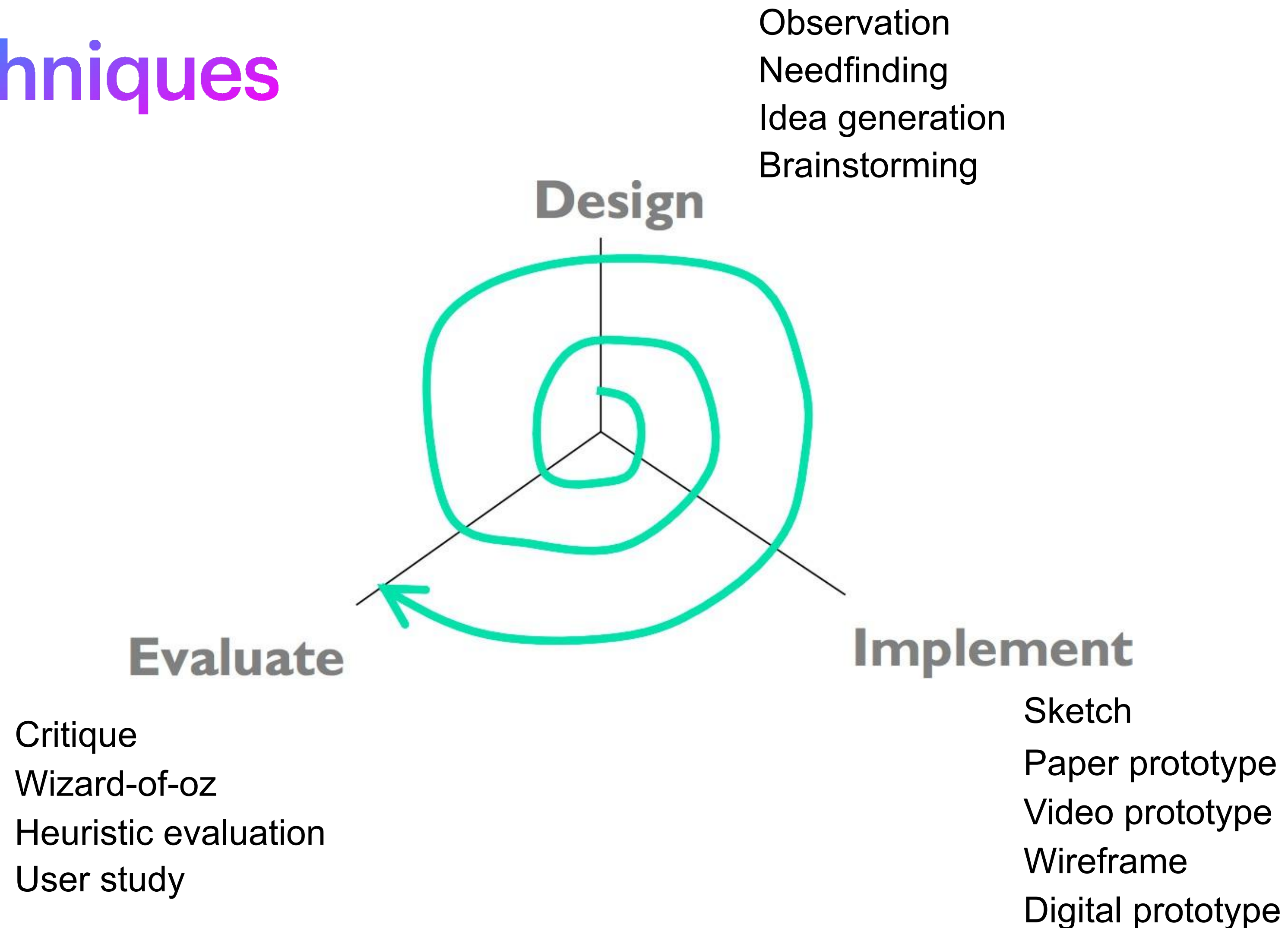
Pros of Iterative Design

- Early iterations use cheap prototypes
- Later iterations use richer implementations, after UI risk has been mitigated
- More iterations generally means better UI
- Only mature iterations are seen by the world

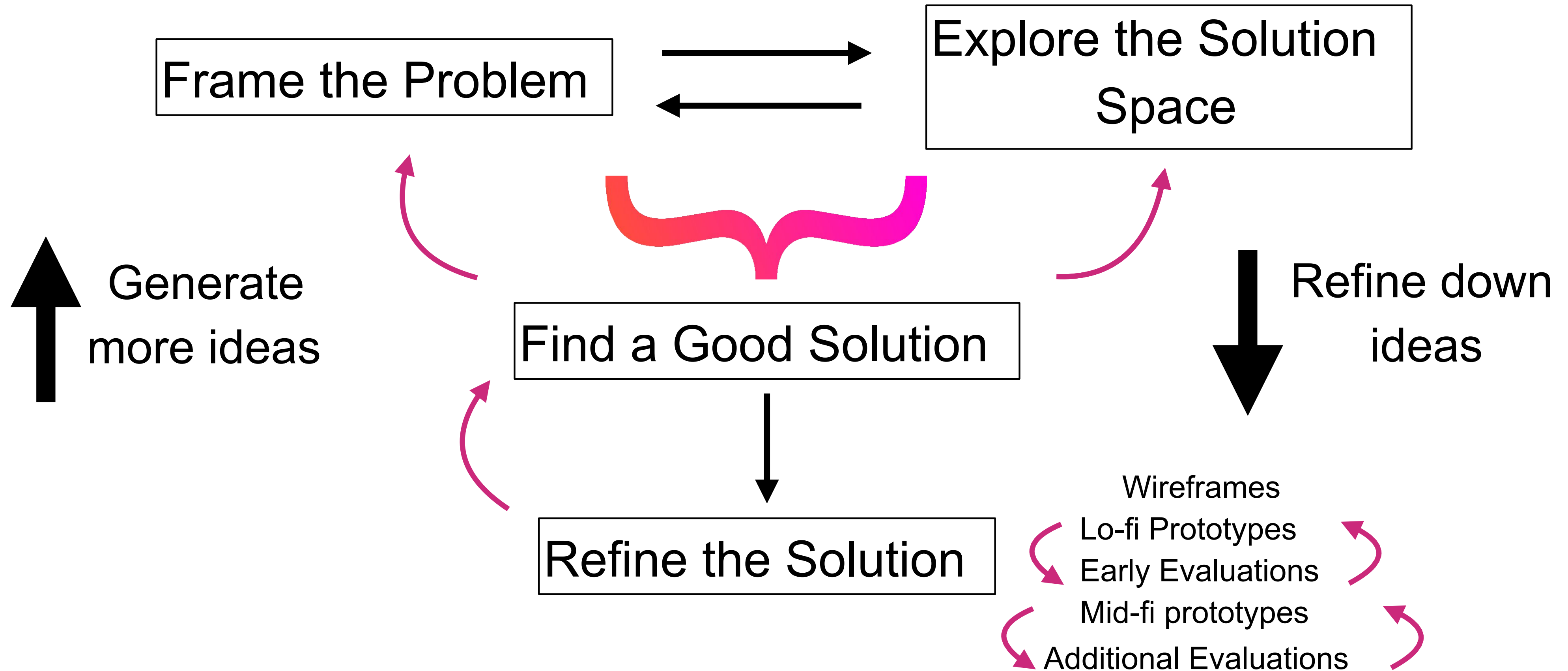
Iterative Design



Techniques

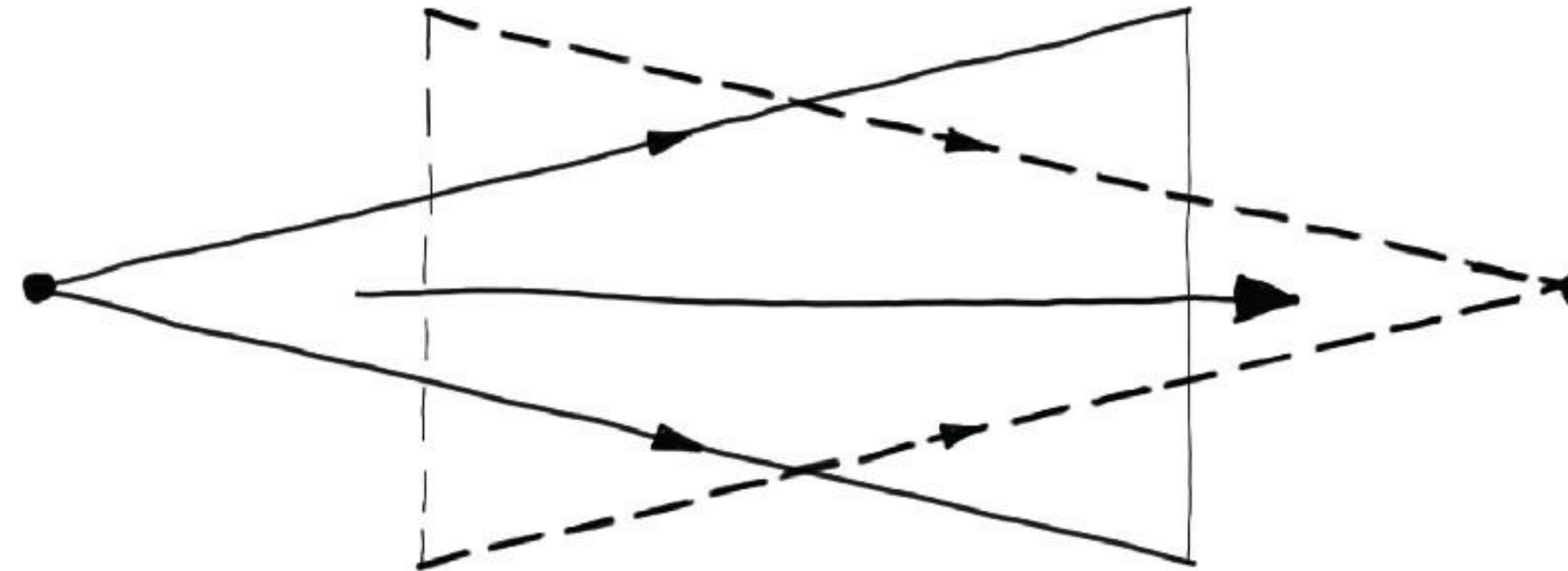


Design Diamond

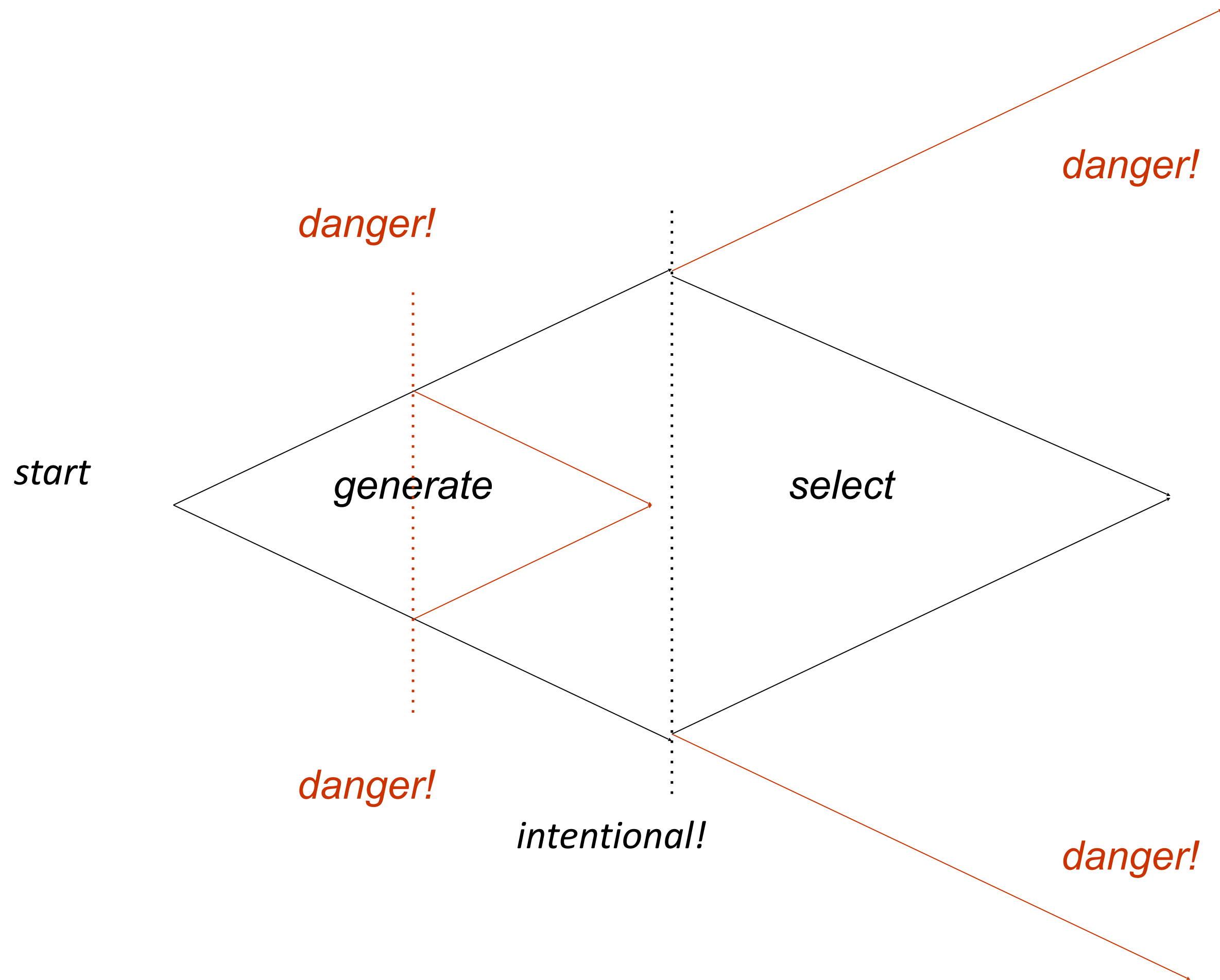


Elaboration

Reduction

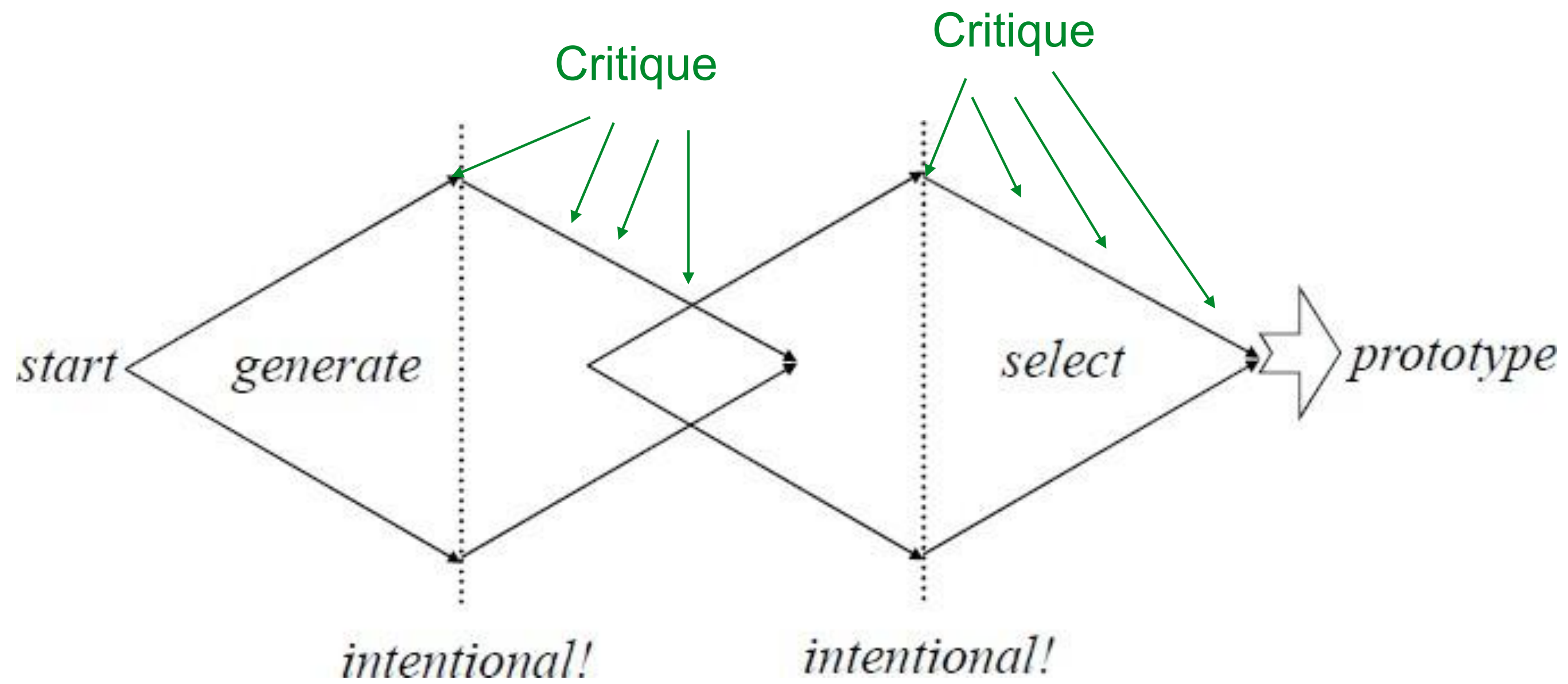


Design Diamond



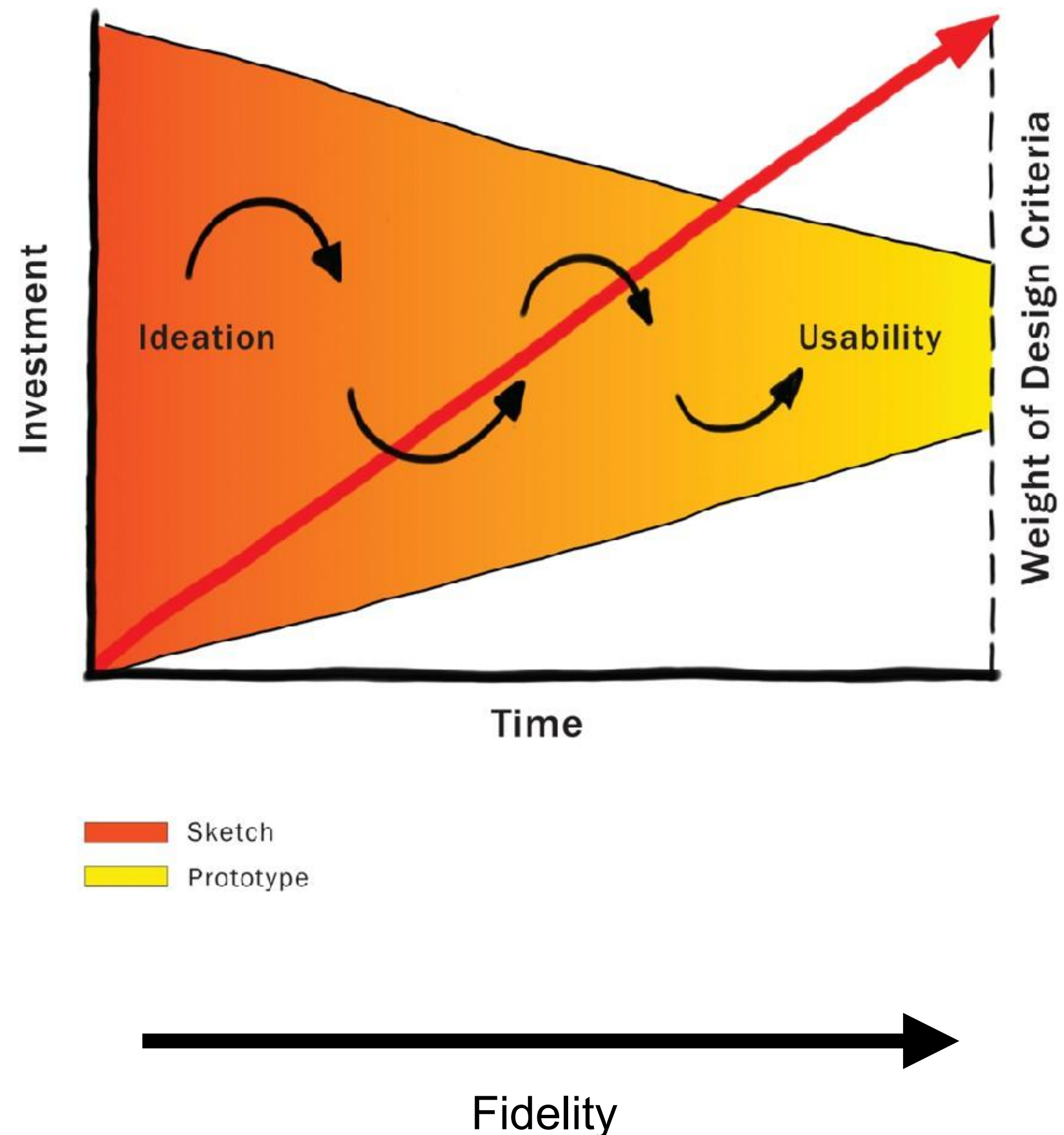
The Role of Critique

- Ideas can be both good and bad
 - BOTH are useful in design
 - By making clear what is a bad design, we can avoid implementing it
 - Bad ideas help justify your good ideas and clarify what makes them good
- Feedback can turn a good idea into a great idea

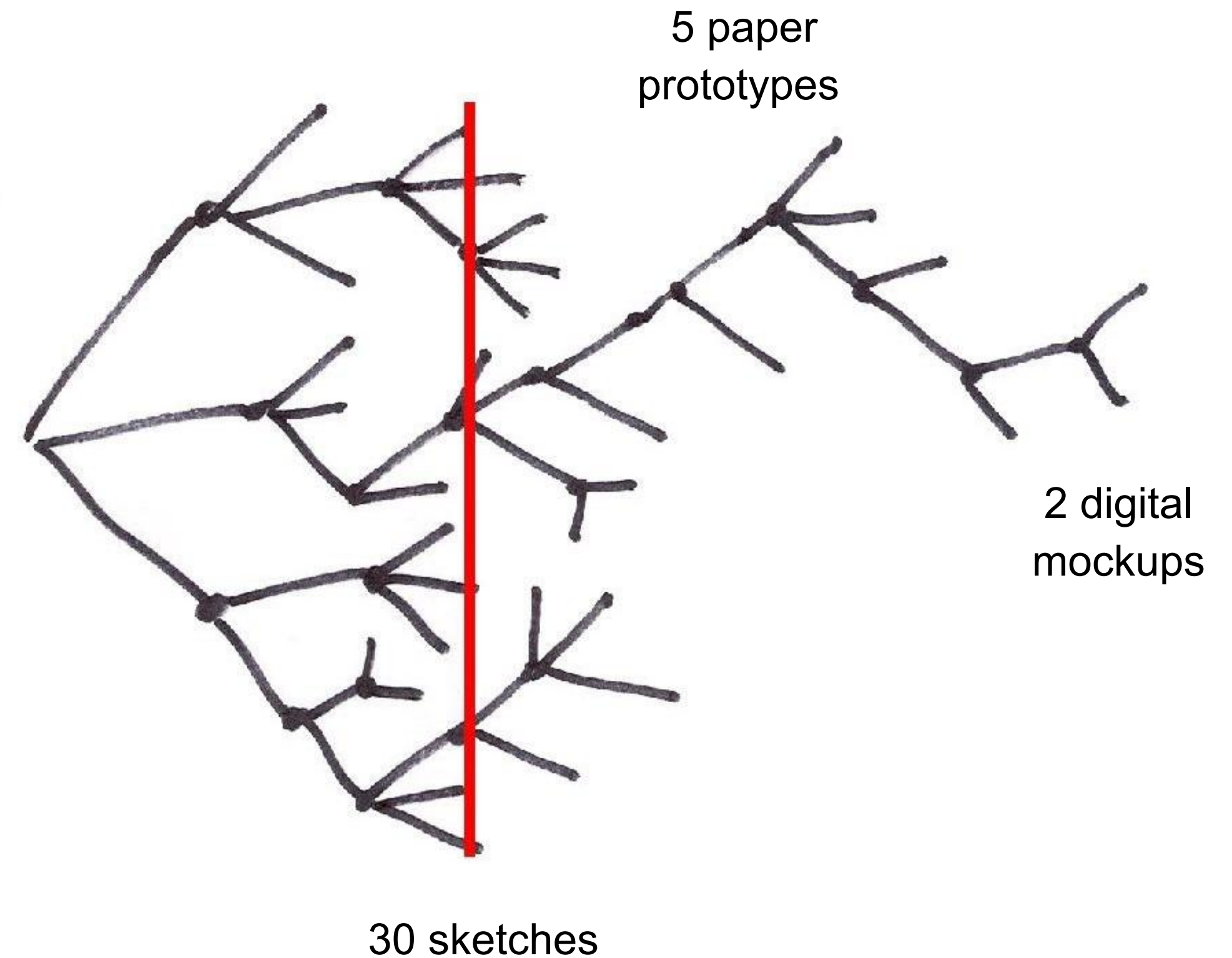


Combining design diamond with iterative design and spiral model

- By starting with low fidelity and moving to higher, we can more easily achieve a design diamond process earlier in the timeline (the “diamond” gets smaller over time)



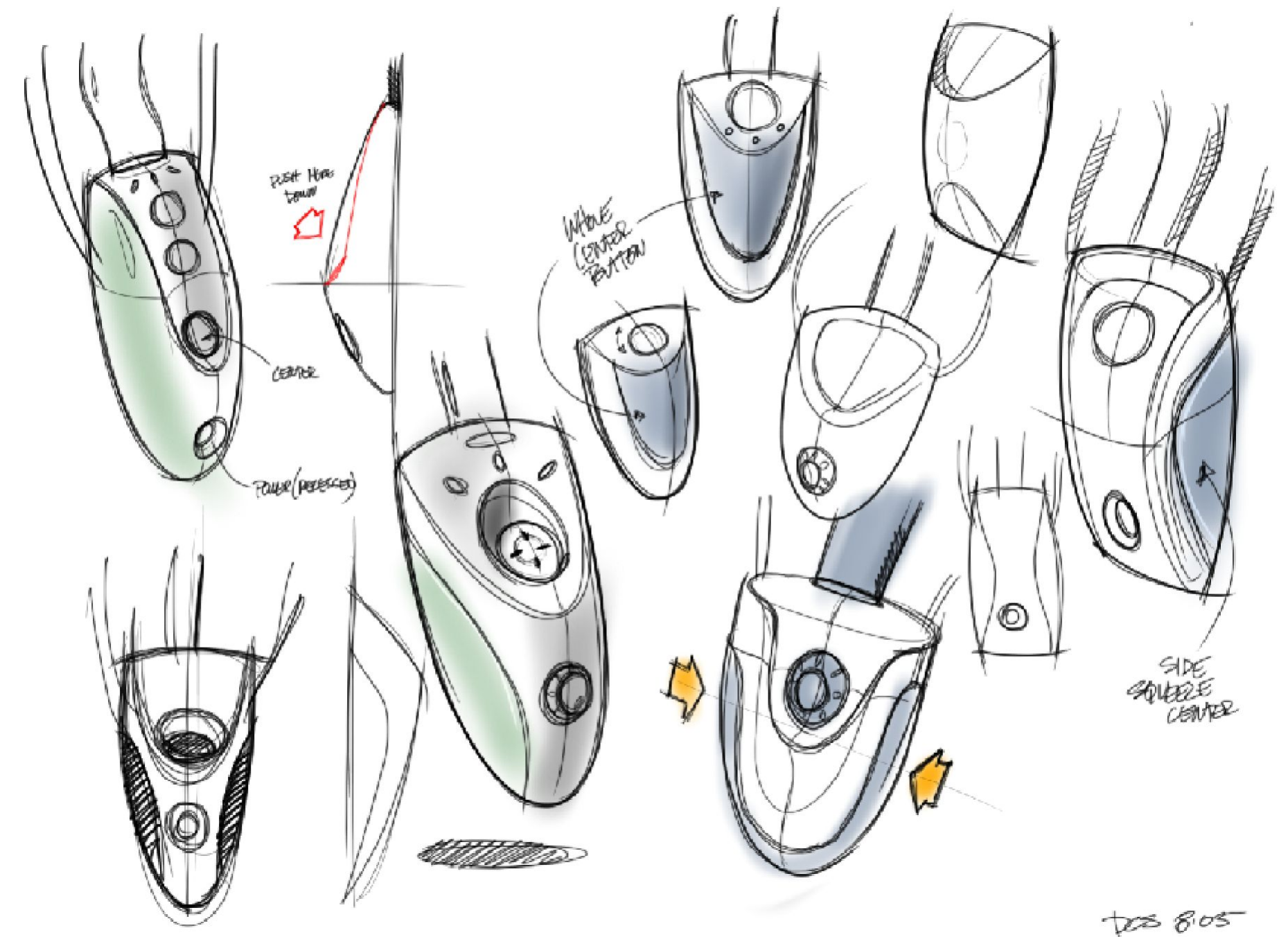
- **Parallel design:**
 - Build and test multiple prototypes at the same time to explore design alternatives
 - Easy to do when sketching or making lo-fi prototypes!
- In contrast, **serial design:**
 - One design at a time
 - More useful during later stages of prototyping



Ideation

Sketching

- A way to think through ideas, explore alternatives, and convey them to others very early in the design
- Easy to make, easy to throw away, so you don't get too attached
- Quantity over quality - bad ideas are also useful!



By Reid Schlegel: <https://www.youtube.com/watch?v=FVx9RLCnJH8>

Ideation Exercise

The Tea Alignment Chart

	INGREDIENT PURIST (Must at least partly be produced by heat processing plant leaves)	INGREDIENT NEUTRAL (Can be any form of plant-based product)	INGREDIENT REBEL (Can contain literally anything, be it drinkable or not)
FORM PURIST (Must be a drink that is usually served warm in a handled cup)			
	"Black tea is a tea"	"Lemon water is a tea"	"Chocolate latte is a tea"
FORM NEUTRAL (Must be a liquid stored in a container convenient to drink from)			
	"Bubble tea is a tea"	"Minestrone is a tea"	"Gamer girl bath water is a tea"
FORM REBEL (Can be any liquid in a form not necessarily convenient to drink from)			
	"Tea tree oil is a tea"	"Natural resin is a tea"	"Battery acid is a tea"

Sketching Part 1 (3 min)



- By yourself, sketch 5 new designs for a cup
- Try to push yourself to think of 5 vastly different designs by considering very different contexts and use cases for a cup
- What assumptions are you making about how cups are used? What happens when you get rid of one of those assumptions?

Lawful

Neutral

Chaotic

Good



Neutral



Evil



Sketching Part 2 (6 min)

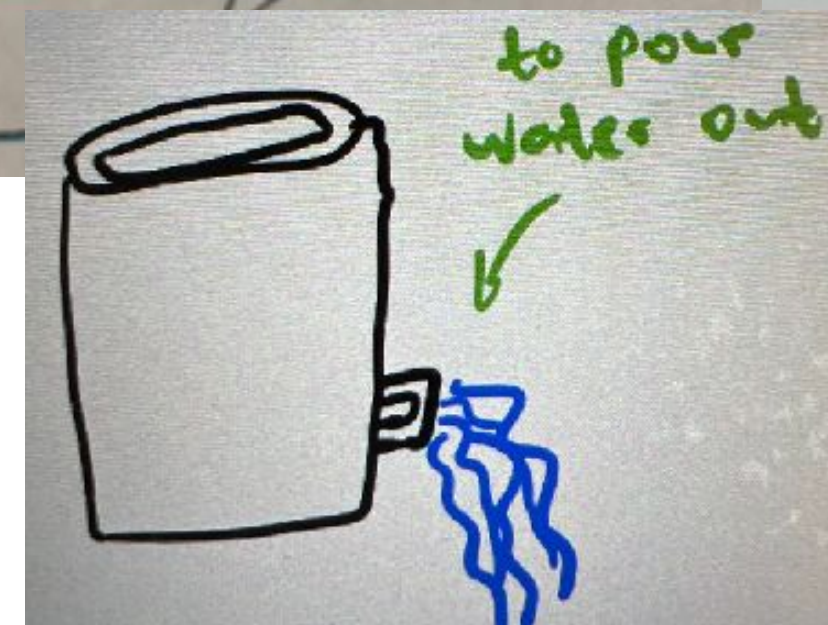
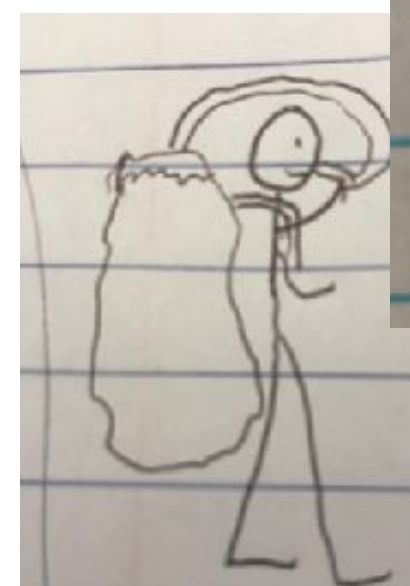
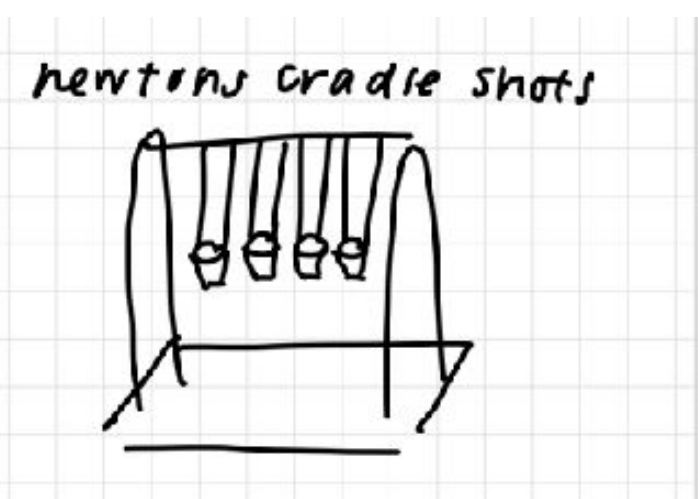
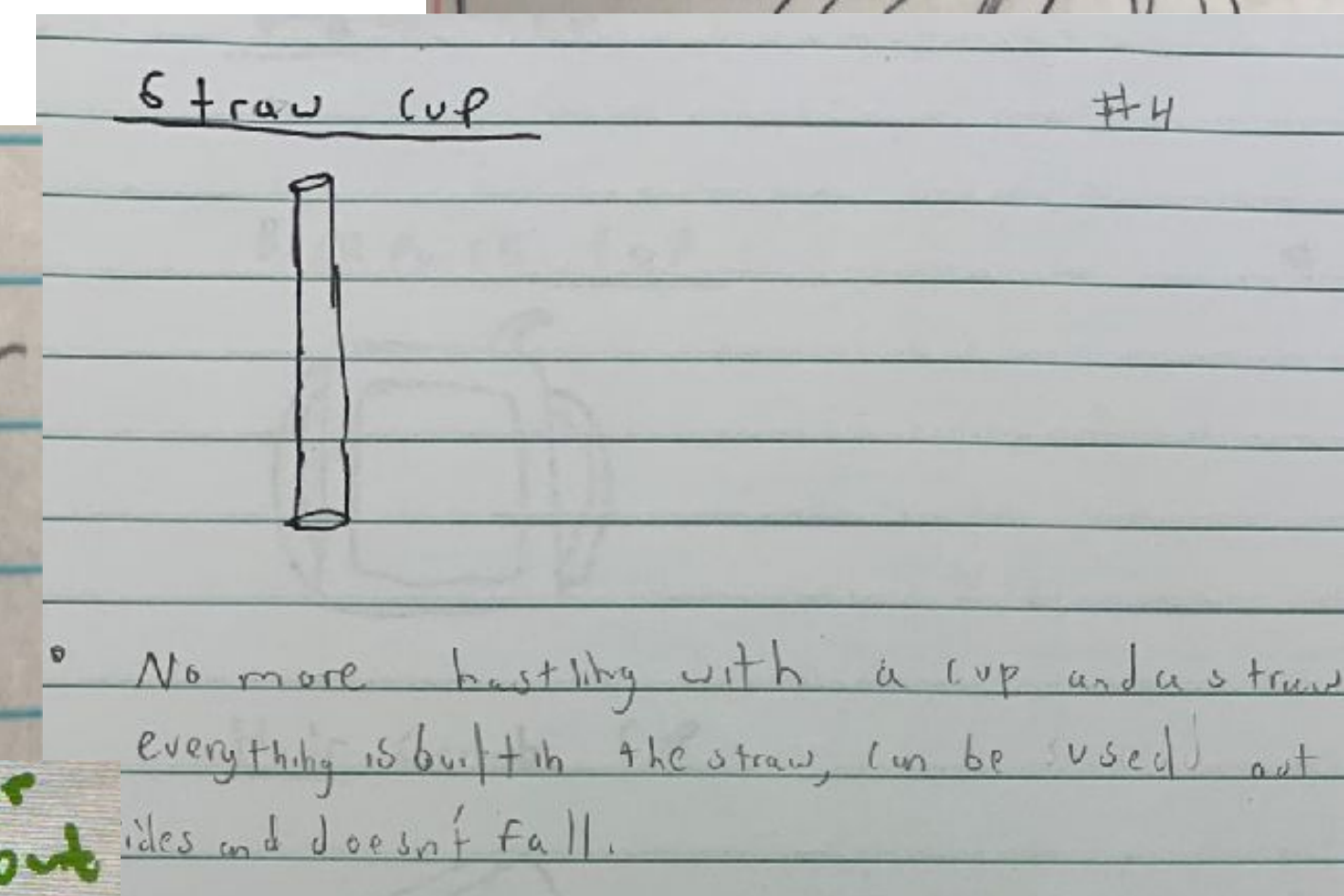
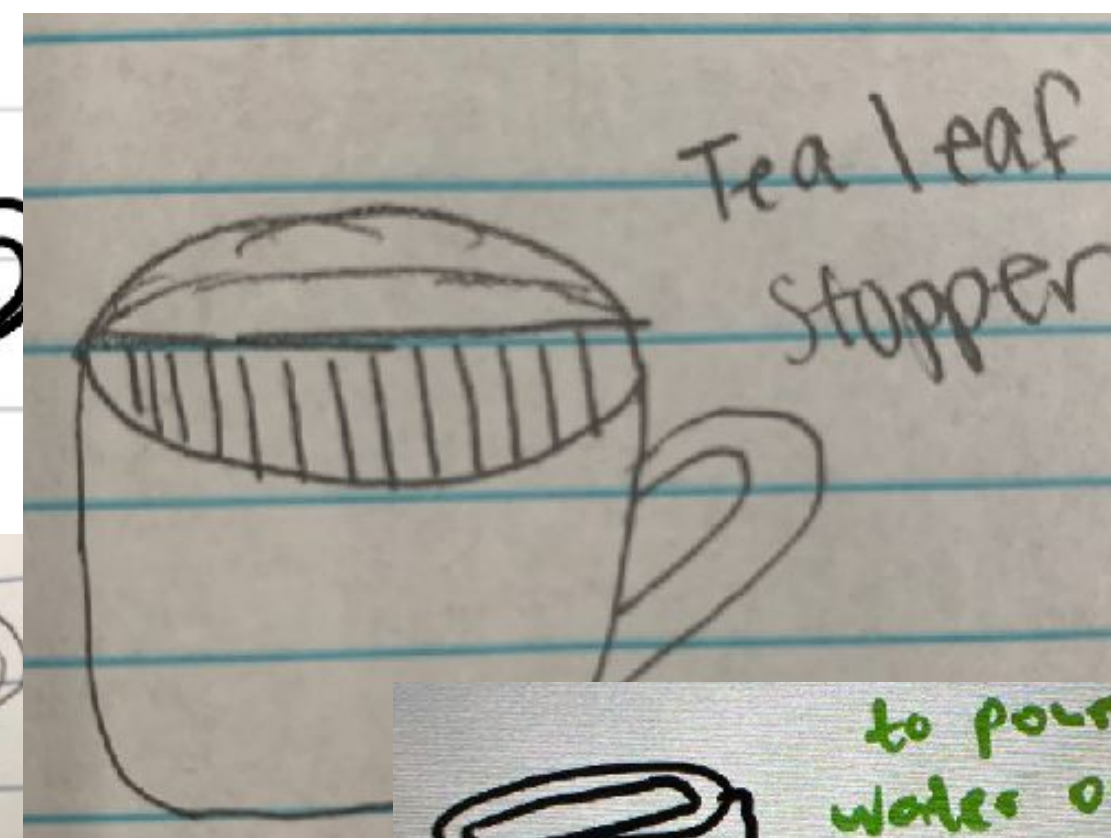
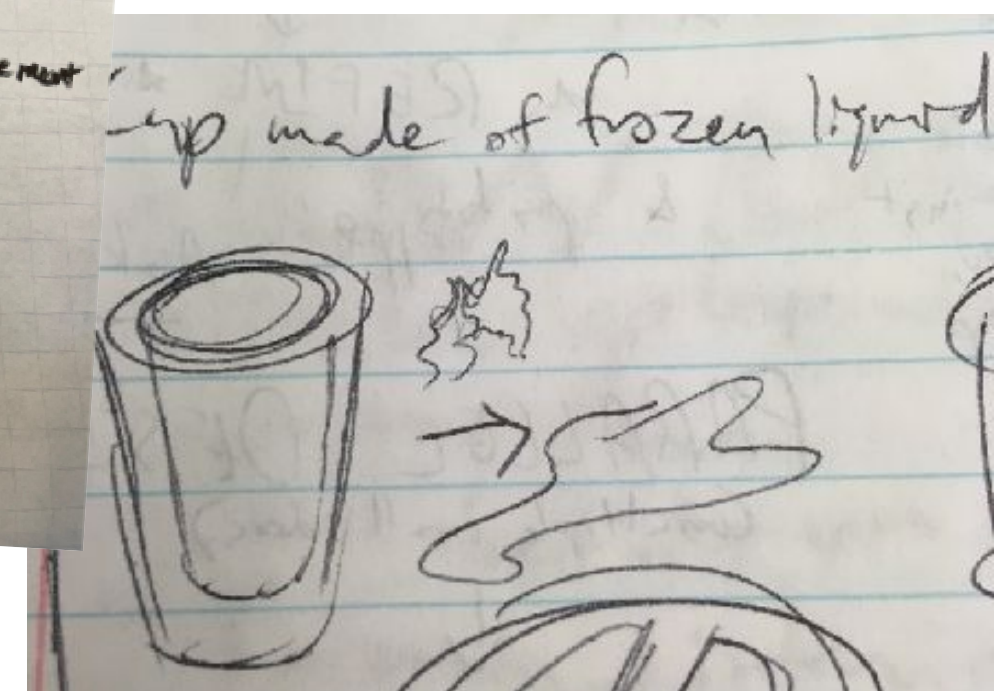
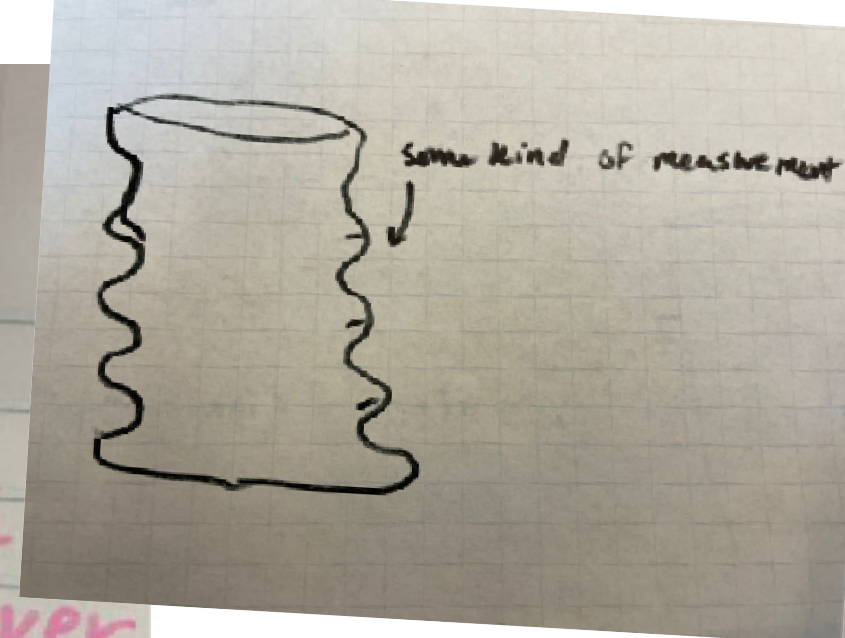
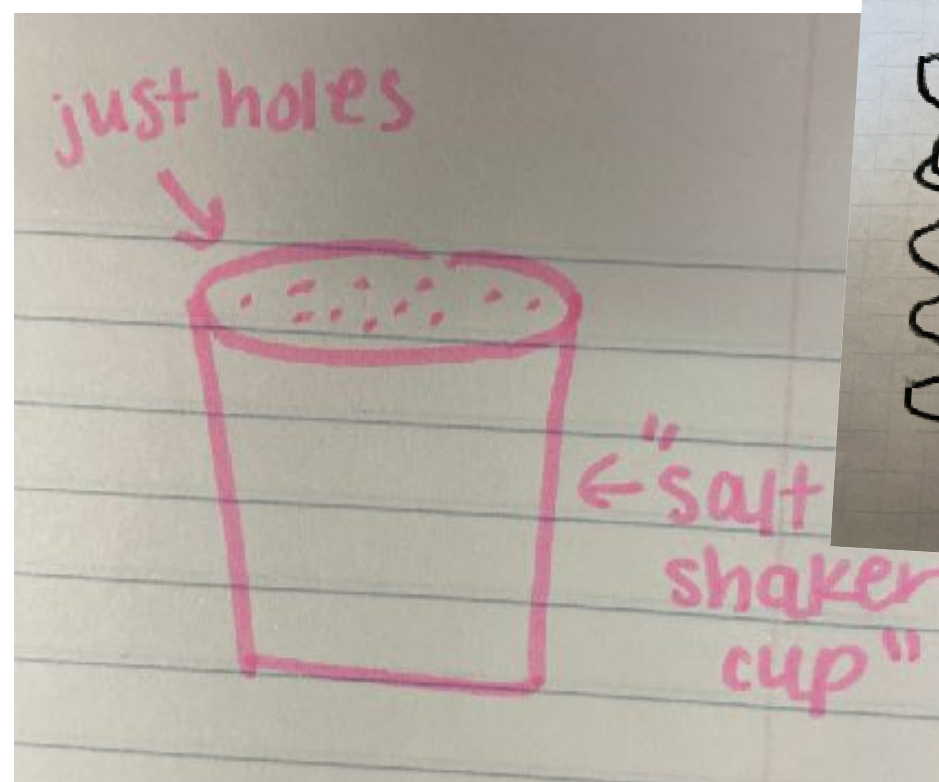
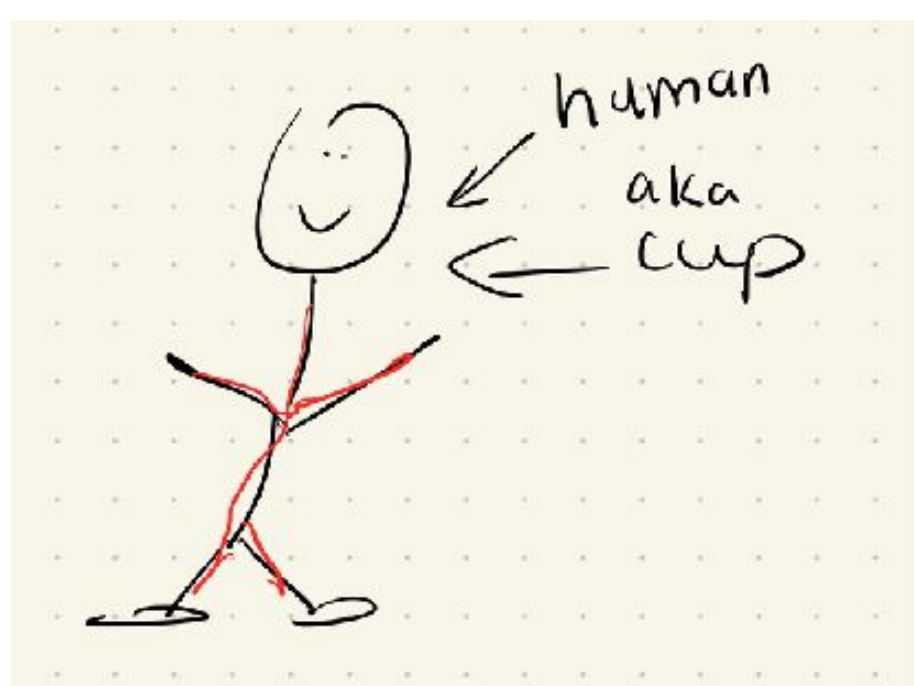
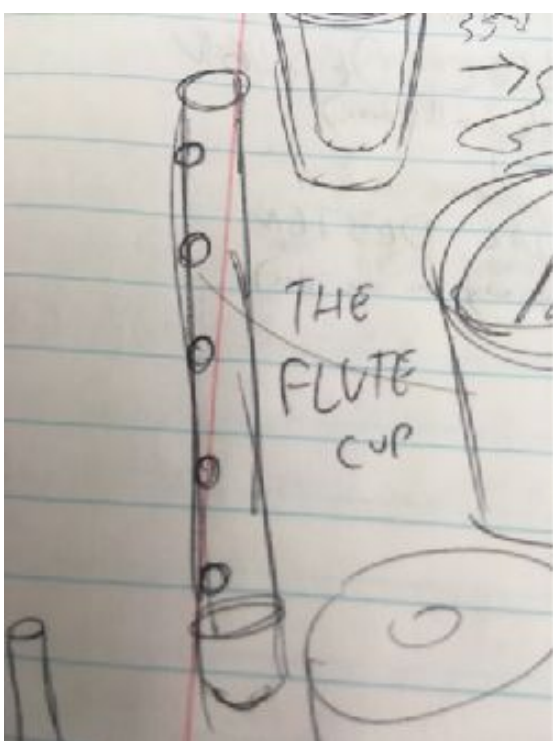


- Consider how your 5 designs explore different **dimensions** of the **design space** of cups (color, size, shape, material, etc.)
- Throw out those old ideas and now come up with 10 **new** cup designs that stretch those dimensions out or combine them in new ways.
- Purposefully come up with bad/ridiculous designs!
- From these 15 cup designs, pick 2-3 that are your favorite (you'll also be sharing these later in groups).

Reflection



- What was hard about this exercise?
 - Did you have any trouble coming up with that many sketches?
 - Did you have trouble trying to think of very different sketches?
- What helped you break out of a rut?
- Anything else interesting you noticed while going through this process?



Some interesting cup ideas people came up with!

**THANK
YOU**