Building User Interfaces

Design Thinking from Empathy to Ideas

Professor Yuhang Zhao

What will we learn today?

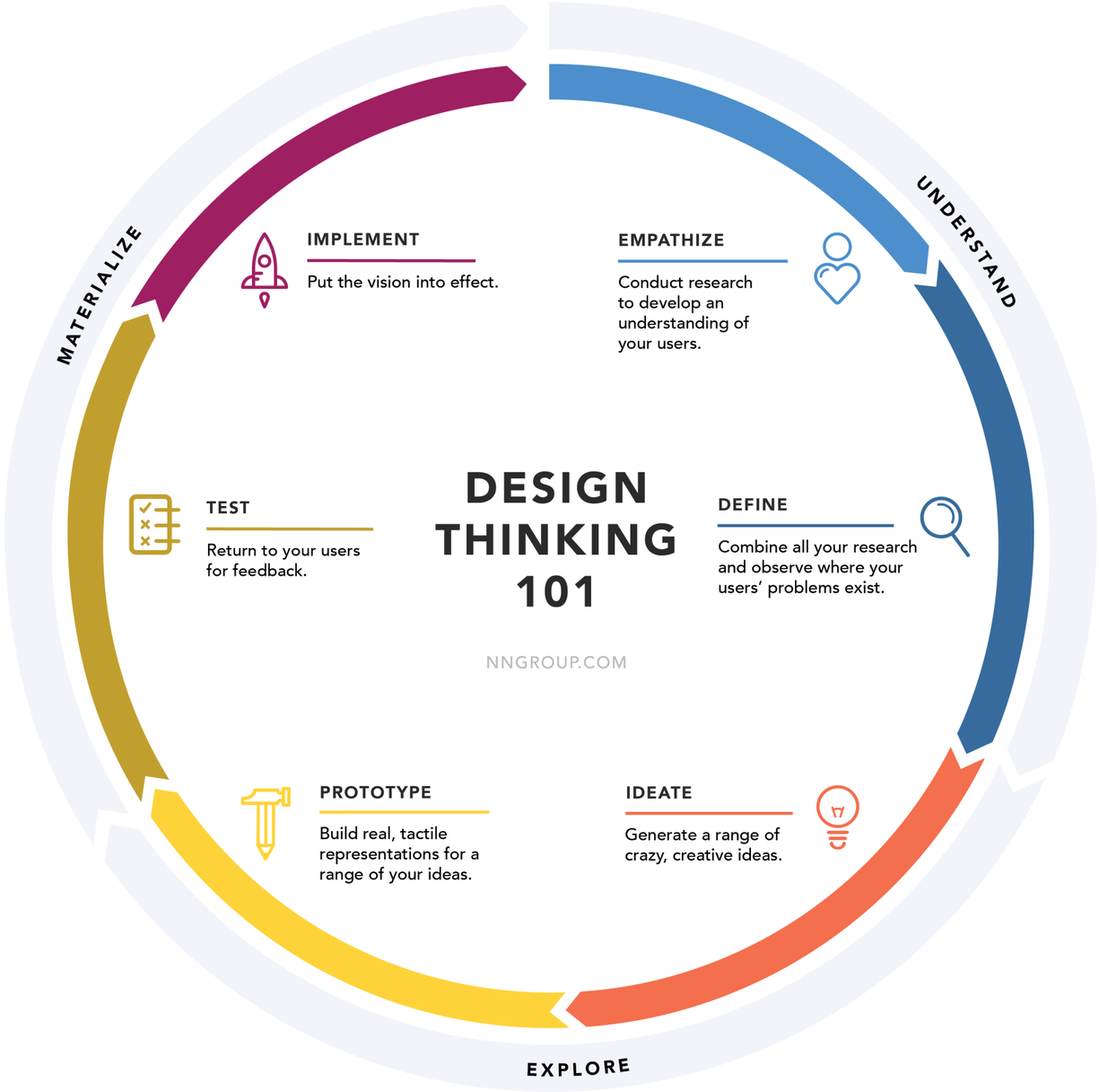
- Design thinking and process
- Step 1: How to empathize with users
- Step 2: How to turn data into insight
- Step 3: How to generate design ideas
- Sketching, conceptual design, storyboarding

What is *design thinking*?

Design Thinking 101

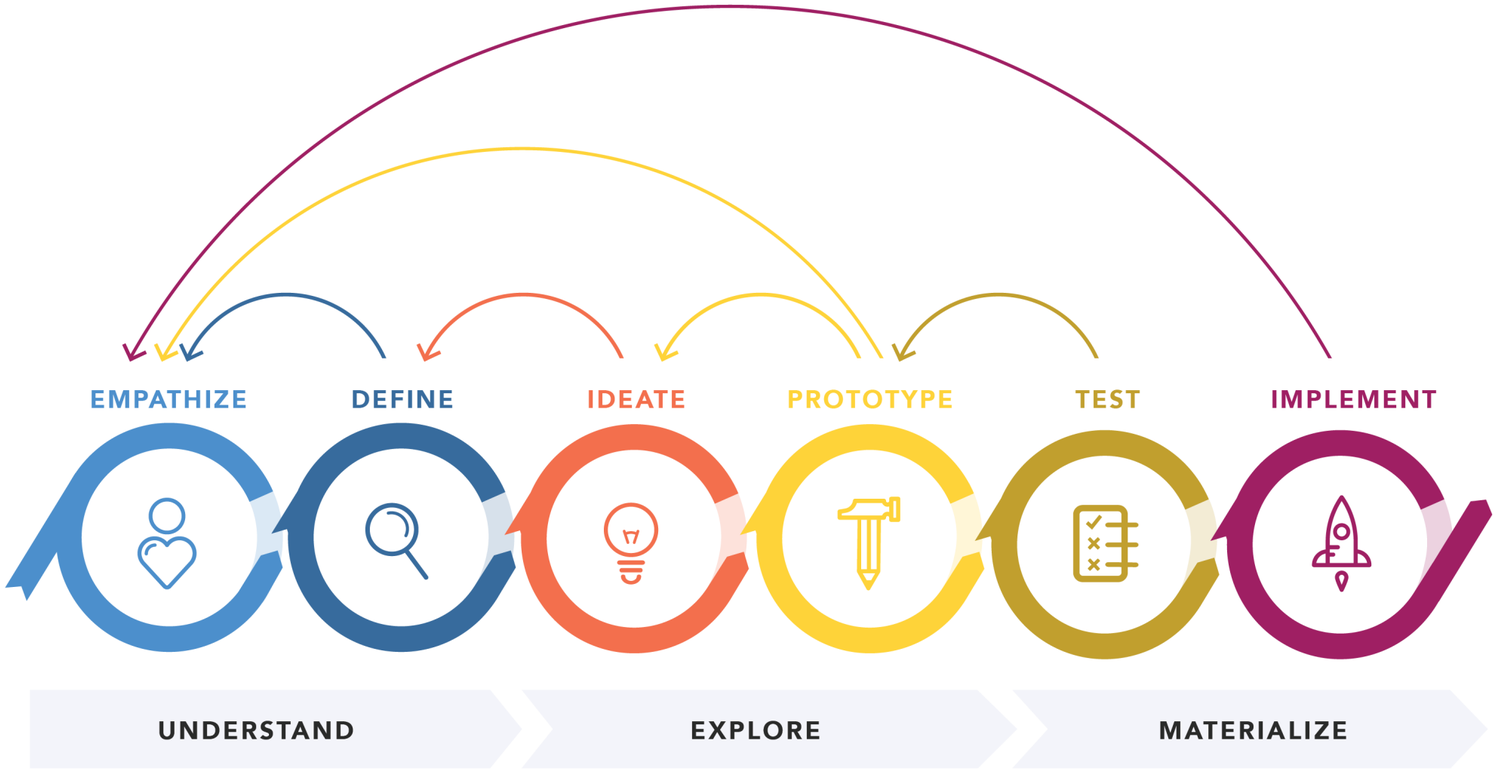
Design thinking[2] has two components:

1. An **approach**: a hands-on, user-centric approach to innovative problem solving
2. A **process**: a 6-phase process to understand problems, explore solutions, and materialize them



[2] NN/g Design Thinking

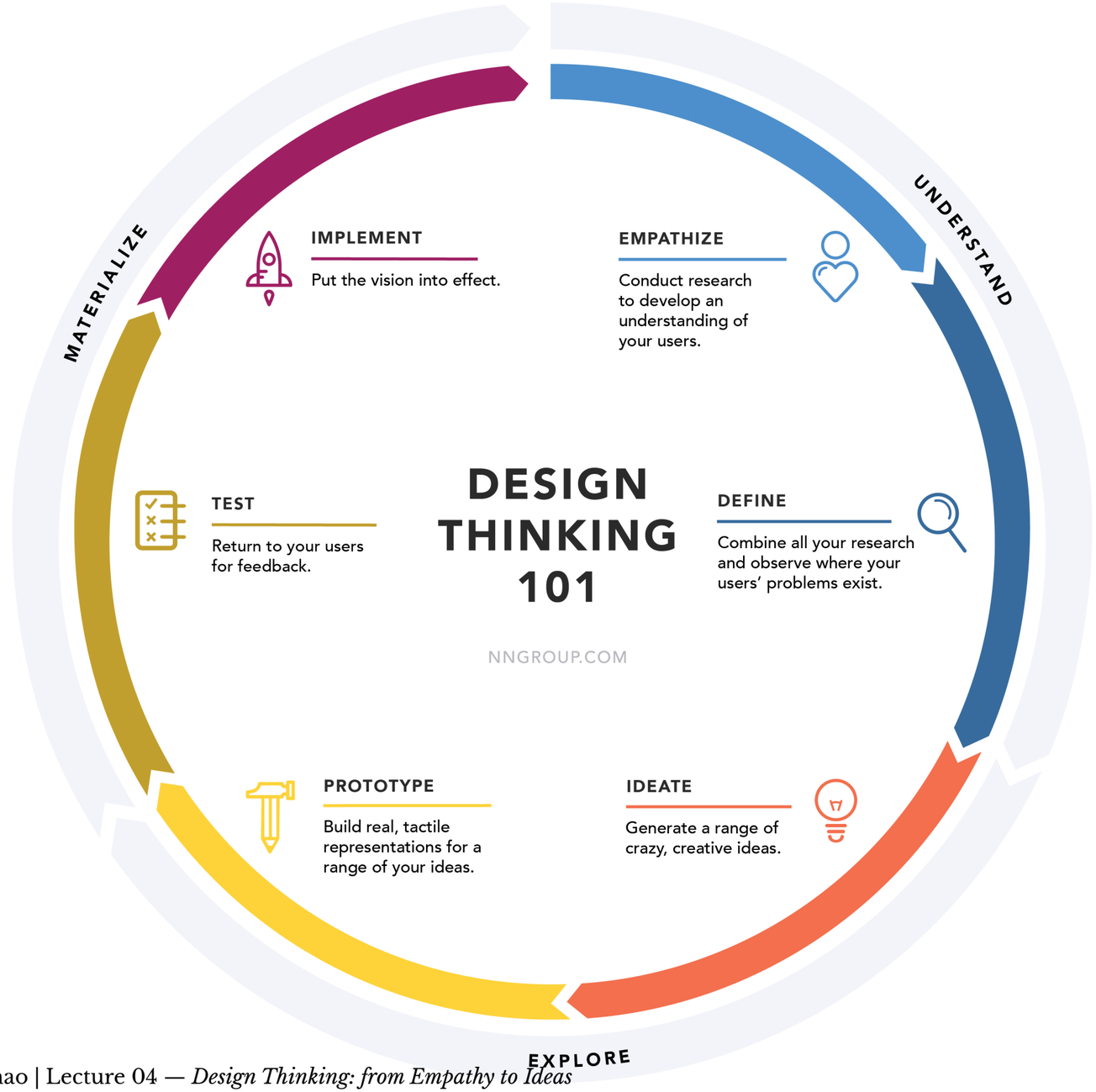
Design thinking[3]



[3] NN/g Design Thinking

Takeaways

1. Approach problems like a designer
2. Follow a process


DESIGN THINKING 101
NNGROUP.COM
UNDERSTAND
EMPATHIZE
Conduct research to develop an understanding of your users.
DEFINE
Combine all your research and observe where your users' problems exist.
EXPLORE
IDEATE
Generate a range of crazy, creative ideas.
PROTOTYPE
Build real, tactile representations for a range of your ideas.
MATERIALIZE
TEST
Return to your users for feedback.
IMPLEMENT
Put the vision into effect.

Empathize

(aka User Research)

How do we empathize with users?

Understanding user needs, preferences, and expectations by studying what users do, say, think, and feel.

There are many methods to build empathy.

[4] NN/g UX Research Methods

The simplest and most powerful method for empathy:

Think-alouds

"The #1 Usability Tool" — Jakob Nielsen

Source[5]

[5] Nomensa

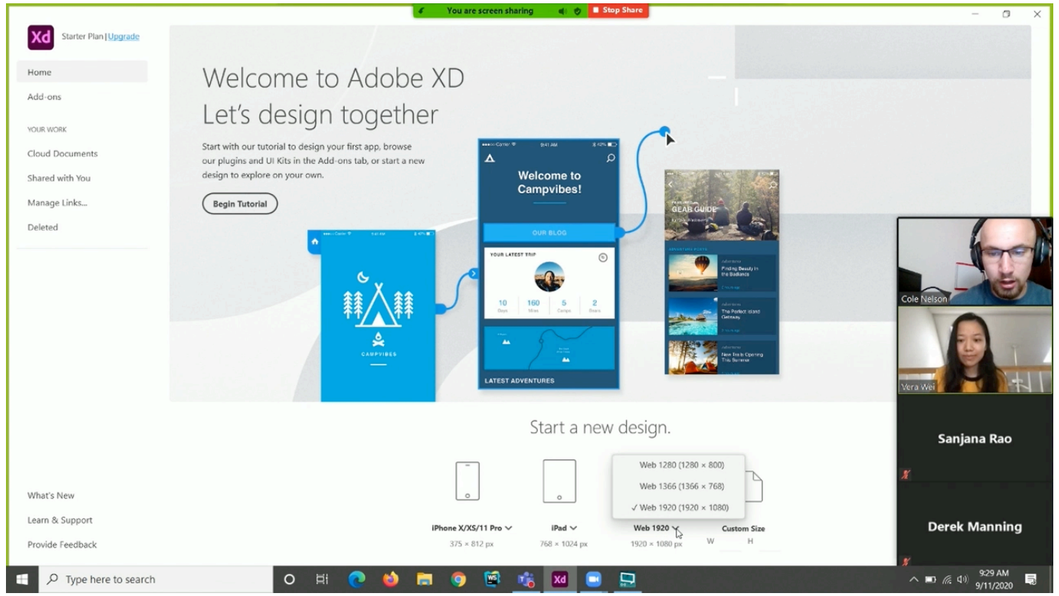
How to conduct a think-aloud

1. Identify representative users
2. Ask users to perform representative tasks
3. Observe and record what they *say* and *do*
4. Analyze your data to develop design insight

In-class Activity: *Adobe XD*

In-class Activity: Part I — *the think-aloud*

We will watch a 10-minute video of a *think-aloud session* with a novice user performing a set of tasks in Adobe XD.



What you should do[6]

Do: Grab a post-it note on this Google Drawings canvas (or create one if none left). Write down one key observation on the post-it note. Hold onto your post-it note until later. 👈 *Repeat for additional observations.*

Pro tip: Write concisely but in a way that others can understand; write the name of the source; color-code types of note; use a Sharpie! 👈 *Applies to physical post-it notes.*

[6] Cooper-Wright

Think-aloud Tasks

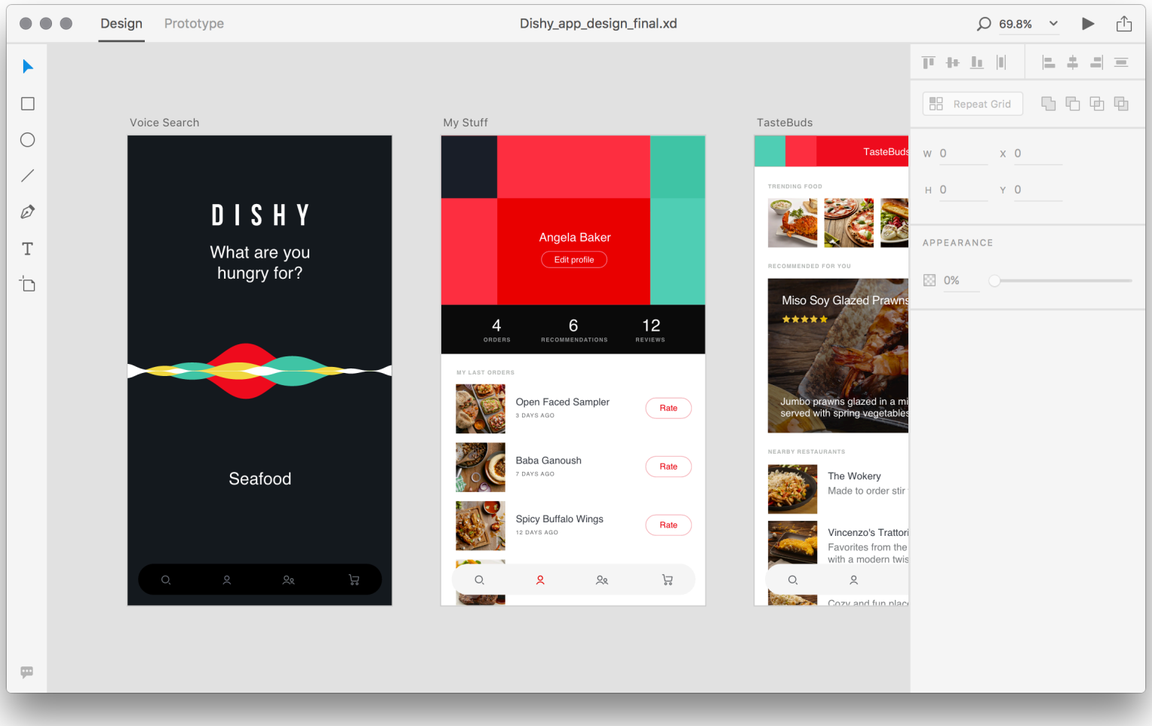
Task 1: Start a new design for the web at size 800 x 600.

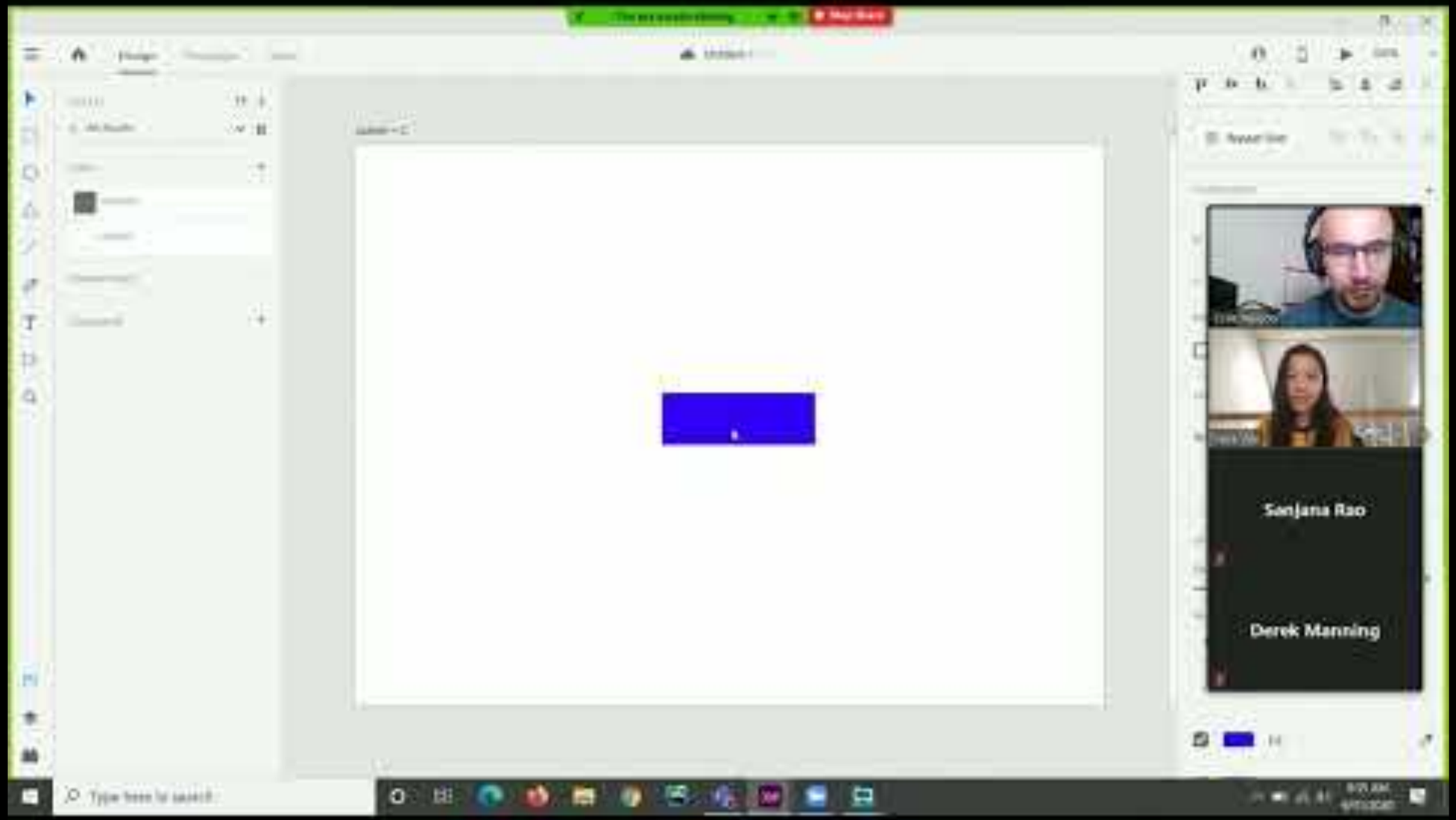
Task 2: Create a red button in the center of the canvas.

Task 3: Create a second canvas and place a blue button in the center.

Task 4: Link red button to second canvas and blue button to first.

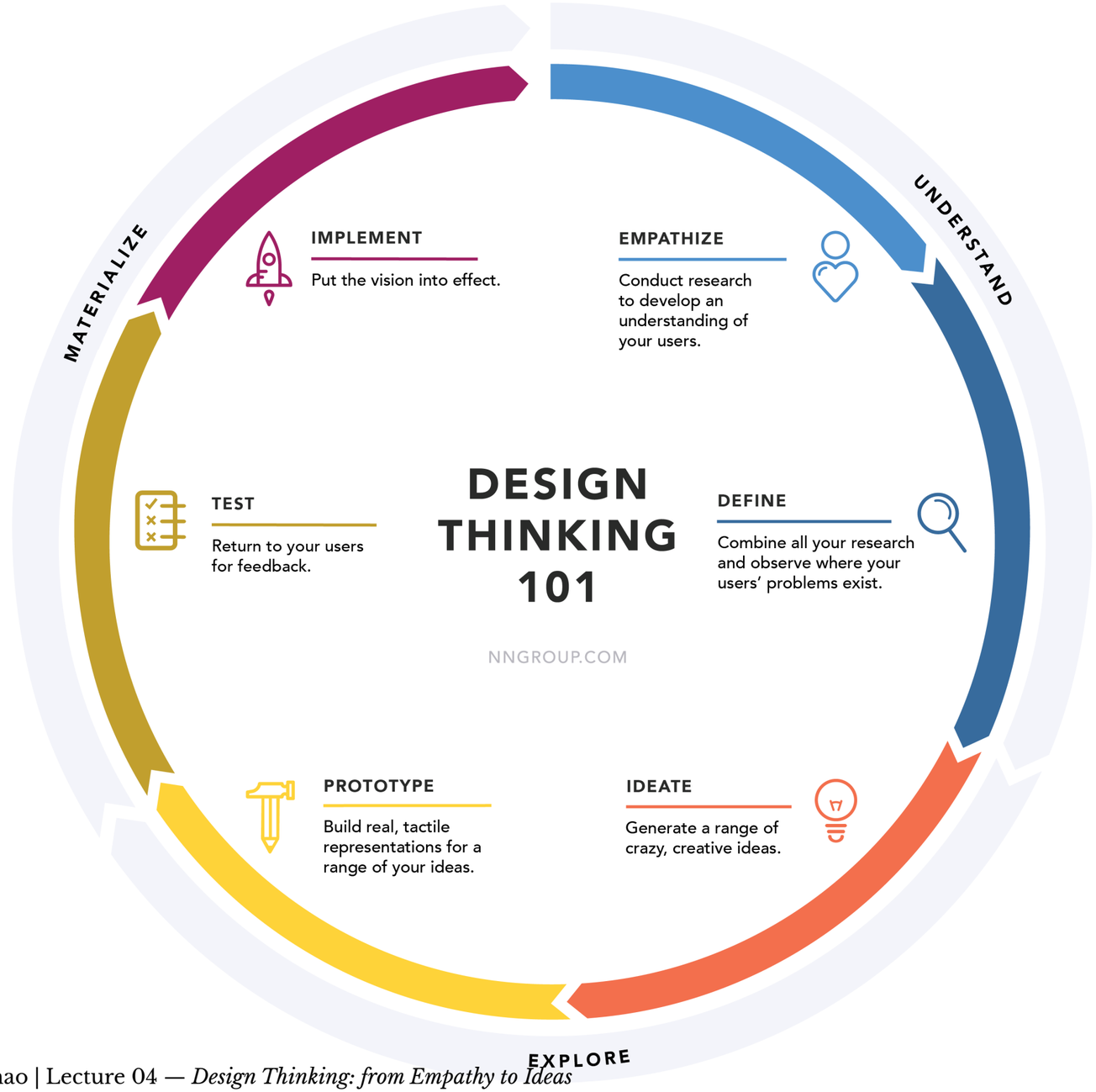
Task 5: Simulate your design.




Sanjana Rao
Derek Manning

More on the TA methods

— Can be done *concurrently* or *retrospectively*
— Can be applied to pretty much anything
— Can be done *before* or *after* design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Define

What does that mean?

— Gathering all findings — **gather**
— Consolidating, categorizing, distilling — **analyze**
— Translate into insight — **recommend**

But how do we go about this?

— Again, there are many methods for analysis.
— The simplest and most powerful method is *affinity diagramming*.

Affinity Diagramming

What is it?

— **Definition:** Organizing data into clusters based on "affinity."
— It helps you make sense of qualitative, messy data.
— Also known as *affinity mapping*, *collaborative sorting*, *snowballing*.
— Used across the board in creative, generative industries.

[7] NN/g Affinity Diagramming

How do we go about it?

- **Step 1**: Start an initial set of categories
- **Step 2**: Sort notes into these categories
- **Step 3**: Add subcategories or consolidate categories as needed
- **Step 4**: Present each category
- **Step 5**: Rank categories in *severity*, combining importance, prevalence, frequency

How do we go about it? Continued.[8]

Pro Tip: Steps 2–3 will likely be iterative.

Pro Tip: Assign team members to categories who will be responsible for all the sorting and presentation of the categories

[8] Image source: UX Collective

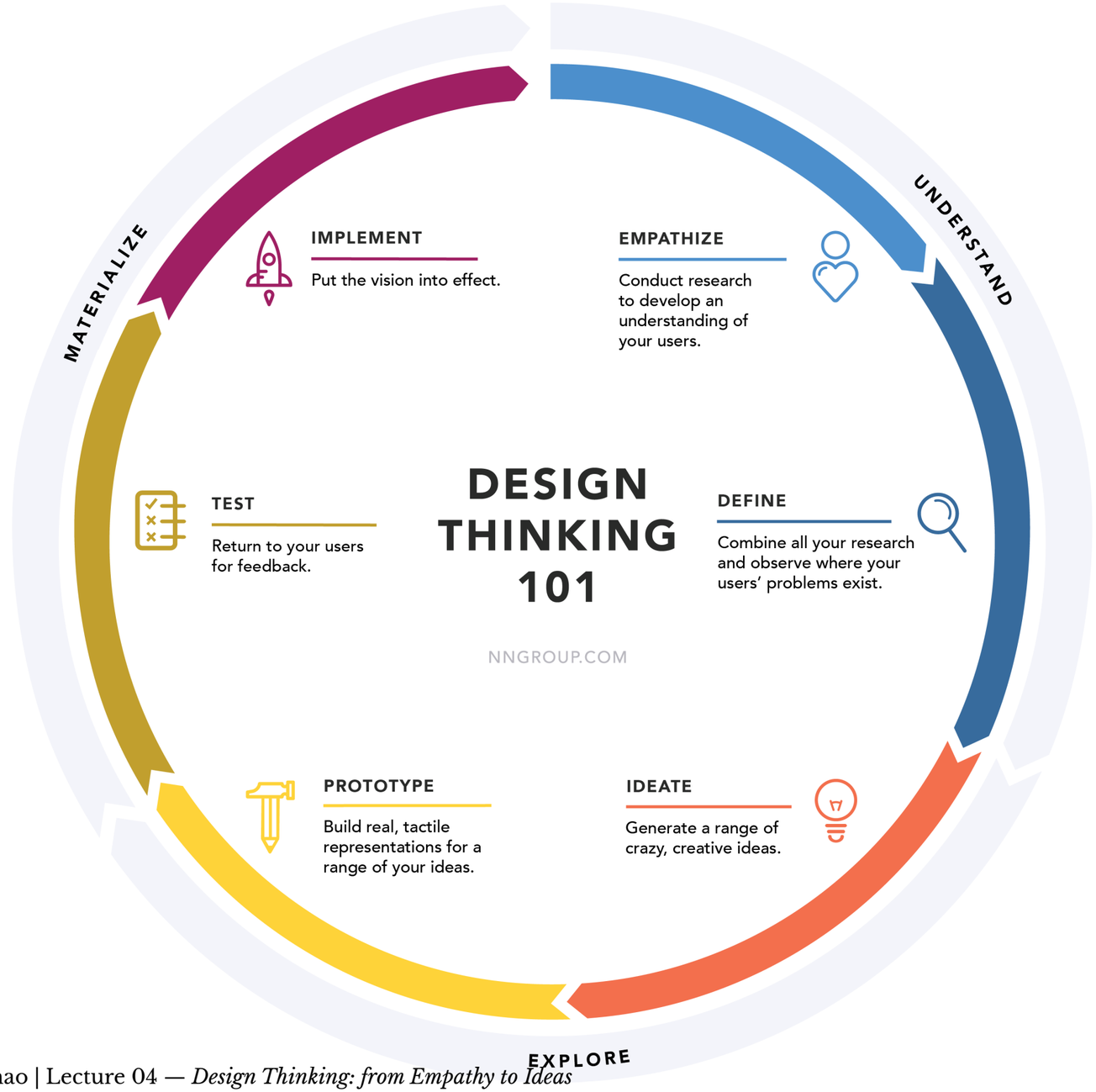
In-class Activity: Part II — *affinity diagramming*

Now, let's get back to the Google Drawings canvas and follow this process.

- **Step 1:** Start an initial set of categories
- **Step 2:** Sort notes into these categories
- **Step 3:** Add subcategories or consolidate categories as needed
- **Step 4:** Present each category
- **Step 5:** Rank categories in *severity*, combining

Voilà!

Your findings will serve as *design insight*.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Ideate

Definition: An active, creative, exploratory, highly iterative, fast-moving collaborative process for forming ideas for design.

Ideation can be done *individually* or *collaboratively*.

Ideation has two stages:
Idea creation → Critiquing

Key considerations

— Workspace
— Team
— Process
— Rules of engagement
— Method of capturing ideas

Image source[9]

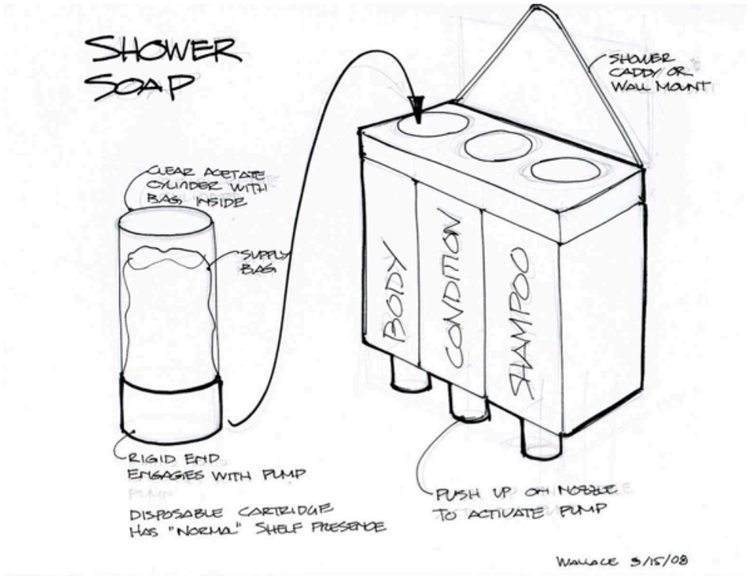
[9] GlassDoor

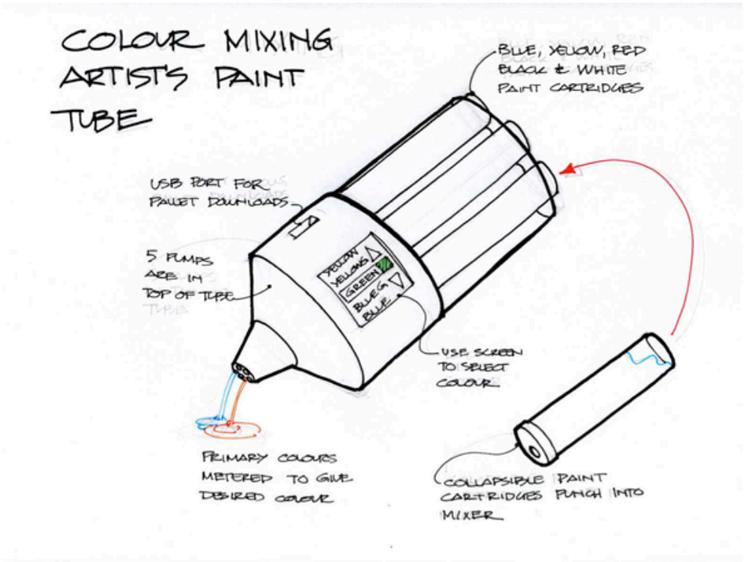
IDEO's Rules of Engagement

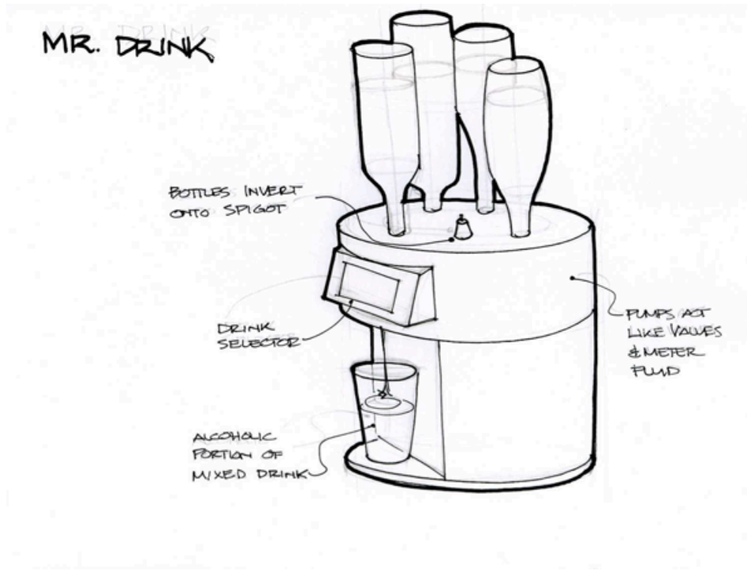
1. Defer judgement.
2. Encourage wild ideas.
3. Build on the ideas of others.
4. Stay focused on the topic.
5. One conversation at a time.
6. Be visual.
7. Go for quantity.

Ideation ⇌ Sketching

Definition: A sketch is a quick and rough drawing that gives a general outline of an idea.[10]







[10] Idea sketch examples: MIT 2.009

Sketching Principles[11]

— Everyone can sketch
— Sketching is more effective than words for most ideas
— Quick and inexpensive sketches do not inhibit exploration
— Sketches are disposable

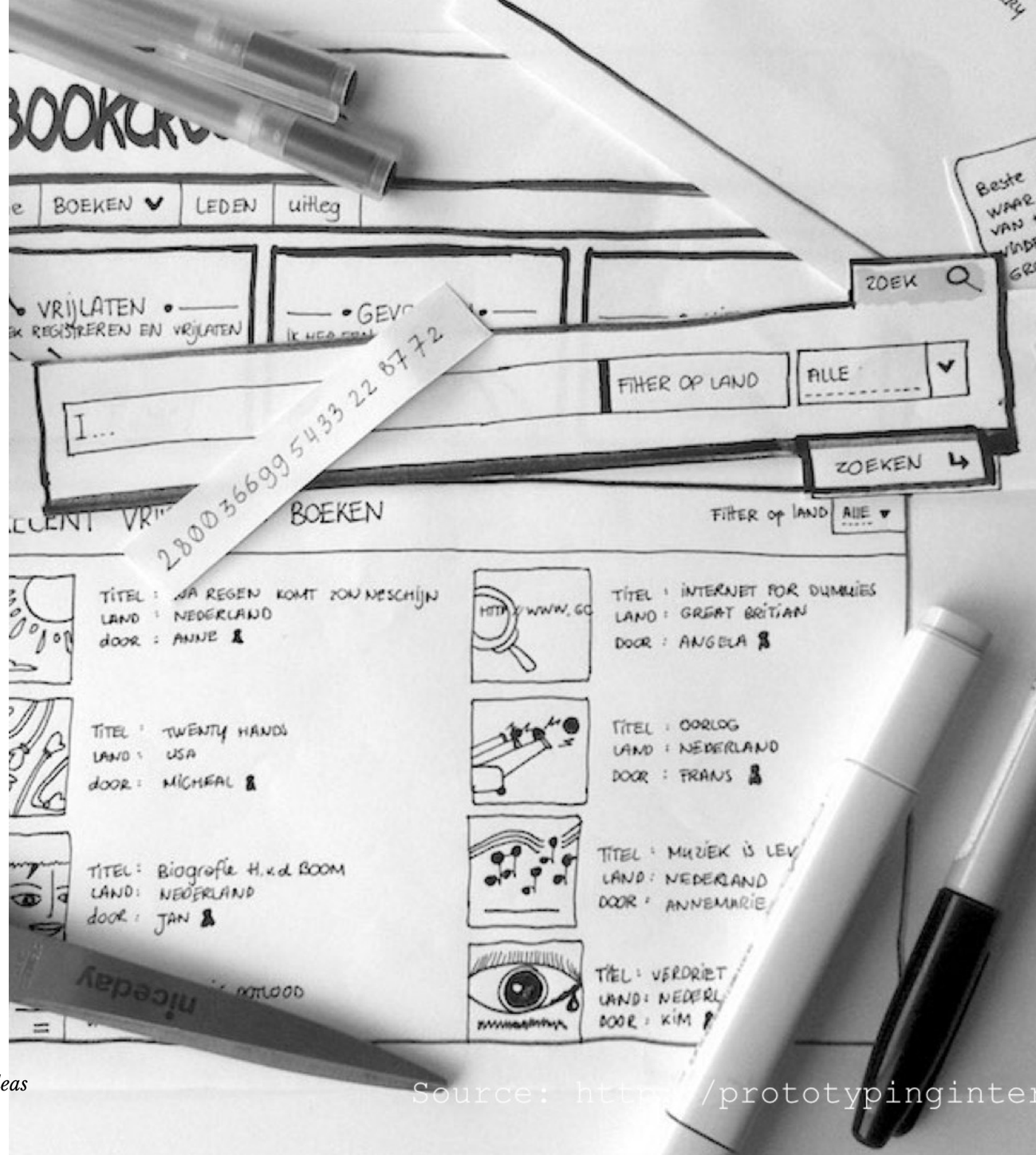
[11] Buxton, 2007

Sketching Principles[12] Continued

— Sketches are made just-in-time, in-the-moment, when needed

— Sketches should be plentiful, entertain a large number of ideas, and include multiple sketches of each idea

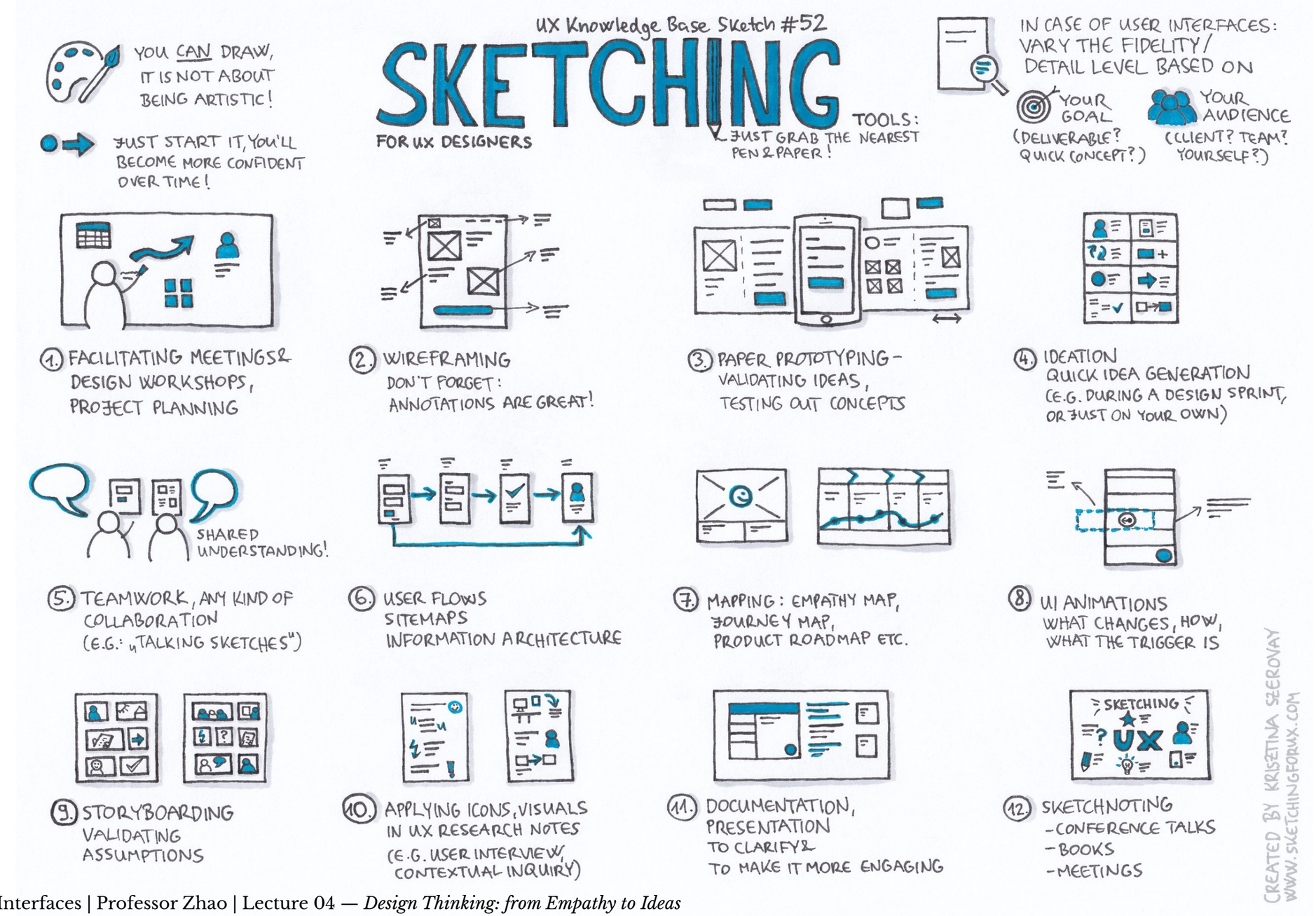
— Textual annotations can explain what is going on in the sketch



[12] Buxton, 2007

Sketching can do more![13]

[13] Medium


UX Knowledge Base Sketch #52
SKETCHING
FOR UX DESIGNERS
YOU CAN DRAW, IT IS NOT ABOUT BEING ARTISTIC!
JUST START IT, YOU'LL BECOME MORE CONFIDENT OVER TIME!
TOOLS: JUST GRAB THE NEAREST PEN & PAPER!
IN CASE OF USER INTERFACES: VARY THE FIDELITY/ DETAIL LEVEL BASED ON
YOUR GOAL (DELIVERABLE? QUICK CONCEPT?)
YOUR AUDIENCE (CLIENT? TEAM? YOURSELF?)
1. FACILITATING MEETINGS & DESIGN WORKSHOPS, PROJECT PLANNING
2. WIREFRAMING DON'T FORGET: ANNOTATIONS ARE GREAT!
3. PAPER PROTOTYPING - VALIDATING IDEAS, TESTING OUT CONCEPTS
4. IDEATION QUICK IDEA GENERATION (E.G. DURING A DESIGN SPRINT, OR JUST ON YOUR OWN)
SHARED UNDERSTANDING!
5. TEAMWORK, ANY KIND OF COLLABORATION (E.G.: „TALKING SKETCHES")
6. USER FLOWS SITEMAPS INFORMATION ARCHITECTURE
7. MAPPING: EMPATHY MAP, JOURNEY MAP, PRODUCT ROADMAP ETC.
8. UI ANIMATIONS WHAT CHANGES, HOW, WHAT THE TRIGGER IS
9. STORYBOARDING VALIDATING ASSUMPTIONS
10. APPLYING ICONS, VISUALS IN UX RESEARCH NOTES (E.G. USER INTERVIEW, CONTEXTUAL INQUIRY)
11. DOCUMENTATION, PRESENTATION TO CLARIFY & TO MAKE IT MORE ENGAGING
SKETCHING
UX
12. SKETCHNOTING - CONFERENCE TALKS - BOOKS - MEETINGS
CREATED BY KRISZTINA SZEROVAY
WWW.SKETCHINGFORUX.COM

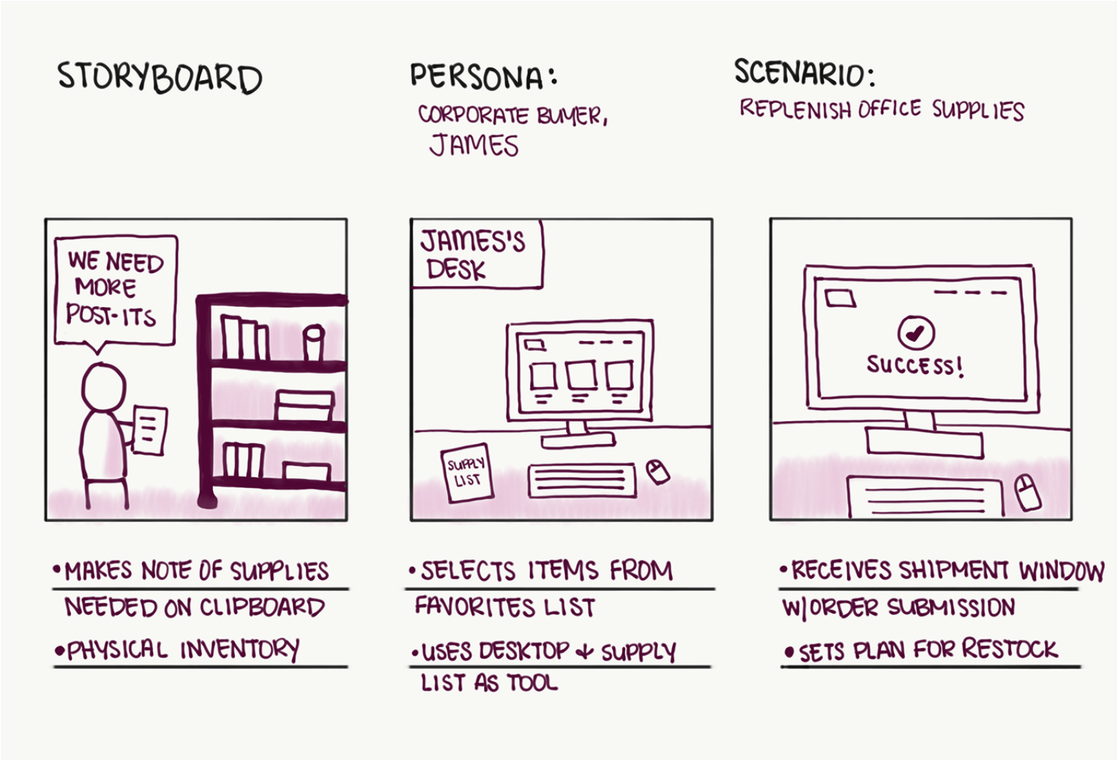
In ideation, sketches illustrate *conceptual designs*.

What is Conceptual Design?

Definition: An abstract characterization of the context, use, or experience with an envisioned design solution that highlights the main premise of the solution.

Storyboarding[14]

Definition: A sequence of visual frames that illustrate user interaction with the envisioned system, capturing social, environmental, and technical factors that shape user experience.

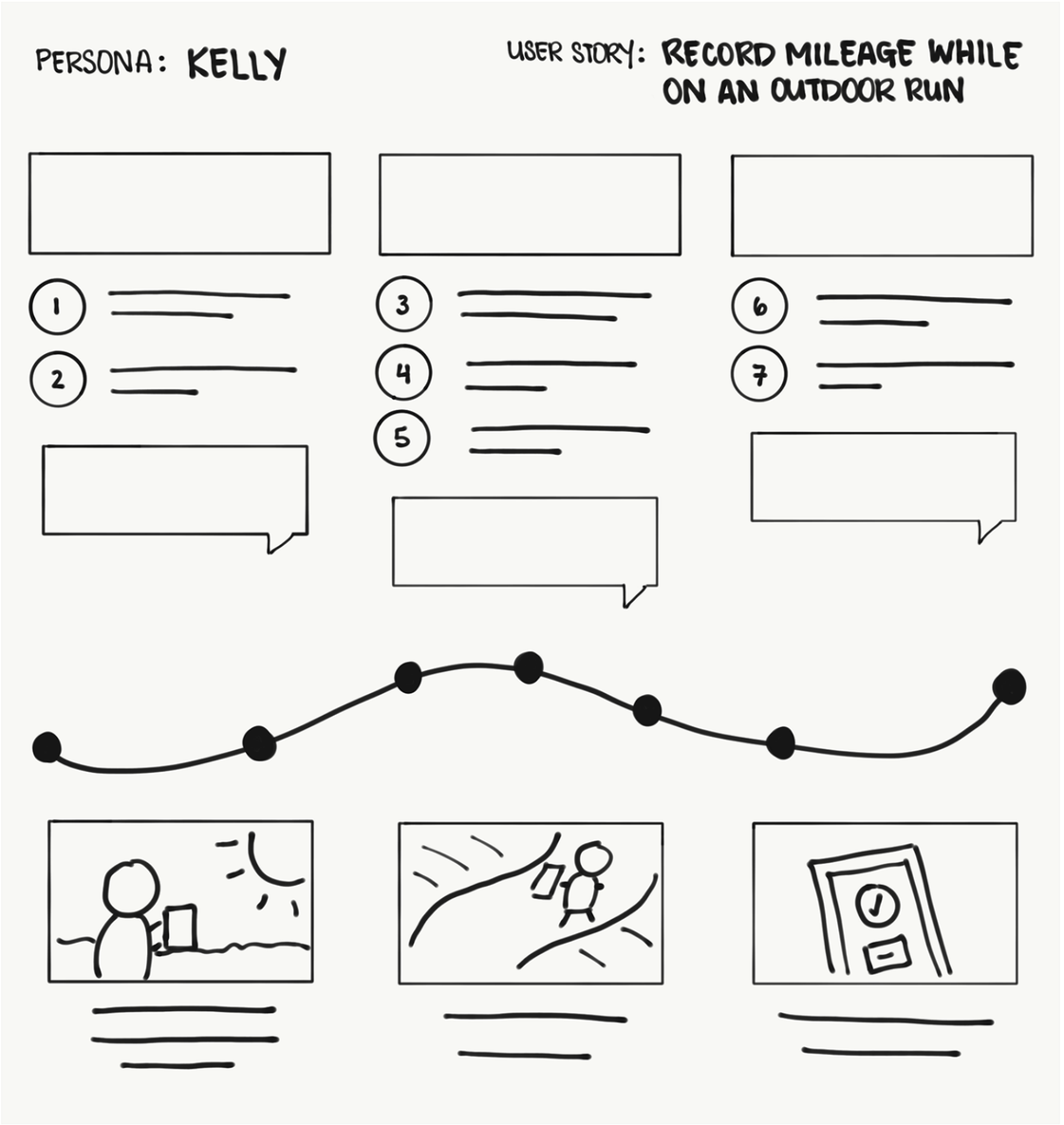


[14] NN/g: Storyboards Help Visualize UX Ideas

Journey Maps[15]

Definition: A visualization of the process that a person goes through in order to accomplish a goal.

User actions, thoughts, and emotions mapped onto a timeline to create a narrative.



[15] NN/g: Journey Mapping 101

What did we learn today?

— Design thinking and process
— Step 1: How to empathize with users
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— Step 3: How to generate design ideas
— Sketching, conceptual design, storyboarding

What's next?

— Next lecture on *Visual Design* on Thursday

— *Javascript* β has been released Yesterday.