

ITX2005

Design Thinking

Instructors

- Benjawan Srisura
- Chayapol Moemeng
- Sirapob Thangseresuk

Class Regulation

- Be punctual.
- Classwork is not Homework.
 - It dues in the class or the same day.
 - It has deadline, so no late submission.
 - Submit via MS Teams' Assignment as evidence of participation.
 - Coming to class but no deliverables does not count.
 - Only students who show up in class are eligible to submit the work.
 - Don't cheat. We take it seriously.
- No exam – it is replaced with pitches with evidences.

Mark Allocation

- 20% Class Participation (Classwork + Homework)
- 20% Midterm Examination (Soft Pitch)
- 20% Progress Presentation
- 40% Final Examination (Final Pitch)
- 100%

Introduction to Design Thinking

Innovation

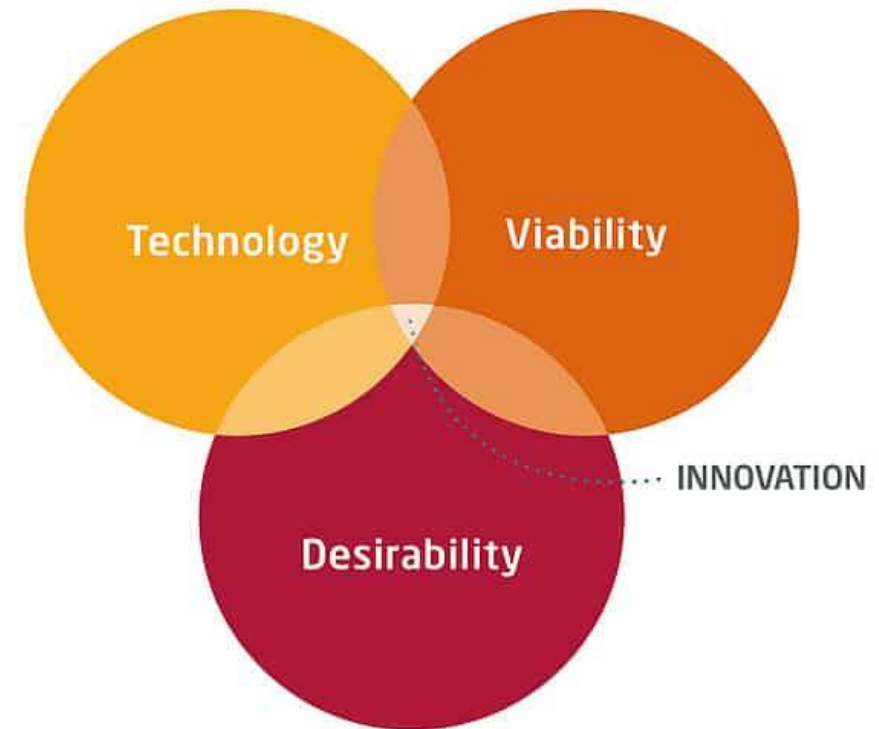
- How will you make new product / service / campaign?
 - Where to start?
 - Your own idea, customers' idea (inside out)
- What makes someone pay for something?
 - Desire to fix problems:
 - Problems: hunger, pains, itches, emotions
- Outside in:
 - Build things that customers need.
 - Build Solutions that solves customers' pains.

Design Thinking

- A Problem-Solving framework.
- Ideal for ill-defined or unknown problems - thus presenting new opportunities
- Solution-based: Generates innovative solutions – rather than adding more to existing ones
- Reduces the risk associated with launching new ideas since it promotes the idea of fail early and often (through prototyping)
- Helps organisations learn faster
- Successful companies always seek new ways to compete in their sector.

Innovation

- *Design thinking* yields **innovation** by combining three essential components:
- Technical feasibility
- Economic *viability*
- Human *desirability*



Design Thinking

- Can help you identify needs that have still not been catered for – thus presenting new opportunities
- Reduces the risk associated with launching new ideas since it promotes the idea of fail early and often (through prototyping)
- Solution-based: Generates innovative solutions – rather than adding more to existing ones
- Helps organisations learn faster

Design Thinking Process Characteristics

- A problem-solving approach
- Human-centric
- Iterative
- Solution-based

Design Thinking



Empathize



Define



Ideate



Prototype



Test

The Design Thinking Process

1. **Empathize:** Understand the users, their needs, and challenges.
2. **Define:** Clearly define the problem or opportunity based on user insights.
3. **Ideate:** Generate a wide range of creative ideas without judgment.
4. **Prototype:** Create low-fidelity prototypes to visualize solutions.
5. **Test:** Gather feedback and refine the solutions through iterative testing.

Stage 1 – Empathise



Empathize



Define



Ideate



Prototype



Test

- gain an empathetic understanding of your users, their needs and what they really care about.
- put aside any personal assumptions that you might have about your users or the problem you are tackling.
- You should observe, engage (for example through interviews) and empathise with people to understand their experiences, what they value and what motivates them.
- It is recommended that you get a feel of the physical environment within which the problem lies.

Stage 2 – Define



Empathize



Define



Ideate



Prototype



Test

- Analyse, sort out and sequence the information you have gathered in the first stage in such a way that lets you define better the problem you are tackling.
- Bring clarity and focus to your work because you will know what the real problem is.
- Best to write down in the form of a problem statement.
- Shaped the definition of the problem solely as seen from the users' perspectives and without any constraints of existing solutions.

Stage 3 – Ideate



Empathize



Define



Ideate



Prototype



Test

- Generate several logical ideas (rough ideas) that seek to resolve the problem.
- They should be valid approaches that can potentially solve the problem being tackled.
- “think outside the box” – wide-range of research to learn about the current landscape, so you know the dimension of the box.
- Sketch these ideas and show them to the users
 - To refine them and at the same time filter those ideas that are worth investigating further. (Validate)

Stage 4 – Prototype



Empathize



Define



Ideate



Prototype



Test

- Narrow down the solutions
- Generate several **inexpensive prototypes**
- To have something to share and will act as a basis of communication with your team members and other stakeholders including users.
- Not spending too much time and not building complex, costly prototypes will thus make it easier for you to let go and move to another one.

Stage 5 – Test



Empathize



Define



Ideate

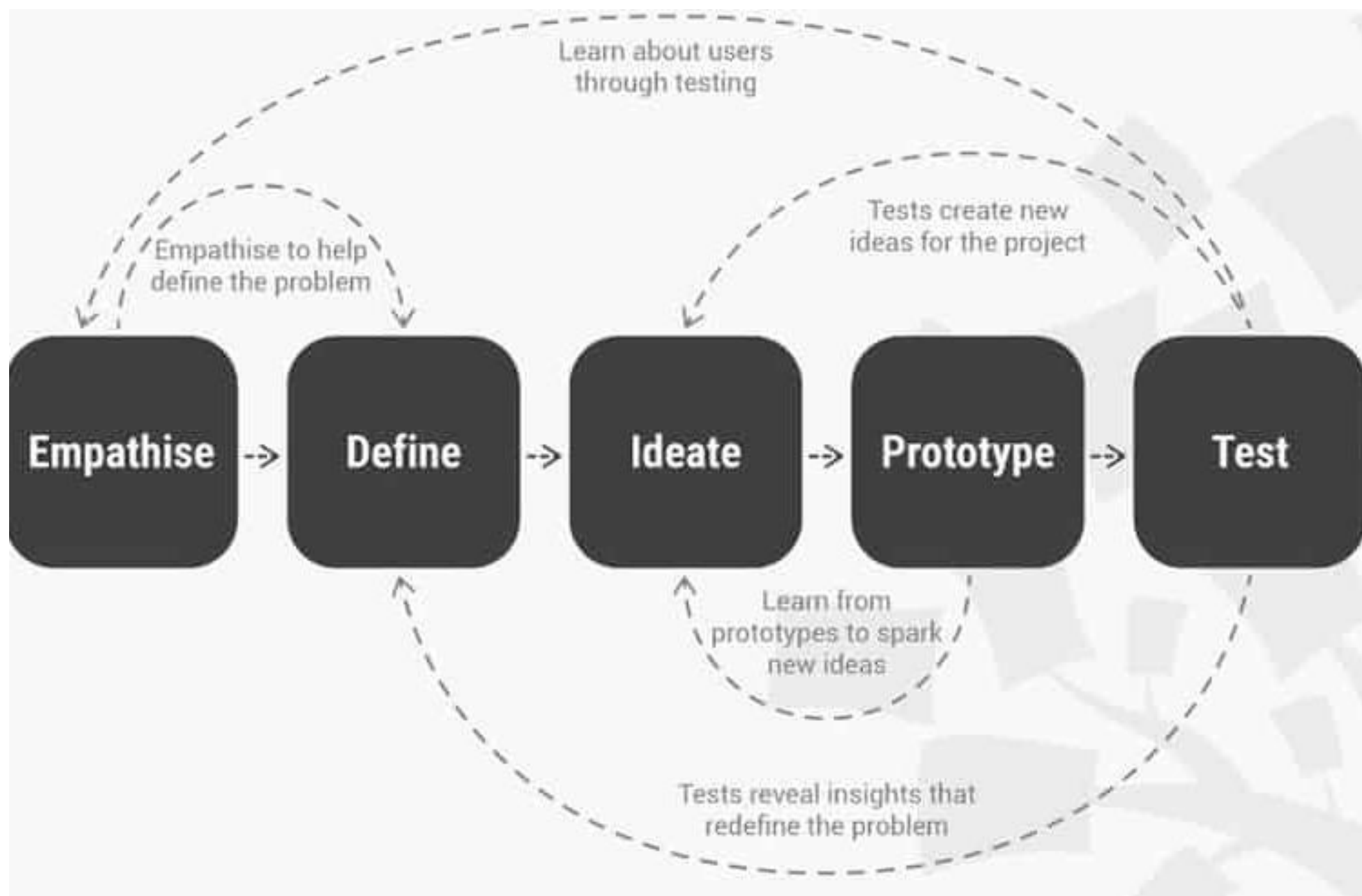


Prototype



Test

- Is carried out to evaluate each prototype and assess the degree to which it addresses the problem that is being tackled.
- leads to further alterations and refinements of the prototypes being tested, and hence moving back to previous stages.
- Provides an opportunity to understand and empathise more the users since you are observing and engaging them.
- Find a prototype that can be used as a model to build the real solution.



Key Principles of Design Thinking

- Human-Centered: Place people at the core of the problem-solving process.
- Collaboration: Foster multidisciplinary teams and diverse perspectives.
- Iterative: Embrace an iterative and flexible approach to testing and refining ideas.
- Mindset: Cultivate a mindset of curiosity, empathy, and experimentation.

Real-World Applications

- Product design and development
 - Shabu Buffet
 - iPhone
- Service design and customer experience improvement
 - Food delivery apps
 - Ride sharing apps
 - Exotics car rental
- Business strategy and innovation
 - Promotion Campaign
- Social and environmental challenges
 - Political Campaign
- Education and learning
 - Tailored courses
 - Online courses

Redesigning a Hospital Waiting Room Experience

Case Study

Background

- A large urban hospital was experiencing numerous complaints from patients and their families about the long wait times and uncomfortable waiting room experience.
- The hospital administration recognized the need to improve the overall experience to enhance patient satisfaction and increase efficiency.

1. Empathize

- The design thinking team conducted in-depth interviews and observations with patients, families, and hospital staff to understand their pain points, needs, and expectations.
- They identified the following key insights:
 - Patients felt anxious and stressed due to uncertainty and lack of information.
 - The waiting room lacked comfortable seating, entertainment, and privacy.
 - Communication between staff and patients was inadequate, leading to frustration.

2. Define

- Based on the insights gathered, the team defined the problem as follows:

"How might we create a patient-centered waiting room experience that reduces anxiety, improves communication, and enhances comfort?"

3. Ideate

- Through collaborative brainstorming sessions, the team generated a wide range of creative ideas to address the defined problem.
- Ideas included:
 - Interactive touchscreens with real-time updates on wait times and treatment progress.
 - Comfortable seating arrangements with privacy partitions.
 - Entertainment options such as books, games, and educational materials.
 - Clear signage and visual cues to guide patients and provide information.
 - Dedicated staff members to provide personalized updates and answer questions.

4. Prototype

- The team created **low-fidelity (easy-to-make)** prototypes of the proposed solutions to gather feedback and test their viability.
- They set up a mock waiting room with makeshift interactive screens, rearranged furniture, and implemented signage improvements.

5. Test

- The team invited a diverse group of patients, families, and staff to experience the redesigned waiting room and provide feedback.
- They observed user interactions, conducted interviews, and collected survey data.
- Based on the feedback, they refined the prototypes and made necessary adjustments.

Results and Impact

- The redesigned waiting room reduced patient anxiety and improved their overall experience.
- Wait times were better managed through the real-time updates, reducing uncertainty.
- Patient-staff communication improved, with dedicated staff members addressing queries and concerns promptly.
- Patient satisfaction scores increased significantly, reflecting a positive impact on the hospital's reputation.
- The hospital experienced improved workflow and operational efficiency due to reduced complaints and better utilization of resources.

Key Learnings:

- Empathy is crucial: Understanding patients' needs and emotions is essential to create meaningful solutions.
- Iteration is key: Testing and refining prototypes based on user feedback helps ensure effective solutions.
- Collaboration drives success: Involving a multidisciplinary team fosters diverse perspectives and creative problem-solving.

Classwork:

Marshmallow Tower

Build structures using marshmallows and toothpicks.

Objective

- Build the tallest freestanding structure using marshmallows and spaghetti within 20 minutes.
- Of course, the marshmallow must be on the top!
- The marshmallow has to remain in one piece.
- The structure should be stable and capable of standing on its own.

Instructions

- 6 students / Team, 25 teams
- 6 volunteers as TA.
 - 2x Tape holder
 - 2x String holder
 - 2x Scissors holder
- Work on the benches or floor in VME foyers.
- 20 minutes
- Each teams gets
 - 20 pieces of spaghetti
 - 2 marshmallow
 - 1 metre of string
 - 1 metre of tape
 - Small scissors.

Competition and Evaluation

- At the end of the time limit, evaluate the structures based on height and stability.
- Measure the height of each structure using a measuring tape.
- If multiple structures have the same height, assess stability to determine the winner.
- Everyone takes a photo of the tower.
- Submit picture to MS Teams' Assignment.

Debrief

- What was the hardest part of this challenge? Easiest?
- What have you learned?
- Why is testing so important?
- What would you do differently if you had the chance to rebuild the tower?
- How did your team organise your approach?
- How helpful was everyone on your team in challenging the process of building the tallest structure?
- Did any team members tune out of the activity — out of frustration with other members or for some other reason? What could you have done to keep all members of the group fully engaged?
- Did you feel everyone's ideas were well received during the activity?
- How did you feel as the time limit was approaching? Did pressure increase? If yes, was that helpful or not?
- Did you celebrate wins? If yes, how did you do this?

Keynotes

- To be a successful designer you must be able to hear feedback, (in fact see it as a gift) and use the feedback to better your design, take risks, be creative, try new things and be experimental.
- Many teams move too quickly from planning to final solution and not enough time experimenting.
- They don't ask enough questions and push the boundaries.
- Did you find that you work this way, you risk your prototype failing too late to make needed changes

Class Summary

- Design Thinking Process
- Plan for your project
- Submit classwork to MS Teams
- Can't access MS Teams?
 - Go to ITS (IT Building) to fix your account.
 - Let me know your name if you cannot submit. I'll save it for the record.
- No slippers