



Design Thinking & Innovation

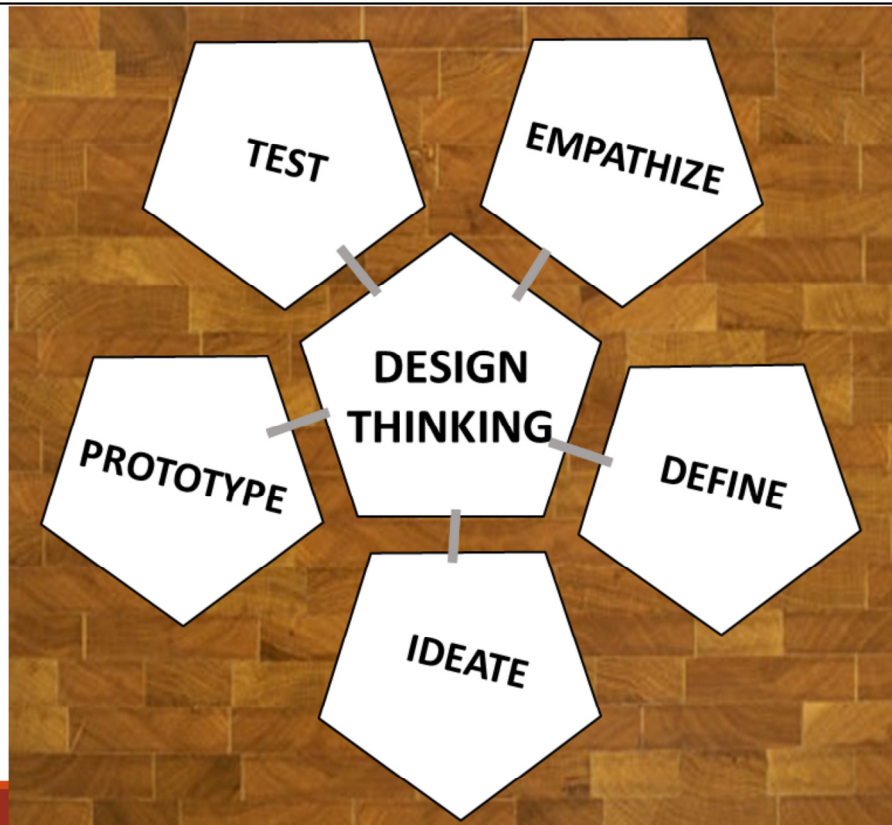
Day 3

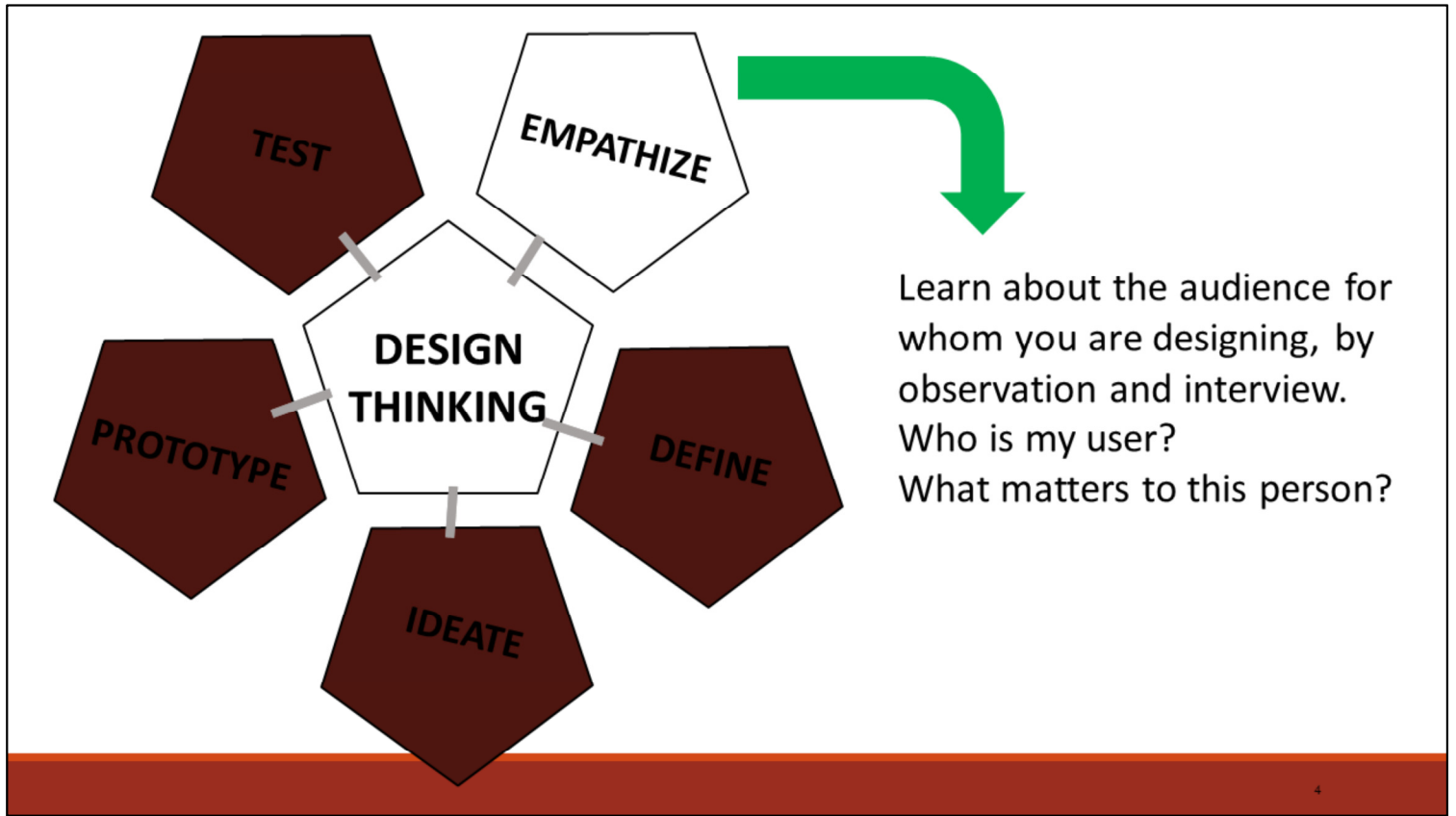
DESIGN THINKING

- Involves observation to discover unmet needs within the context and constraints of a particular situation.
- It frames the opportunity and scope of innovation, generating creative ideas, testing and refining solution.
- It creates a repeatable and scalable process for innovation.



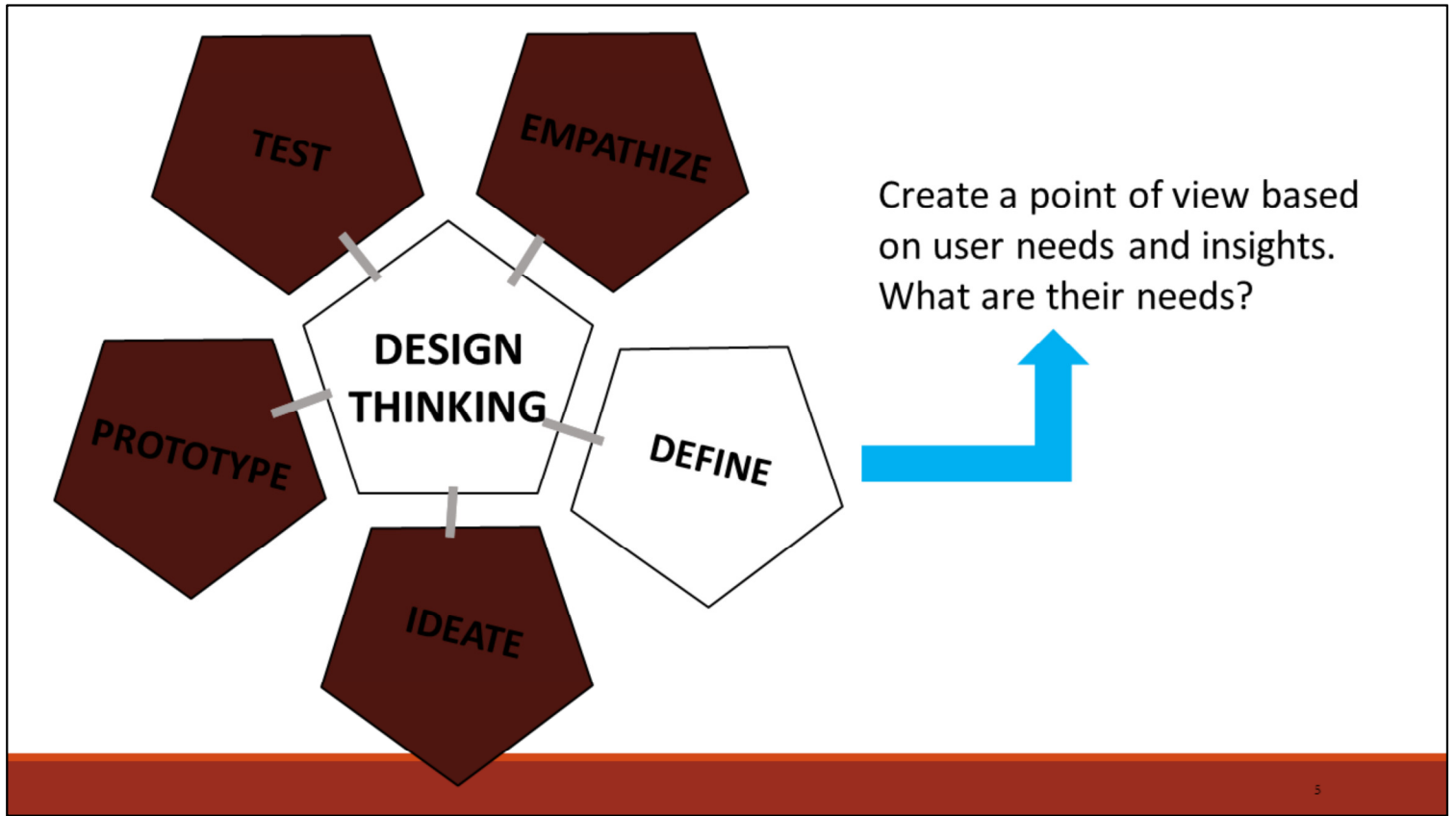
FRAMEWORK





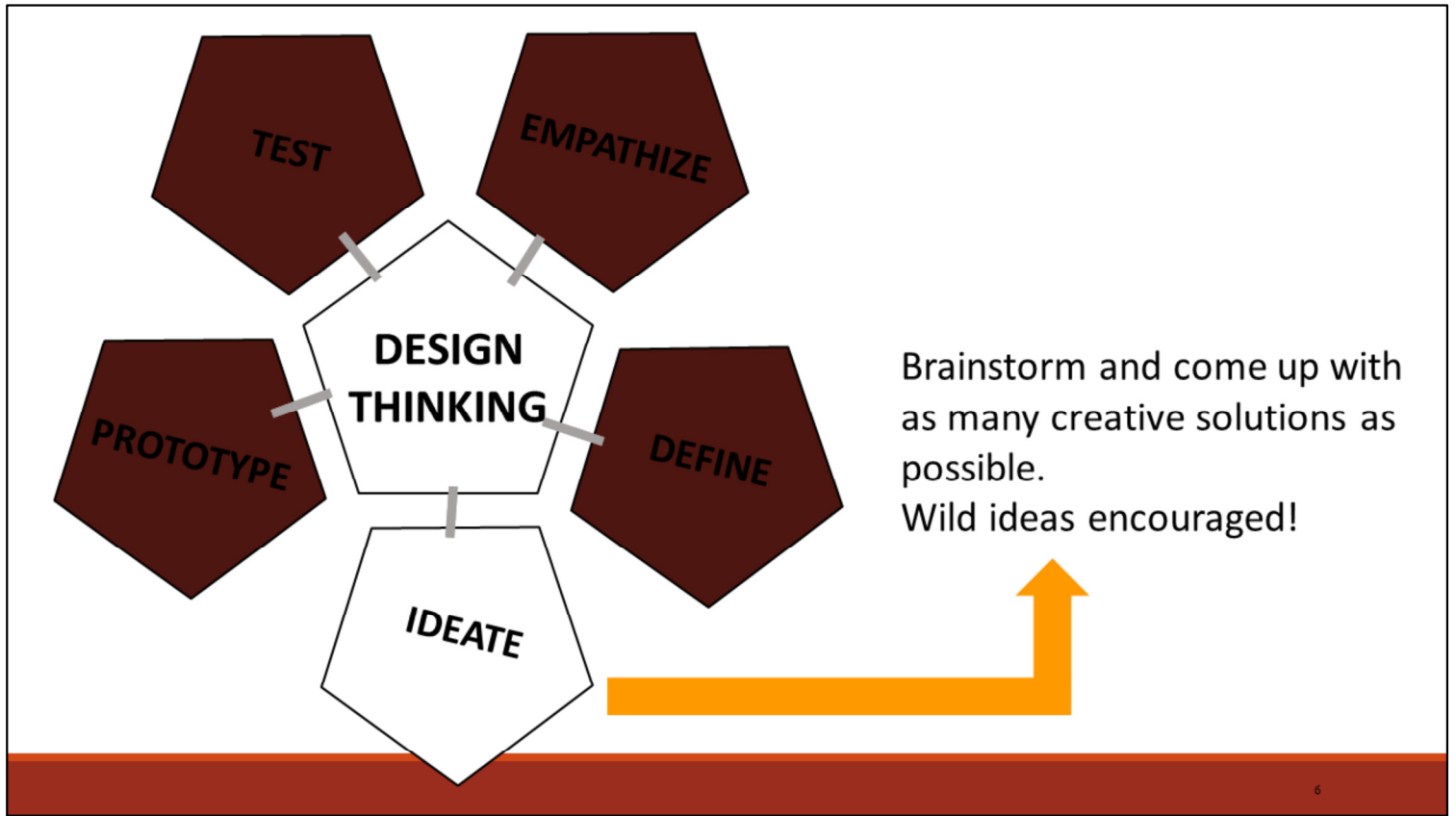
Definition (Oxford): Empathy

The ability to understand and share the feelings of another.



Definition (Oxford): Define

1. State or describe exactly the nature, scope, or meaning of.
2. Mark out the boundary or limits of.



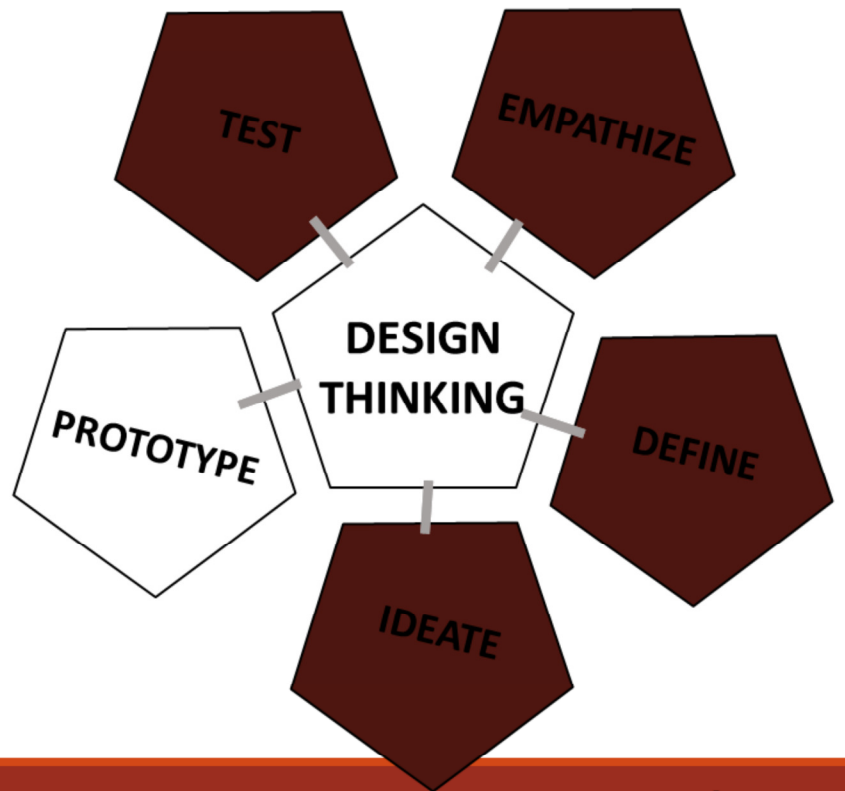
Definition (Oxford): Ideate

1. Form an idea of; imagine or conceive.

Build a representation of one or more of ideas to show to others.

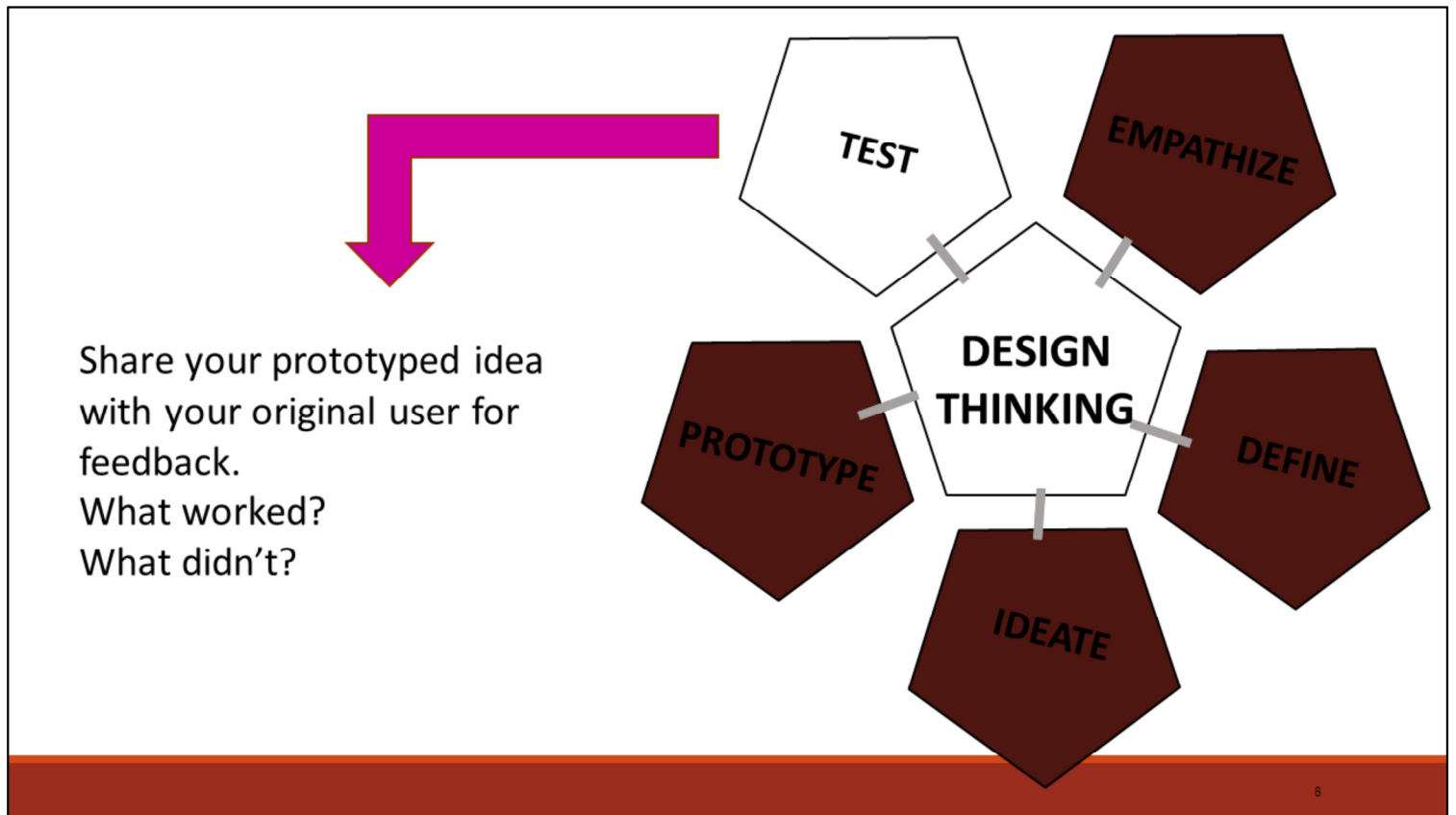
How can I show my idea?

Remember: A prototype is just a rough draft!



Definition (Oxford): Prototype

1. A first or preliminary version of a device or vehicle from which other forms are developed.
2. A basic filter network with specified cut-off frequencies, from which other networks may be derived to obtain sharper cut-offs, constancy of characteristic impedance with frequency, etc. (Electronics).



Definition (Oxford): Test

1. A procedure intended to establish the quality, performance, or reliability of something, especially before it is taken into widespread use.
2. Take measures to check the quality, performance, or reliability of (something), especially before putting it into widespread use or practice.

ACTIVITY 1

The Backpack Project (30 mins)



Handout 1

Instruction:

Each group will be given 1 mahjong paper.

Each group will have to design a backpack according to their creativity.

Presentation by group.

Refer to Handout 1

REFLECTION

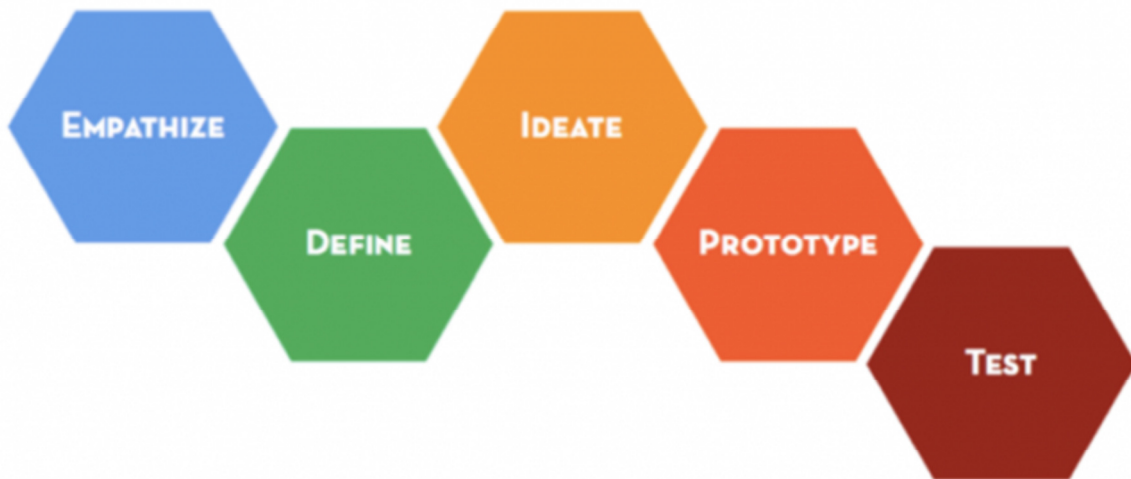


In groups:

**What were the stages
you had to go through
to get to the final
product?**

2 volunteer from each groups come out to talk about their experience

ANSWER:



ACTIVITY 2

Human Billboard (15 mins)



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This is a fun way to break the ice and get participants to share and know more about each other

Instruction:

- Give one flip chart sheet to each person in the room along with coloured markers.
- Give everyone 10 minutes to use the flip chart and the markers to use words, symbols, pictures to describe themselves.
- Once the 10 minutes are over, instruct each person to cut an X at the top of the flip chart so they can put their head through it and wear their flip chart like a human billboard and it's draping in front of them.
- Give the group 5 minutes to walk around the room, chat and explain to each other what their human billboard says about them.

1st & 2nd Stage: Empathize & Define

Asking the questions: **WHY?**

1. Gain empathy with your target users by talking and observing them.
2. You need to understand your audience even better than they understand themselves.
3. The only way you'll get there is to develop a deep empathy for their habits, beliefs, quirks.



ACTIVITY 3

Open-ended Questions

Handout 4

Goal:

To help students understand how to ask questions that will get to a deeper understanding of their user and the context in which the user operates.

Duration:

10 min-30 min

Group Size:

Partners or small groups

Instruction:

- a. Prepare a set of questions, paper and pencil for recording answers - Interview (10 min).
- b. Give students a set of prepared questions - Handout 3.
- c. Ask students to pair up and ask each other the above questions (or a set of questions that you come up with).
- d. Identify questions (2 min)
As a class or in pairs identify which questions are open-ended and which are not.
- e. Debrief (5 min)
Ask the students the following questions:
 - What kind of answers did you get from asking the open-ended questions?
 - How did those answers compare to the answers to the other questions?
 - Why do we focus on open-ended questions when trying to understand our user?
- f. Question Development (8 min)
Give students time to develop their own open-ended questions

1st & 2nd Stage (cont.)

4. Asking the right types of questions to get the right kinds of answers is a critical skill everyone must master.
5. Before you can start effectively asking open-ended questions, you need to know what that is.

Open-Ended Questions (OEQ)

- OEQ: Question that requires a full answer using the subject's own knowledge or feelings.
- Results in an answer with many words.
- Require a person to pause, think, and reflect.
- Answers will not be facts, but personal feelings, opinions, or ideas about a subject.



Open-Ended Questions (cont.)

- When using OEQ, the control of the conversation switches over to the person being asked the question.
- Questions begin in very specific ways, with the following words:
 - why, how, what, describe, tell me about..., or what do you think about..



Open-Ended Questions (cont.)

- Main reason to use OEQ:
 - to obtain deep, meaningful, and thoughtful answers.
 - invites people to open up, because you are showing that you are interested in what they have to say.
 - makes it feel more like an interview or interrogation than a conversation.



Close-Ended Questions (CEQ)

- CEQ: Answered in a short / single-word answer.
- Used to obtain facts and specific pieces of information.
- Examples:
 - Who will you choose?
 - What brand of car do you own?
 - Did you speak to Bob?
 - Did Susan leave with Jim?



Close-Ended Questions (cont.)

- CEQ bring conversations to a halt. They don't invite people to elaborate.
- They are not bad or negative and have their uses. Especially when you need to get information and facts quickly.



Mixing the Two Questions!

- To focus on the discussion, begin with a CEQ.
- For follow ups, use OEQ.
- Ask "why" and "how" to follow up and gain a lengthier answer after asking a CEQ.
- Example: Do you like a Big Bag? Why not?



ACTIVITY 4



Questions Bucket (15-20 mins)

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Goal:

To review the topics covered in your training course.

Instruction:

Ask participants to write questions about the covered material, add a few questions of your own that are not related to the training like

“What was the best trip you ever been on” or

“The one holiday destination you must go back to”.

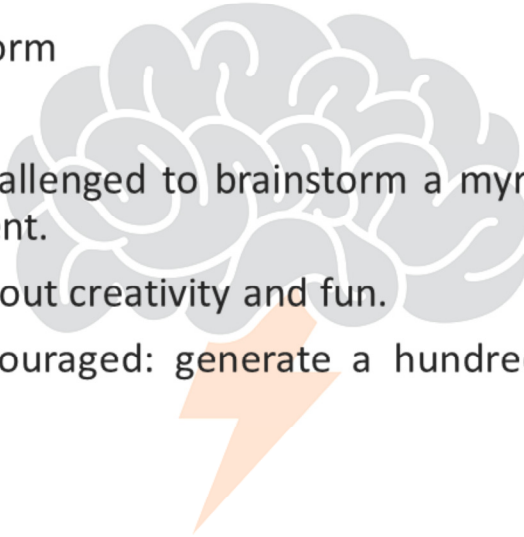
Add all questions to a bucket, pass around the questions bucket and ask participants to pull out a random question and answer it.

Since they don't know what kind of question they will be getting, this is one way to ensure they're paying attention and also provides a way for you to review the content and test their information retention.

3rd Stage: Ideate

Key word: Brainstorm

- Students are challenged to brainstorm a myriad of ideas and to suspend judgment.
- Ideating is all about creativity and fun.
- Quantity is encouraged: generate a hundred ideas in a single session.



ACTIVITY 5



The Humble Paperclip

(20 min discussion
10 min present)

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Goal:

For student groups to work together in order to generate a lot of ideas quickly and learn that groups are often more generative than individuals.

Duration:

30 minutes

Group Size:

Pairs (optional continuation with bigger groups)

Instruction:**Brainstorm One:** 3 Min

As individuals, have each student write down as many uses for a paper clip as they can think of.

Pass out a paper clip to each student for inspiration.

They are free to manipulate it in any way.

Compare Brainstorm One: 3 min

Have students pair up and compare the paper clip use ideas each came up with.

Ask them to look over the ideas that their partner came up with focusing what ideas each person came up with as well as what ideas only one person came up with.

Have each student choose the wildest idea from their partner's list.

Brainstorm Two (The contest): 7 min

Now in their pairs, students continue to brainstorm new ways to use a paper clip.

The goal is for each pair to come up with as many ideas that no other pair thinks of.

They don't have to repeat any of the earlier ideas they came up with individually, rather they supplement that list.

Share out: 15 min

The first pair shares one of their ideas. Continue to rotate through all the pairs having each one share one idea. For each idea that gets said out loud, other pairs have to say whether or not they also have that idea. If any other pair has that idea ALL pairs have to scratch that off of their list. Each pair gets a point for an idea they have that no other team has. The team with the most points wins.

ACTIVITY 6



Bodystorming

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Goal:

To help designers derive new ideas and unexpected ideas by physically experiencing a situation.

Duration:

20-60 min depending on complexity of situation

Group Size:

Small Groups or whole class

What is bodystorming?

Bodystorming is a unique method that spans empathy work, ideation, and prototyping.

Instruction:**Set Up (5 min):**

Get a chair with wheels and create a list of tasks that you want the student to go through (ie. opening a door, getting a notebook, turning in homework, getting a drink of water).

You can also have students come up with the list of things for the test student to do.

Testing (10 min):

Have your test student sit in the chair and go through the list of tasks one at a time.

As they are going through the tasks ask them to verbalize what they are experiencing (challenges, surprises, other interesting discoveries).

Ask the other students in the class to take notes on what the test student is saying.

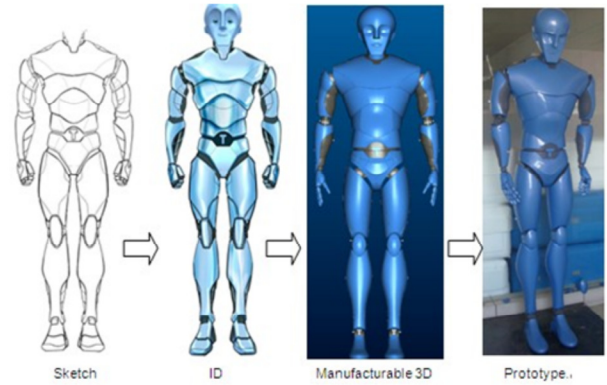
Debrief (10 min):

After students have completed the run through debrief the process by asking some of the following questions:

- What did you learn from the process?
- What surprised you about going through the process?
- What did you learn from doing this that you couldn't have learned any other way?
- How can you see applying this exercise to other design challenges? Give examples...

4th Stage: Prototype

- Prototyping is a rough and rapid portion of the design process.
- A prototype can be a sketch, model, or a cardboard box.
- Remember: it is better to fail early and often as you create prototypes.

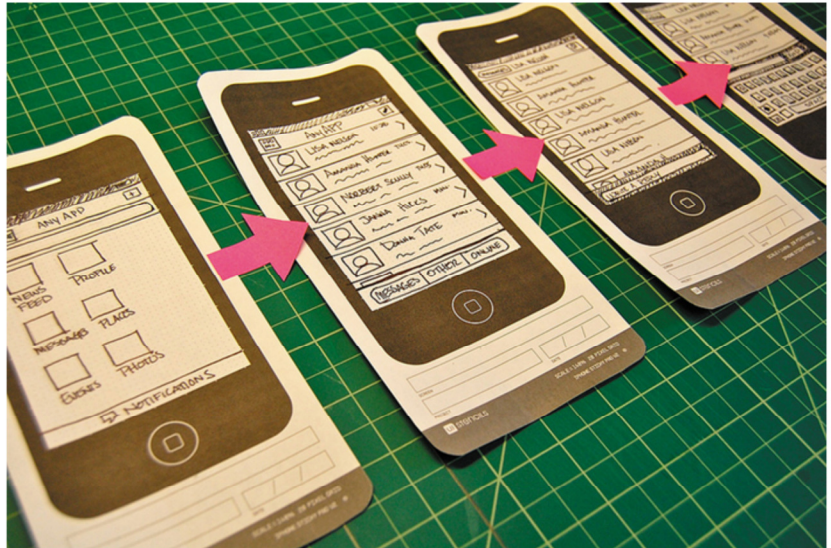


4th Stage (cont.)

- Make your ideas real & learn from peoples' reactions to your prototype
- Two most important things: Rapid and Focused.
- Remember:
 - Some users look at a simple prototype and see potential; some look at a complex prototype and see problems.
- One way of structuring feedback:
 - ask users 2 things they **liked** about the prototype, and 1 thing they **wish** it did differently.

ACTIVITY 7

Paper Prototyping



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Goal:

To demonstrate the value of rapid prototyping and provide designers with a tool for prototyping that is easy to use and allows quick iteration.

Duration:

10-30 Min

Group Size:

Small groups of 2-5

Instruction:

1st iteration (5 min):

Students choose a topic around which to create a prototype.

Example:

- Design a web interface to design sunglasses
- Create a pair of shoes for your partner
- Design a cool bedroom for one of your classmates

Spend 5 minutes developing a quick prototype using post-its on the whiteboard.

Feedback (5 min):

Have students present their ideas to a test group (usually one another) for feedback, using the paper prototype as visual aide.

Iterate (5 min):

Have students go back to their paper prototype and make changes based on the feedback they received from their test group.

Wrap Up (5 min):

Ask the following questions as a quick wrap-up.

What did you learn about your idea from the rapid prototyping?

What did you learn about the overall process?

What are the benefits of this kind of prototyping?

What are the limitations?

ACTIVITY 8

Tattoo



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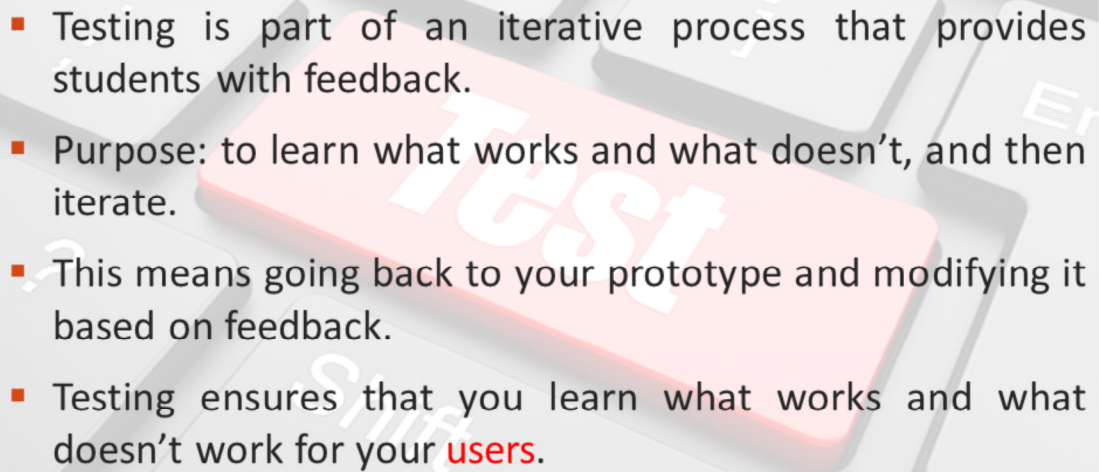
Scenario:

You have just arrived at a Lim's tattoo shop for a tattoo. Lim is competing for "Tattoo King of the Year" contest. Every design is a potential entry, and Lim wants each of his tattoos to say something about the person wearing them. From you, he needs a little inspiration and a design before he can start his work. Lim is excellent at lettering, animals, characters, band logos, maps, etc.

Instruction:

On your piece of paper, you are to design a rough tattoo that reveals something about yourself, your work, your hobbies, or your family, in order to help get Lim's creative juices flowing.

5th Stage: Test

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- Testing is part of an iterative process that provides students with feedback.
 - Purpose: to learn what works and what doesn't, and then iterate.
 - This means going back to your prototype and modifying it based on feedback.
 - Testing ensures that you learn what works and what doesn't work for your **users**.

ACTIVITY 9

Build Your Tower (30 mins)



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Instruction:

This activity is a group work.

Using the materials provided, each group has to build the tallest and stable tower.

The tallest and the most stable tower will be the winner.

5 steps of design thinking will have to be implemented during this activity.

ACTIVITY 10



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Goal:

Tell participants that it's time for evaluations, but rather than filling the old-style evaluation sheets, we will do it in a much more fun way.

Also confirm that input from all participants will remain anonymous so they can write whatever they wish.

Instruction:

1. Ask each participant to **list two columns on a sheet of paper:** one represents the positive things about the training and the other for things that need improvement.
2. Participants are given 3 minutes to do this, then after they finish, instruct everyone to wad their papers into balls and start a "snowball fight".
3. Wait a couple of minutes till the papers are thoroughly randomized then ask each participant to pick up one paper and read it out to the group.

