SUAN SUNANDHA
RAJABHAT UNIVERSITY

Week 8

Design Thinking

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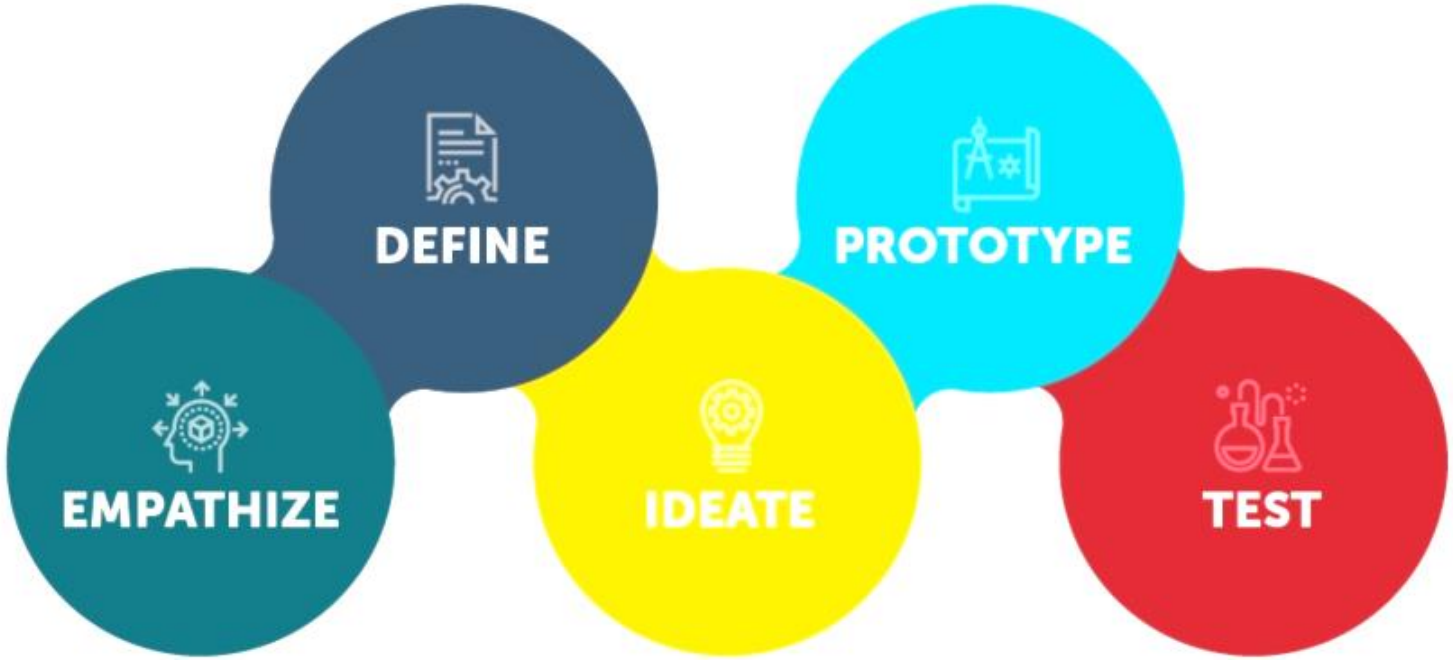
What is Design Thinking?

Design thinking is a non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test.

Involving five phases

—Empathize, Define, Ideate, Prototype and Test—

it is most useful to tackle problems that are ill-defined or unknown.

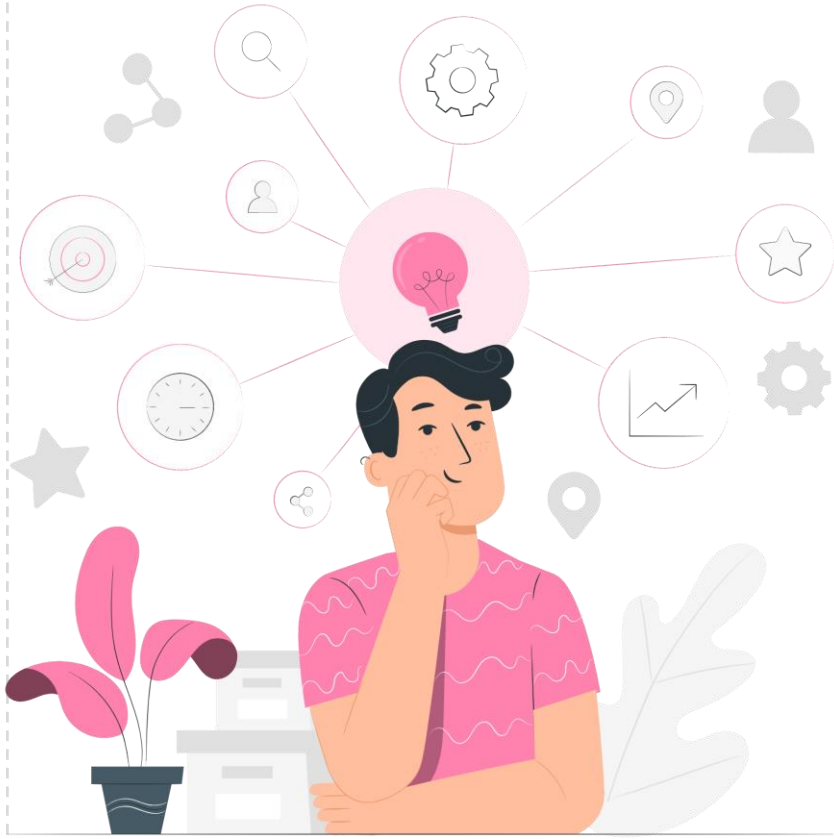


Why is Design Thinking so Important?

In user experience (UX) design, it's crucial to develop and refine skills to understand and address rapid changes in users' environments and behaviors.

The world has become increasingly interconnected and complex since cognitive scientist and Nobel Prize laureate Herbert A. Simon first mentioned design thinking in his 1969 book, The Sciences of the Artificial, and then contributed many ideas to its principles.

Professionals from a variety of fields, including architecture and engineering, subsequently advanced this highly creative process to address human needs in the modern age. Twenty–first–century organizations from a wide range of industries find design thinking a valuable means to problem–solve for the users of their products and services.

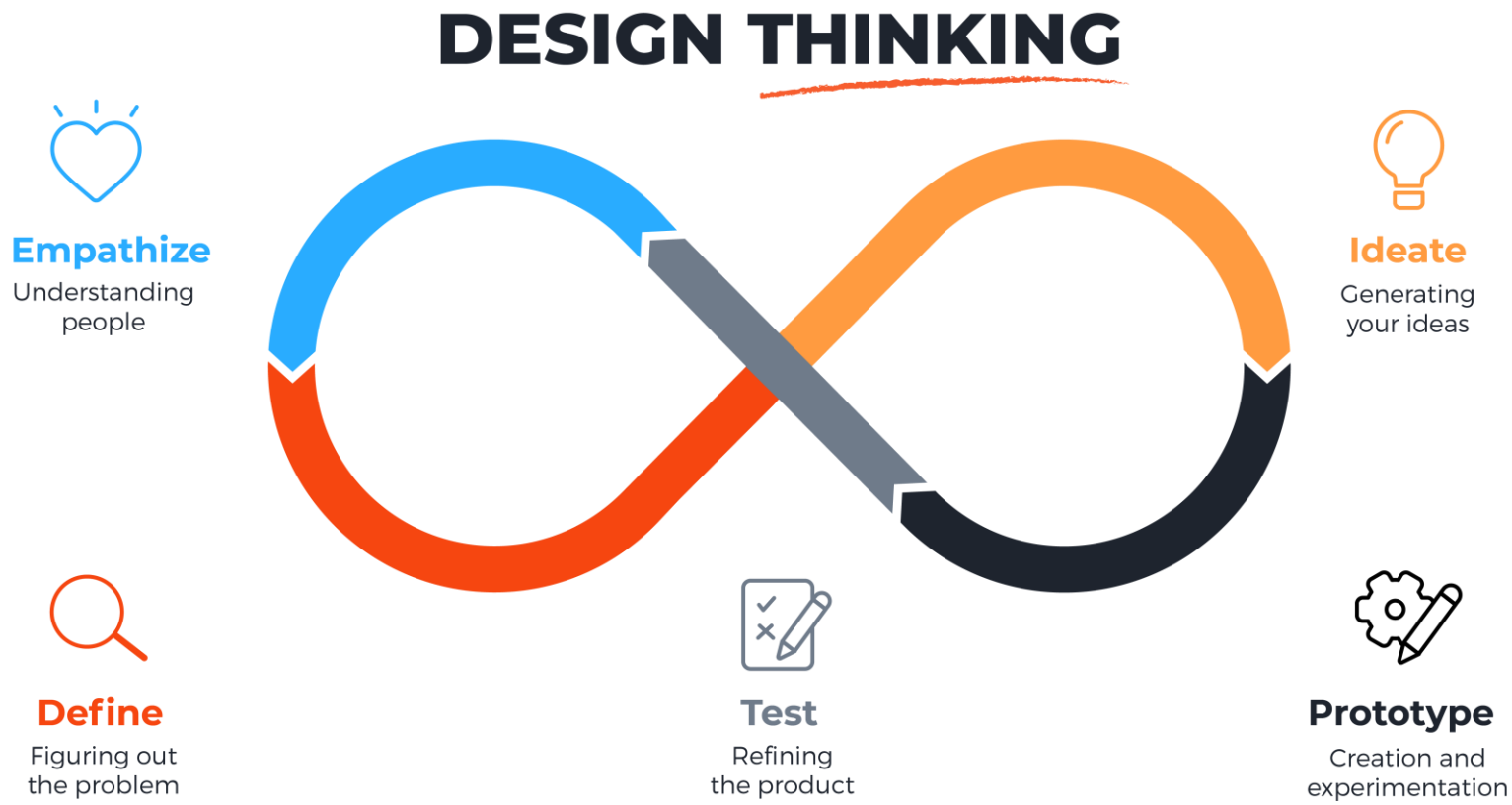


Design teams use design thinking to tackle ill–defined/unknown problems (aka wicked problems) because they can reframe these in human–centric ways and focus on what's most important for users.

Of all design processes, design thinking is almost certainly the best for “thinking outside the box”. With it, teams can do better UX research, prototyping and usability testing to uncover new ways to meet users’ needs.

Design Thinking

Design Thinking is a design methodology that provides a solution-based approach to solving problems.



It’s extremely useful in tackling complex problems that are ill–defined or unknown,

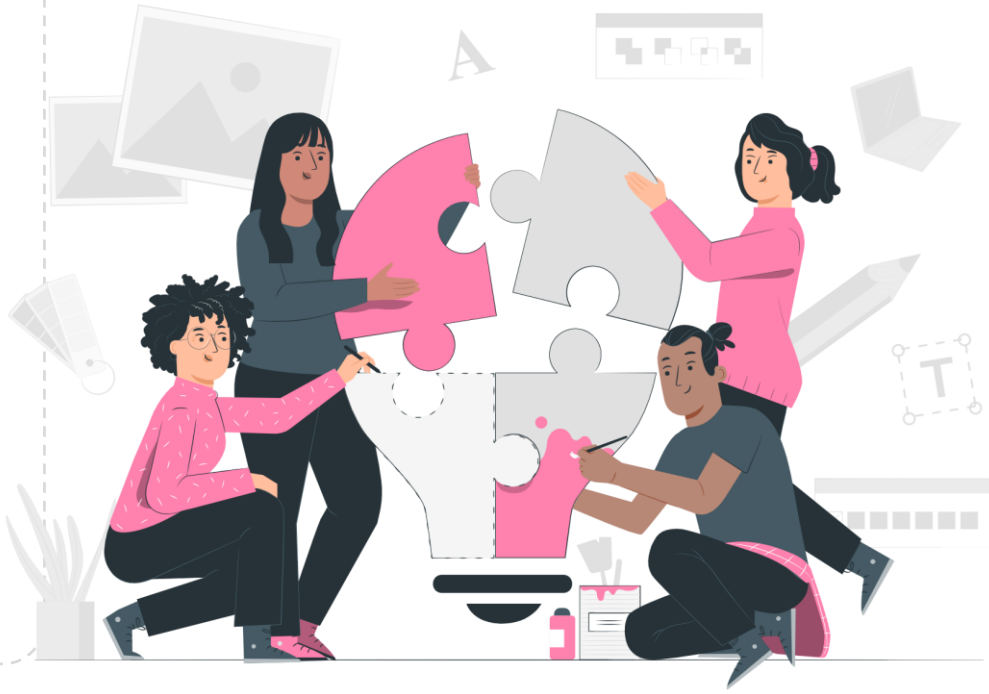
by understanding the human needs involved,

by re–framing the problem in human–centric ways,

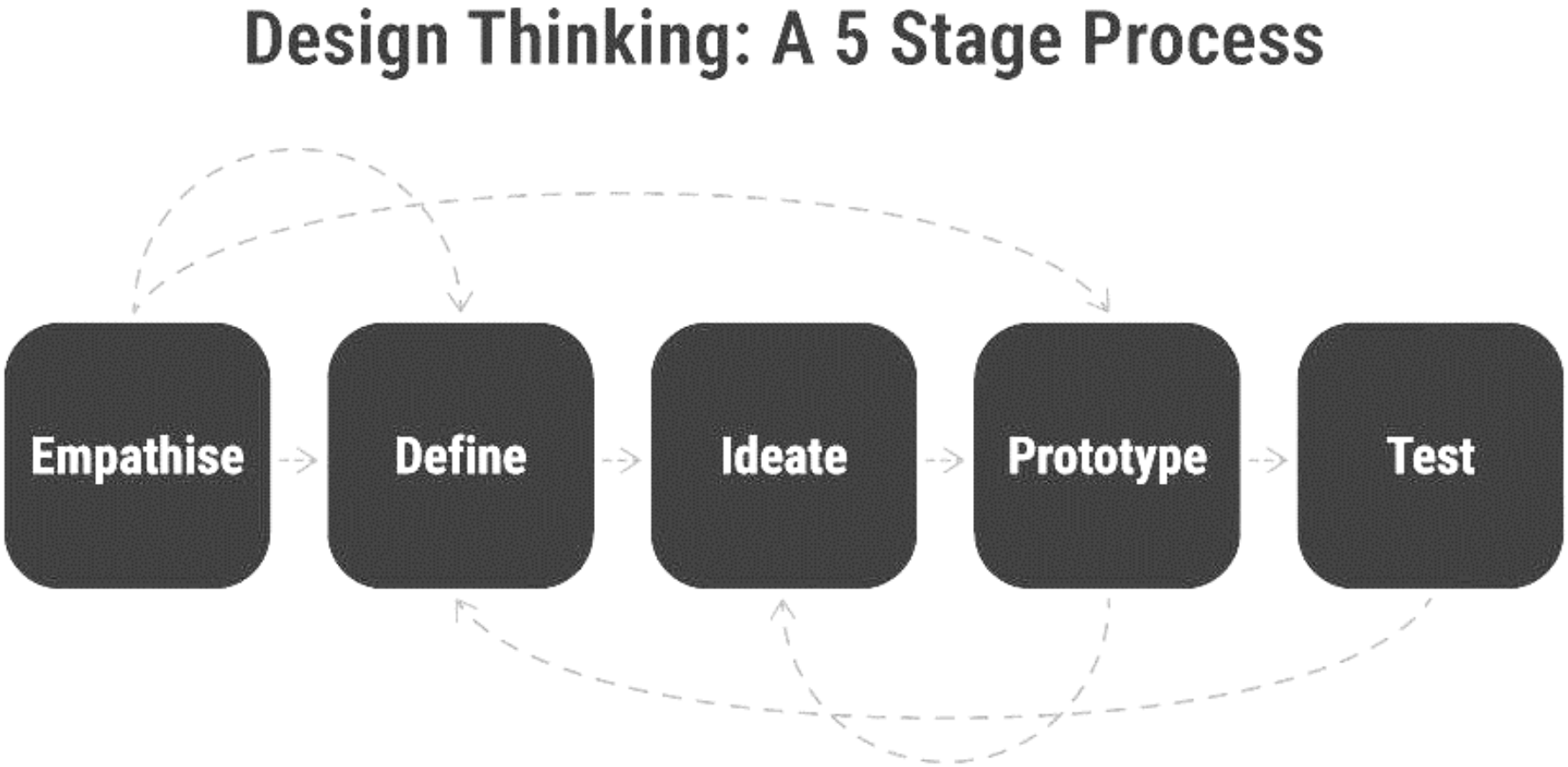
by creating many ideas in brainstorming sessions, and

by adopting a hands–on approach in prototyping and testing.

Understanding these five stages of Design Thinking will empower anyone to apply the Design Thinking methods in order to solve complex problems that occur around us — in our companies, in our countries, and even on the scale of our planet.



5 Stages in the Design Thinking Process



ที่มา : https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

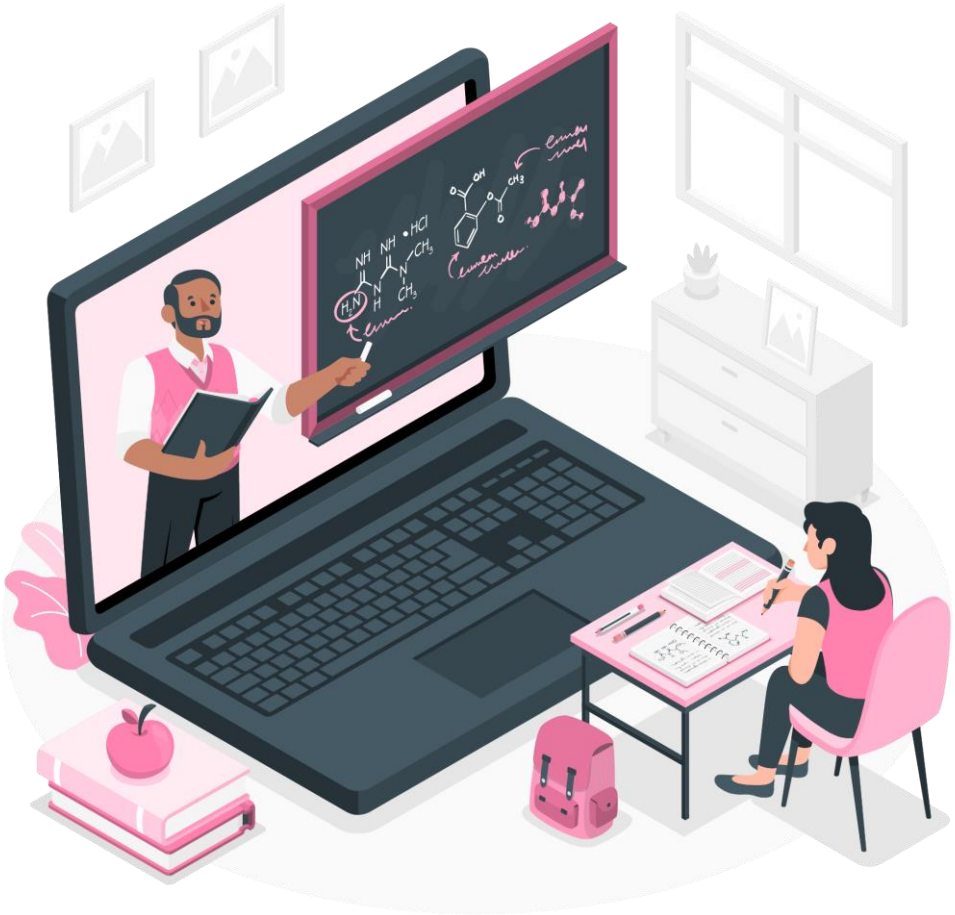
We will focus on the five-stage Design Thinking model proposed by the Hasso-Plattner Institute of Design at Stanford (d.school). d.school is the leading university when it comes to teaching Design Thinking. The five stages of Design Thinking, according to d.school, are as follows: Empathise, Define (the problem), Ideate, Prototype, and Test. Let's take a closer look at the five different stages of Design Thinking.

1. Empathise

The first stage of the Design Thinking process is to gain an empathic understanding of the problem you are trying to solve.

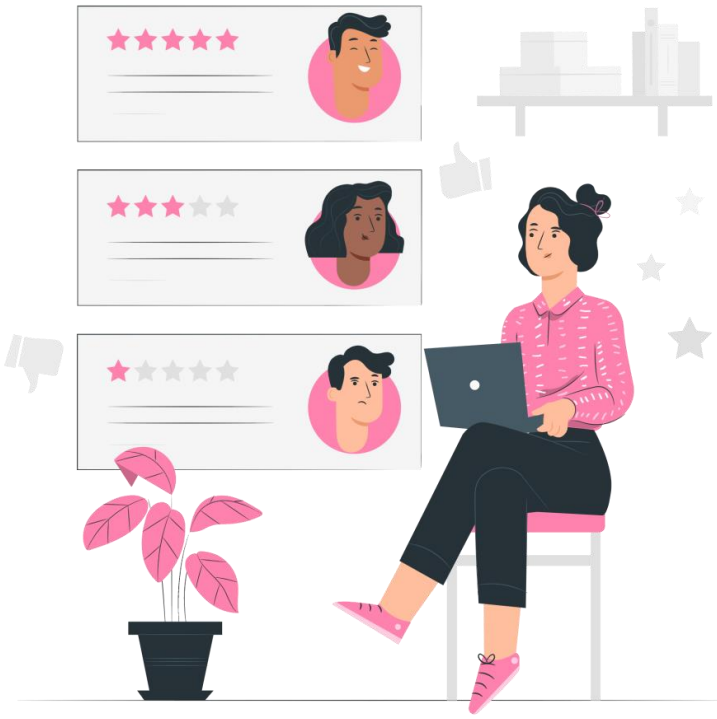
This involves consulting experts to find out more about the area of concern through observing, engaging and empathizing with people to understand their experiences and motivations, as well as immersing yourself in the physical environment so you can gain a deeper personal understanding of the issues involved.

Empathy is crucial to a human-centered design process such as Design Thinking, and empathy allows design thinkers to set aside their own assumptions about the world in order to gain insight into users and their needs.



Depending on time constraints, a substantial amount of information is gathered at this stage to use during the next stage and to develop the best possible understanding of the users, their needs, and the problems that underlie the development of that particular product.

What is Empathy?

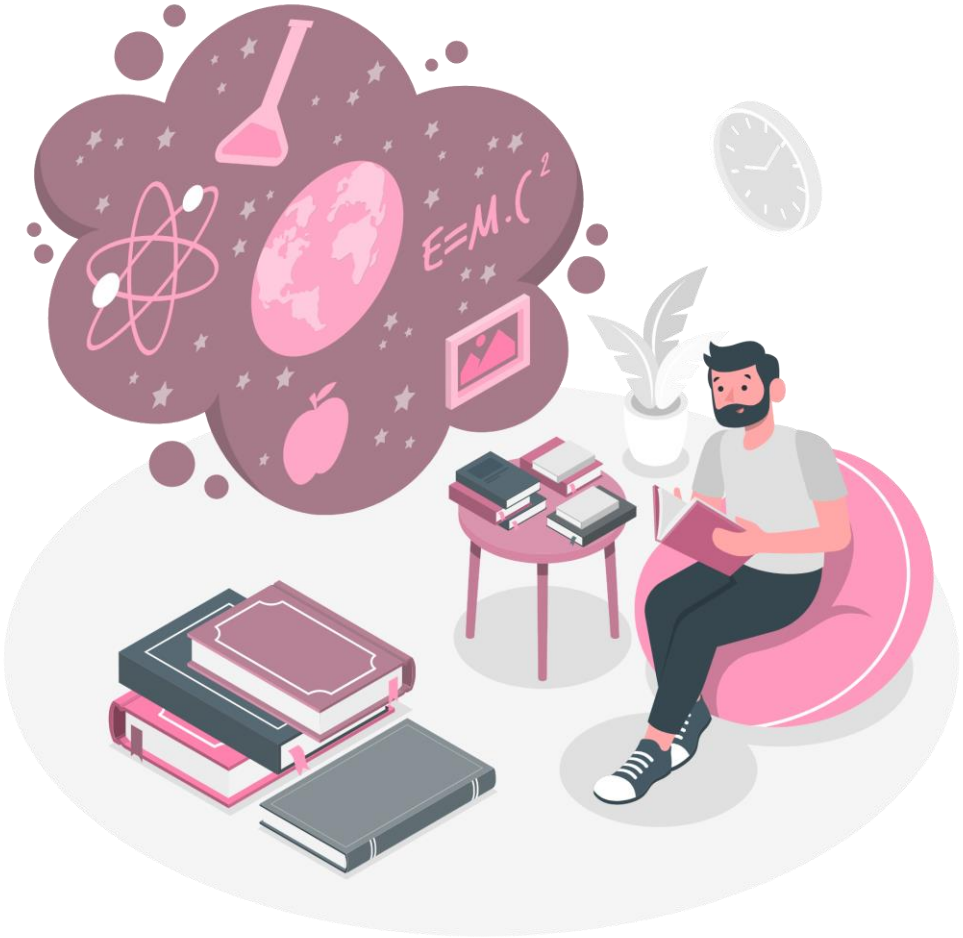


Design Thinking cannot begin without a deeper understanding of the people you are designing for. In order to gain those insights, it is important for you as a design thinker to empathize with the people you’re designing for so that you can understand their needs, thoughts, emotions and motivations.

The good news is that you have a wide range of methods at your command for learning more about people. The even better news is this: with enough mindfulness and experience, anyone can become a master at empathizing with people.

Developing Empathy towards People

The first stage (or mode) of the Design Thinking process involves developing a sense of empathy towards the people you are designing for, to gain insights into what they need, what they want, how they behave, feel, and think, and why they demonstrate such behaviors, feelings, and thoughts when interacting with products in a real-world setting.



The five stages of Design Thinking are not always sequential — they do not have to follow any specific order, and you will find they can often occur in parallel and you can repeat them iteratively. As such, the stages should be understood as different modes that contribute to a project, rather than sequential steps. However, most projects begin with an “Empathizing” phase.

To gain empathy towards people, we as design thinkers often observe them in their natural environment passively or engage with them in interviews.

Also, as design thinkers, we should try to imagine ourselves in these users' environment, or stepping into their shoes as the saying goes, in order to gain a deeper understanding of their situations. In the following sections, we will outline some methods from d.school Bootcamp Bootleg that will allow you to gain empathy towards your users.

2. Define (the Problem)

During the Define stage, you put together the information you have created and gathered during the Empathise stage.

This is where you will analyze your observations and synthesise them in order to define the core problems that you and your team have identified up to this point. You should seek to define the problem as a problem statement in a human-centred manner.

To illustrate, instead of defining the problem as your own wish or a need of the company such as, “We need to increase our food-product market share among young teenage girls by 5%,” a much better way to define the problem would be, “Teenage girls need to eat nutritious food in order to thrive, be healthy and grow.”

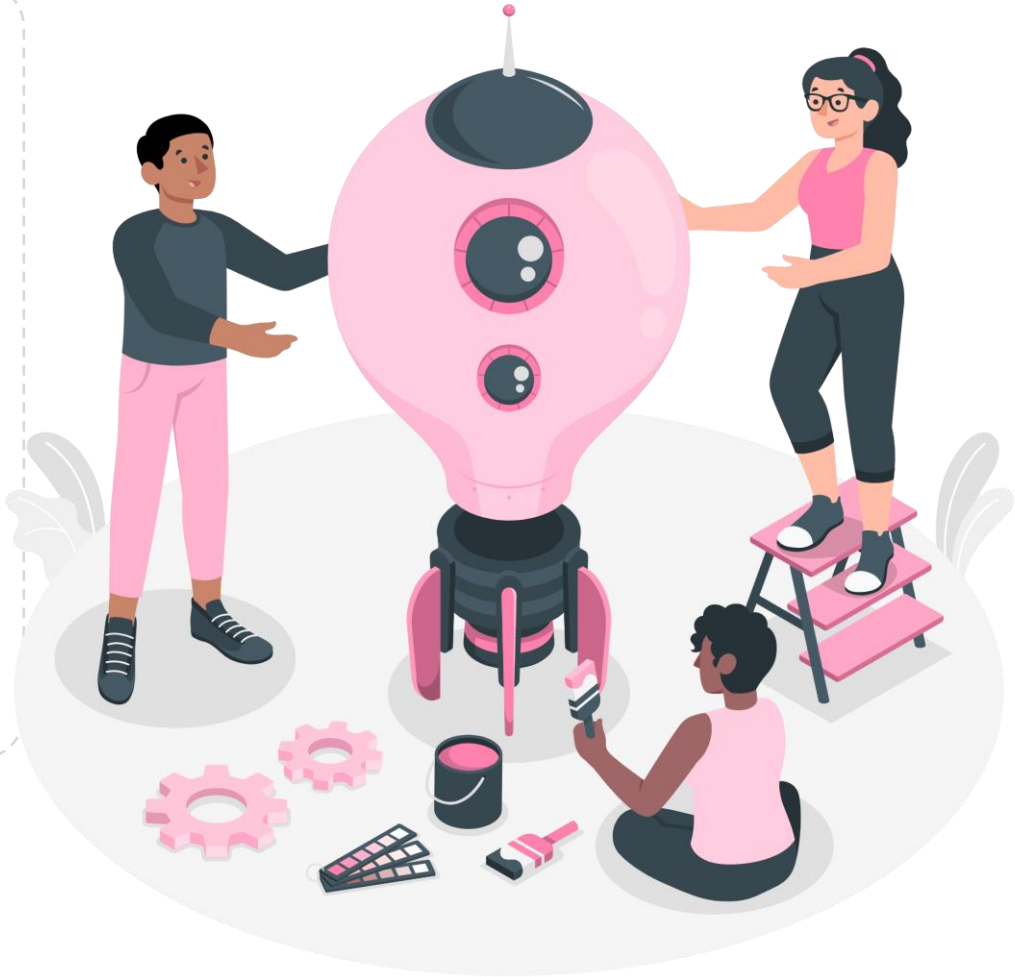
The Define stage will help the designers in your team gather great ideas to establish features, functions, and any other elements that will allow them to solve the problems or, at the very least, allow users to resolve issues themselves with the minimum of difficulty.

In the Define stage you will start to progress to the third stage, Ideate, by asking questions which can help you look for ideas for solutions by asking: “How might we... encourage teenage girls to perform an action that benefits them and also involves your company’s food-product or service?”

3. Ideate

During the third stage of the Design Thinking process, designers are ready to start generating ideas.

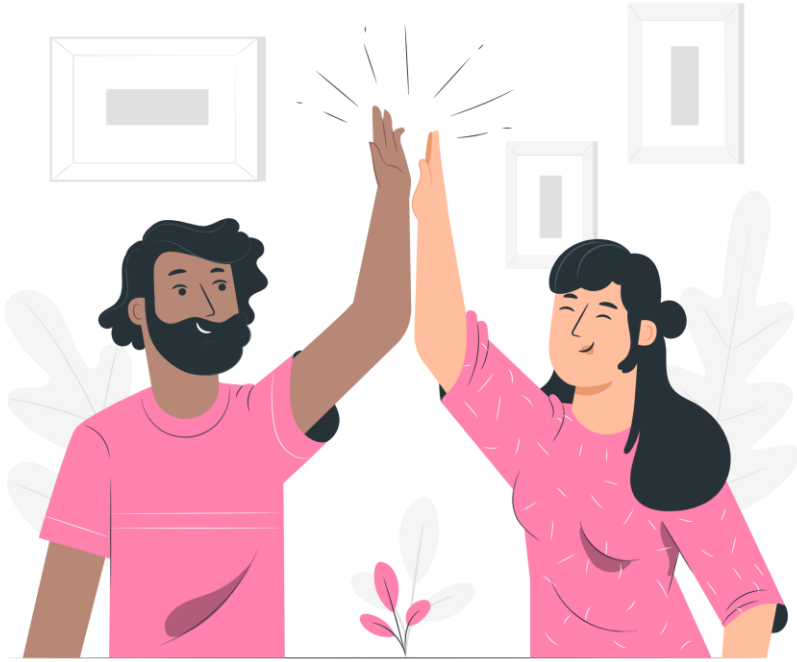
You've grown to understand your users and their needs in the Empathise stage, and you've analysed and synthesised your observations in the Define stage, and ended up with a human-centered problem statement.



With this solid background, you and your team members can start to "think outside the box" to identify new solutions to the problem statement you've created, and you can start to look for alternative ways of viewing the problem.

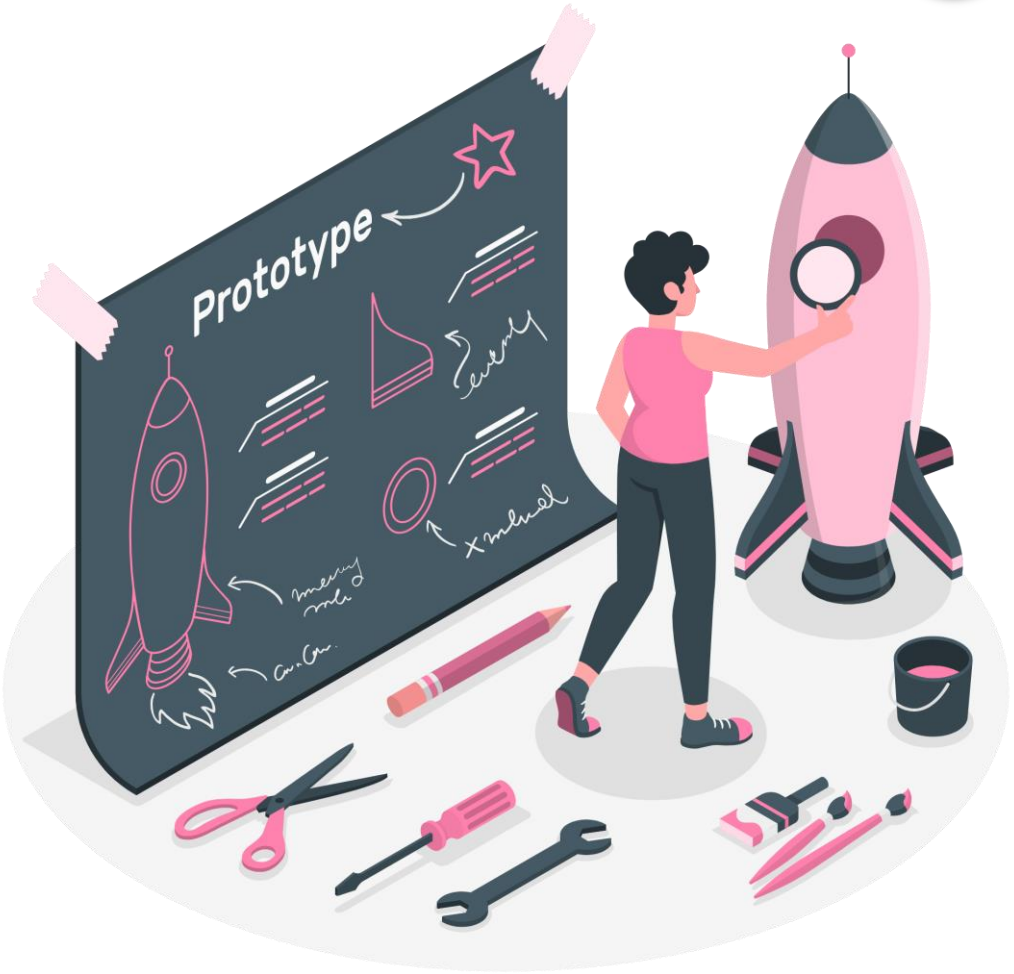
There are hundreds of Ideation techniques such as Brainstorm, Brainwrite, Worst Possible Idea, and SCAMPER. Brainstorm and Worst Possible Idea sessions are typically used to stimulate free thinking and to expand the problem space.

It is important to get as many ideas or problem solutions as possible at the beginning of the Ideation phase. You should pick some other Ideation techniques by the end of the Ideation phase to help you investigate and test your ideas so you can find the best way to either solve a problem or provide the elements required to circumvent it.



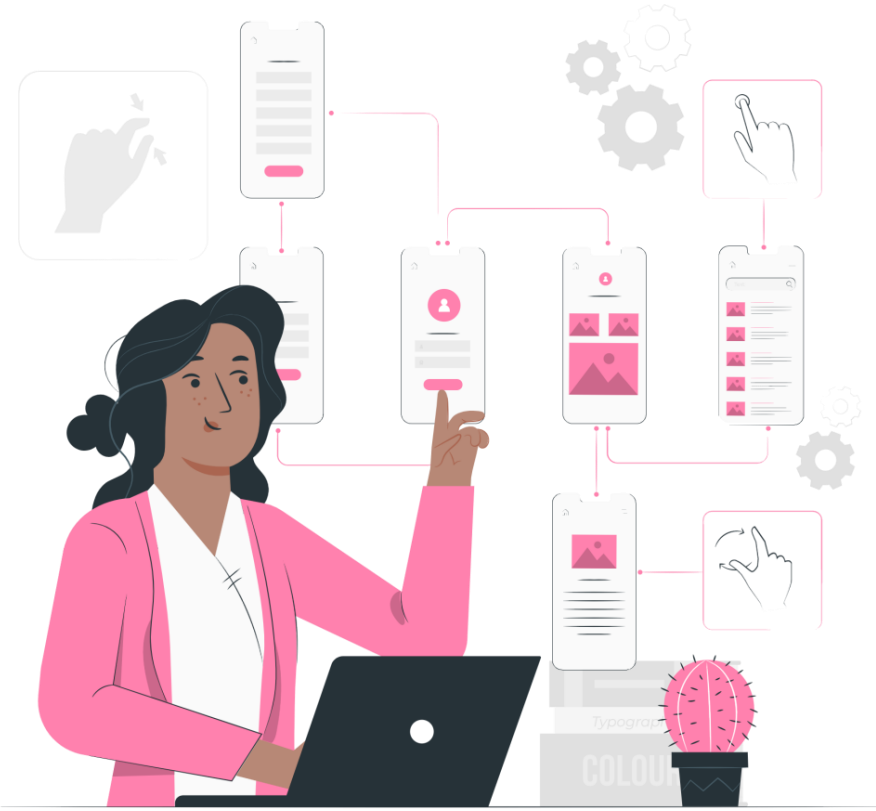
4. Prototype

The design team will now produce a number of inexpensive, scaled down versions of the product or specific features found within the product, so they can investigate the problem solutions generated in the previous stage.

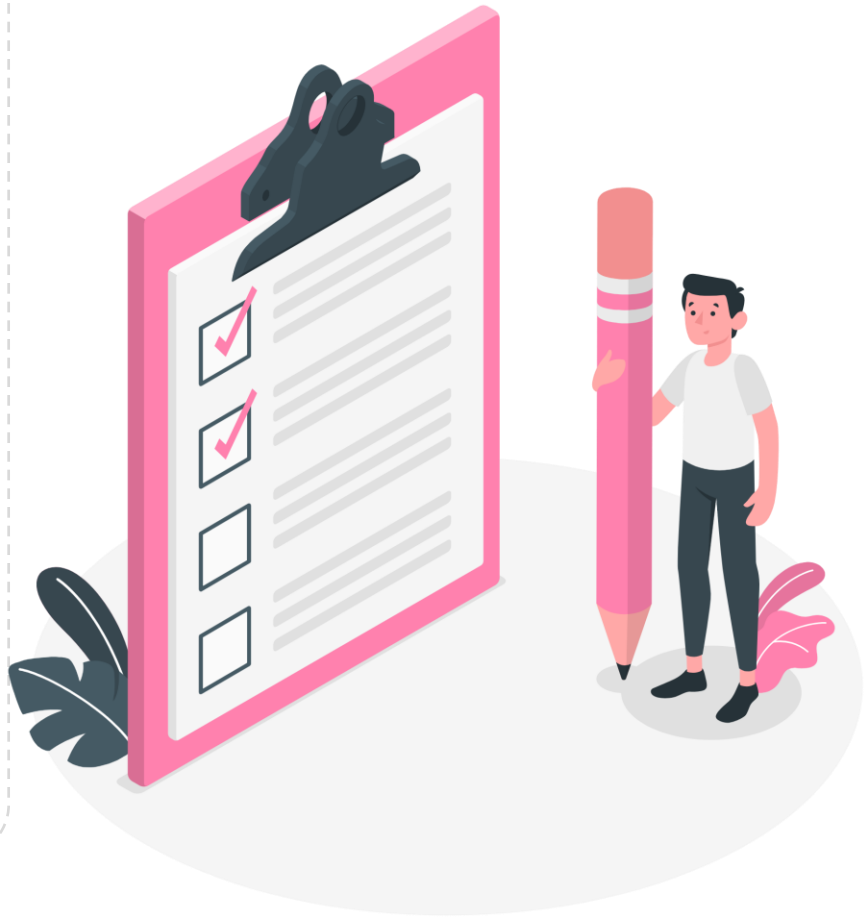


Prototypes may be shared and tested within the team itself, in other departments, or on a small group of people outside the design team. This is an experimental phase, and the aim is to identify the best possible solution for each of the problems identified during the first three stages.

The solutions are implemented within the prototypes, and, one by one, they are investigated and either accepted, improved and re-examined, or rejected on the basis of the users' experiences.



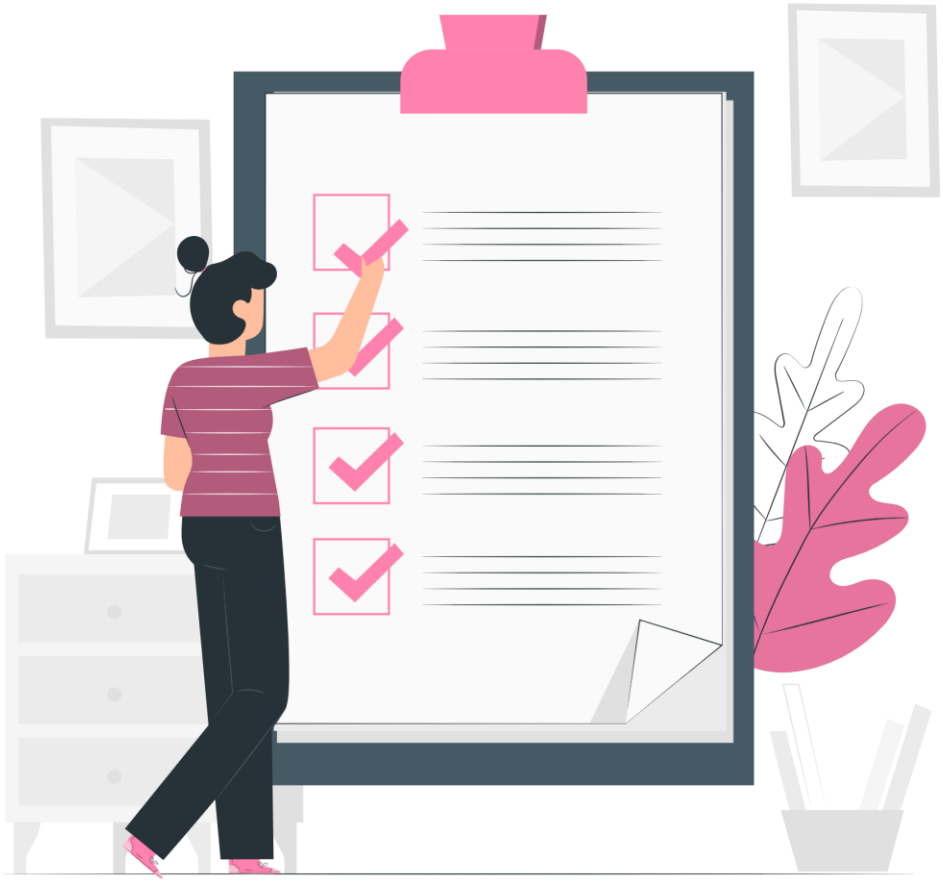
By the end of this stage, the design team will have a better idea of the constraints inherent to the product and the problems that are present, and have a clearer view of how real users would behave, think, and feel when interacting with the end product.

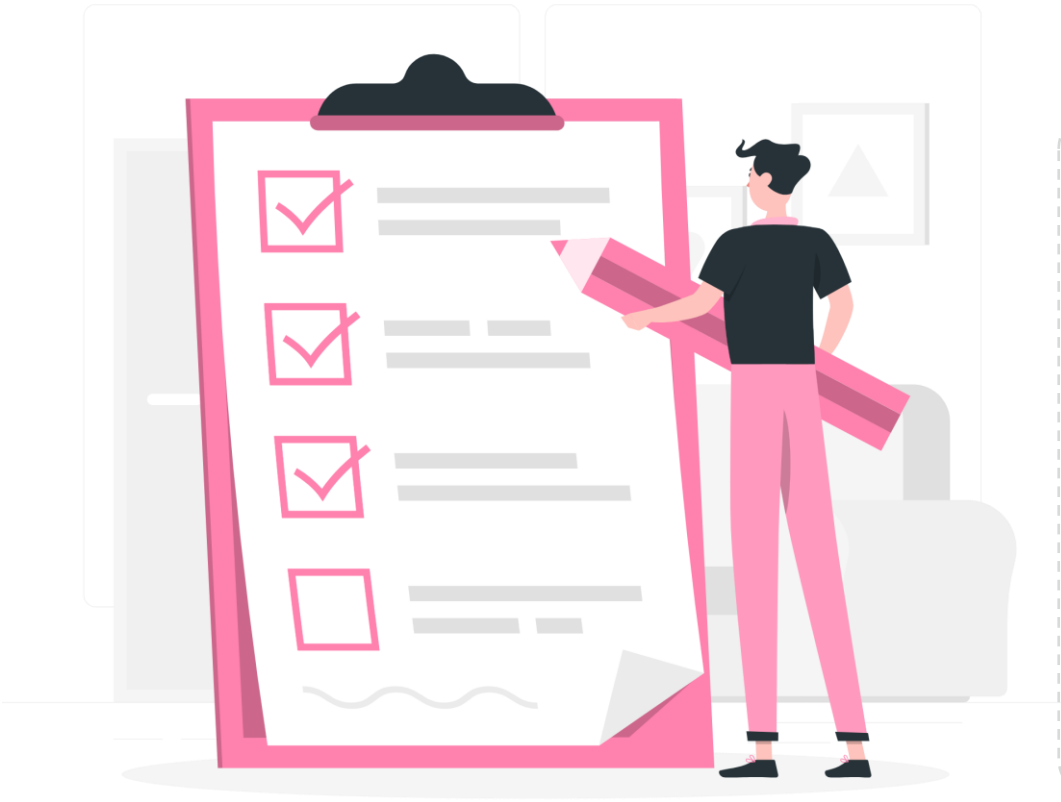


5. Test

Designers or evaluators rigorously test the complete product using the best solutions identified during the prototyping phase.

This is the final stage of the 5 stage–model, but in an iterative process, the results generated during the testing phase are often used to redefine one or more problems and inform the understanding of the users, the conditions of use, how people think, behave, and feel, and to empathise.

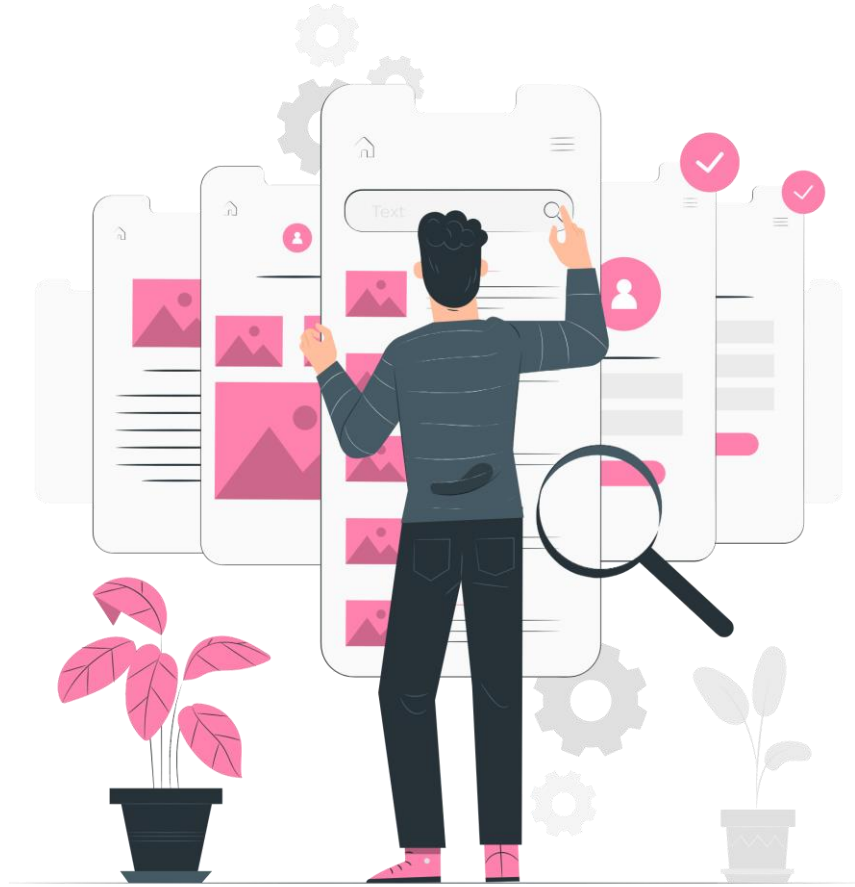




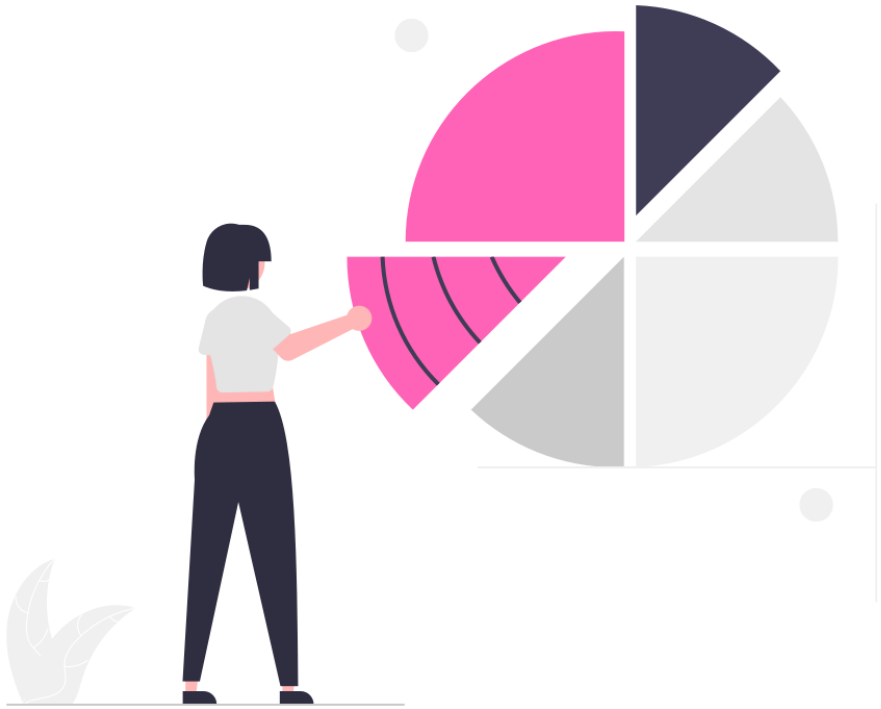
Even during this phase, alterations and refinements are made in order to rule out problem solutions and derive as deep an understanding of the product and its users as possible.

The Non-Linear Nature of Design Thinking

We may have outlined a direct and linear Design Thinking process in which one stage seemingly leads to the next with a logical conclusion at user testing.

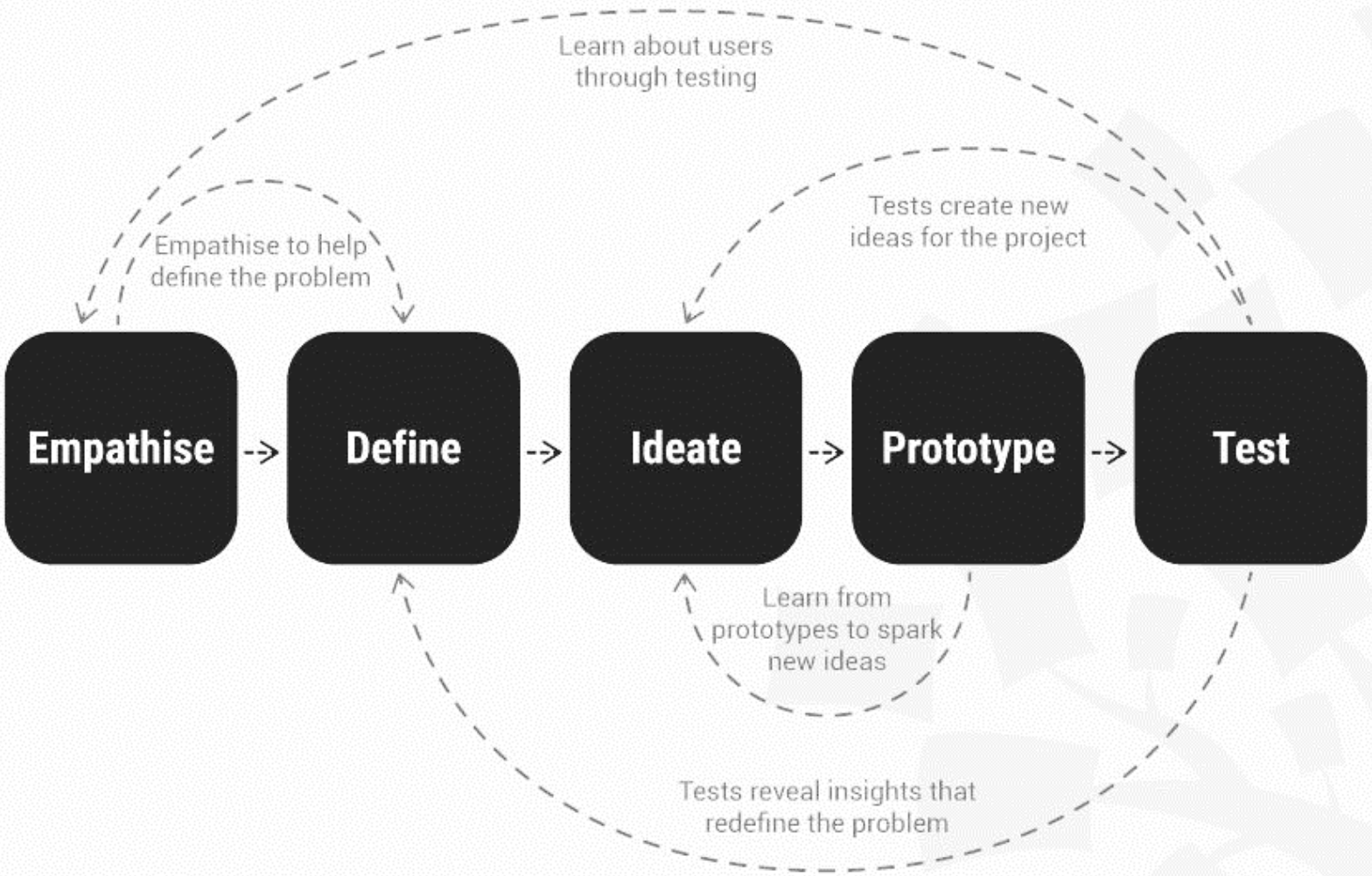


However, in practice, the process is carried out in a more flexible and non-linear fashion. For example, different groups within the design team may conduct more than one stage concurrently, or the designers may collect information and prototype during the entire project so as to enable them to bring their ideas to life and visualise the problem solutions.



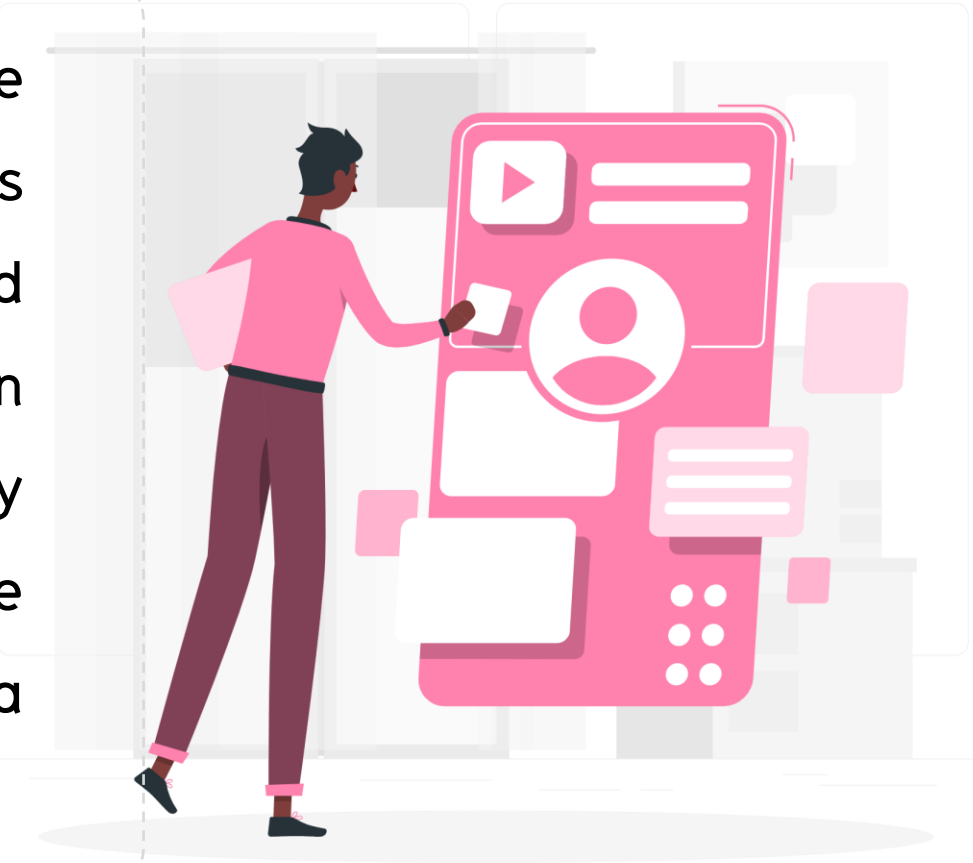
Also, results from the testing phase may reveal some insights about users, which in turn may lead to another brainstorming session (Ideate) or the development of new prototypes (Prototype).

DESIGN THINKING: A NON-LINEAR PROCESS

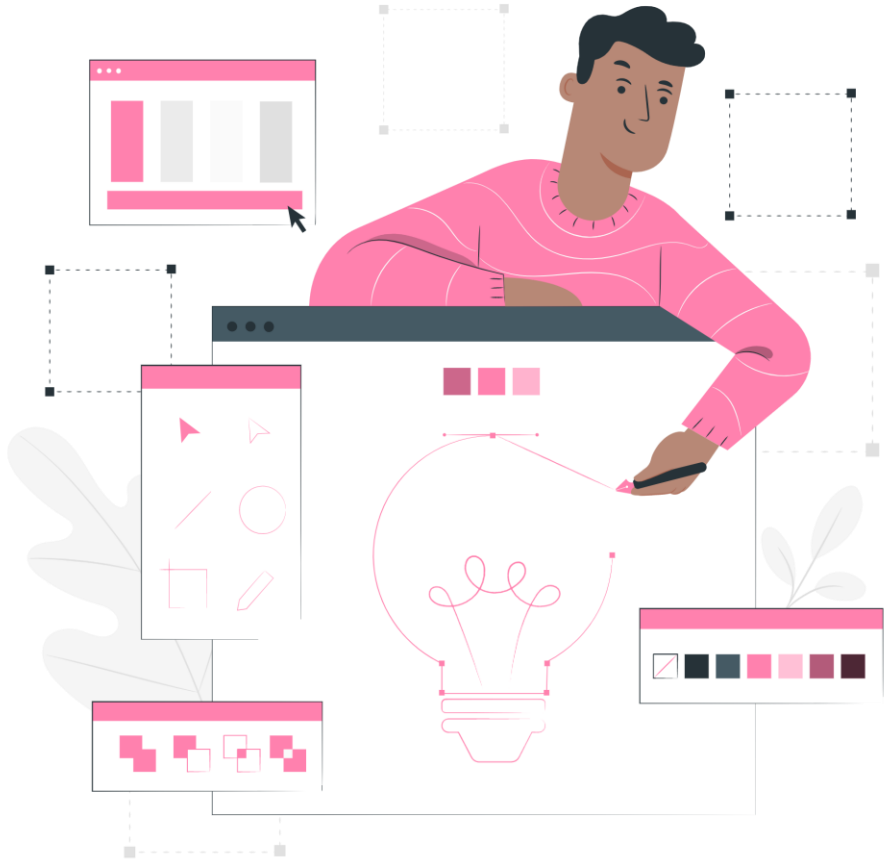


It is important to note that the five stages are not always sequential — they do not have to follow any specific order and they can often occur in parallel and be repeated iteratively. As such, the stages should be understood as different modes that contribute to a project, rather than sequential steps.

However, the amazing thing about the five-stage Design Thinking model is that it systematises and identifies the 5 stages/modes you would expect to carry out in a design project – and in any innovative problem-solving project. Every project will involve activities specific to the product under development, but the central idea behind each stage remains the same.

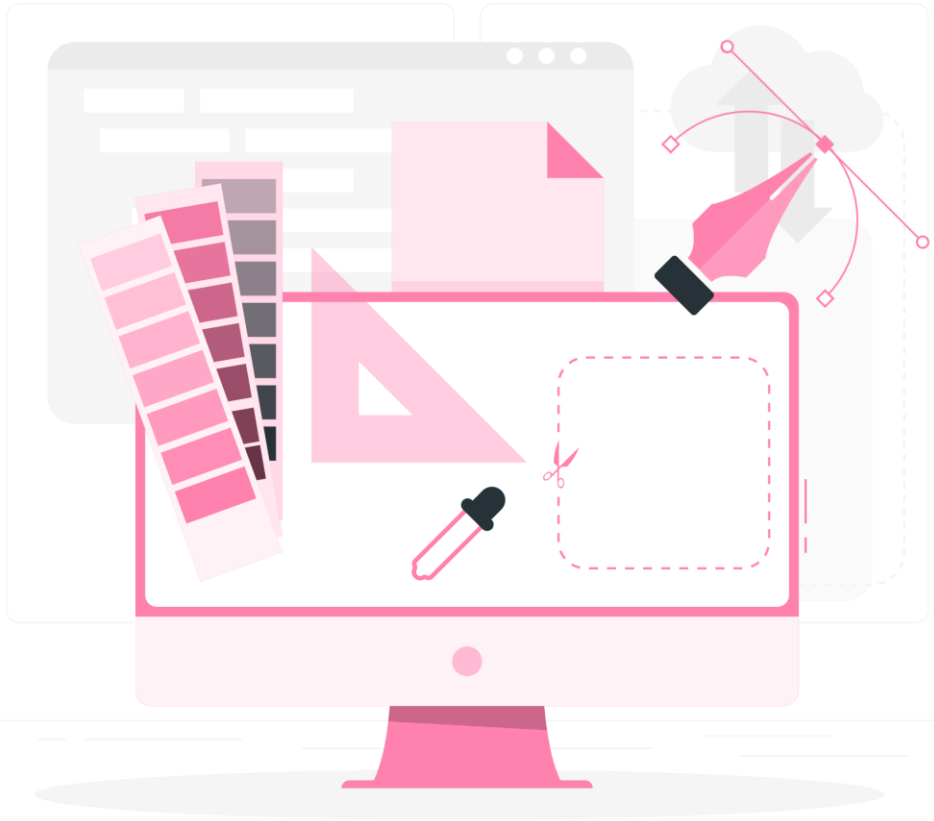


Design Thinking should not be seen as a concrete and inflexible approach to design; the component stages identified in the illustration above serve as a guide to the activities that you would typically carry out.



In order to gain the purest and most informative insights for your particular project, these stages might be switched, conducted concurrently and repeated several times in order to expand the solution space, and zero in on the best possible solutions.

As you will note from the illustration above, one of the main benefits of the five-stage model is the way in which knowledge acquired at the later stages can feedback to earlier stages.

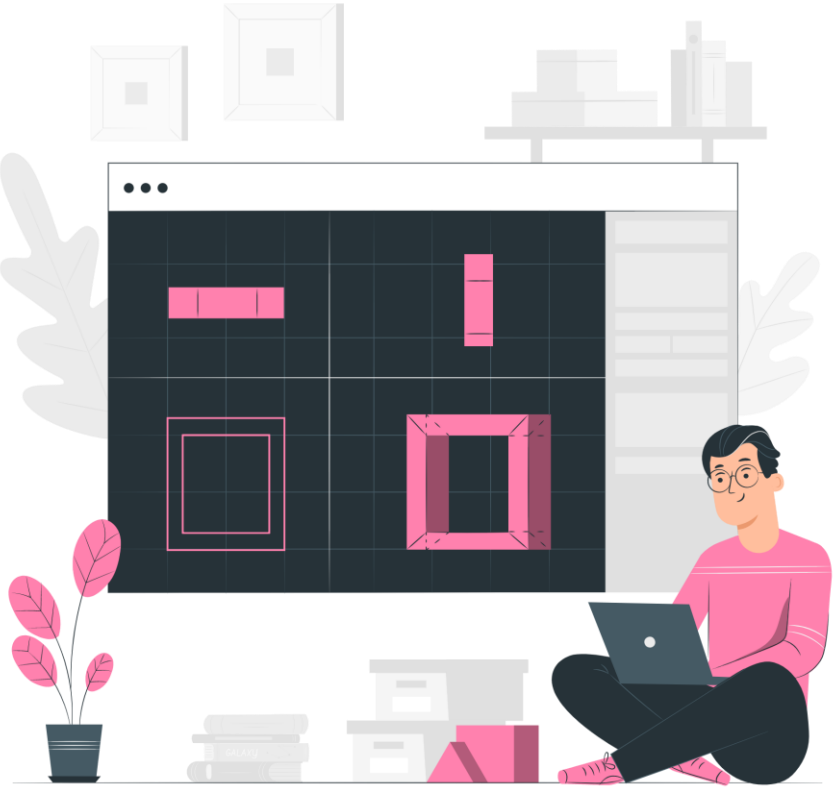


Information is continually used both to inform the understanding of the problem and solution spaces, and to redefine the problem(s). This creates a perpetual loop, in which the designers continue to gain new insights, develop new ways of viewing the product and its possible uses, and develop a far more profound understanding of the users and the problems they face.

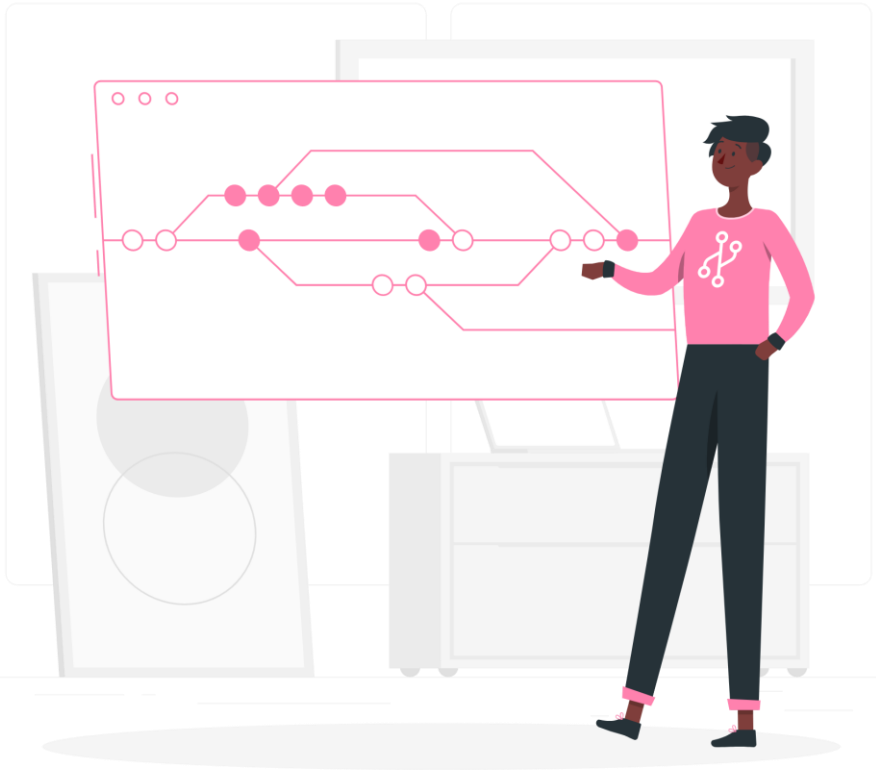
The Origin of the 5-Stage Model

In his 1969 seminal text on design methods, “The Sciences of the Artificial,” Nobel Prize laureate Herbert Simon outlined one of the first formal models of the Design Thinking process.

Simon's model consists of seven major stages, each with component stages and activities, and was largely influential in shaping some of the most widely used Design Thinking process models today.



There are many variants of the Design Thinking process in use in the 21st century, and while they may have different numbers of stages ranging from three to seven, they are all based upon the same principles featured in Simon's 1969 model.



We focus on the five-stage Design Thinking model proposed by the Hasso-Plattner Institute of Design at Stanford (d.school).

The Take Away

In essence, the Design Thinking process is iterative, flexible and focused on collaboration between designers and users, with an emphasis on bringing ideas to life based on how real users think, feel and behave.

Design Thinking tackles complex problems by:

Empathising:	Understanding the human needs involved.
Defining:	Re-framing and defining the problem in human-centric ways.
Ideating:	Creating many ideas in ideation sessions.
Prototyping:	Adopting a hands-on approach in prototyping.
Testing:	Developing a testable prototype/solution to the problem.

References & Where to Learn More

Course: Design Thinking – The Beginner's Guide:

https://www.interaction-design.org/courses/design-thinking-the-beginner-s-guide

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Herbert Simon, The Sciences of the Artificial (3rd Edition), 1996:

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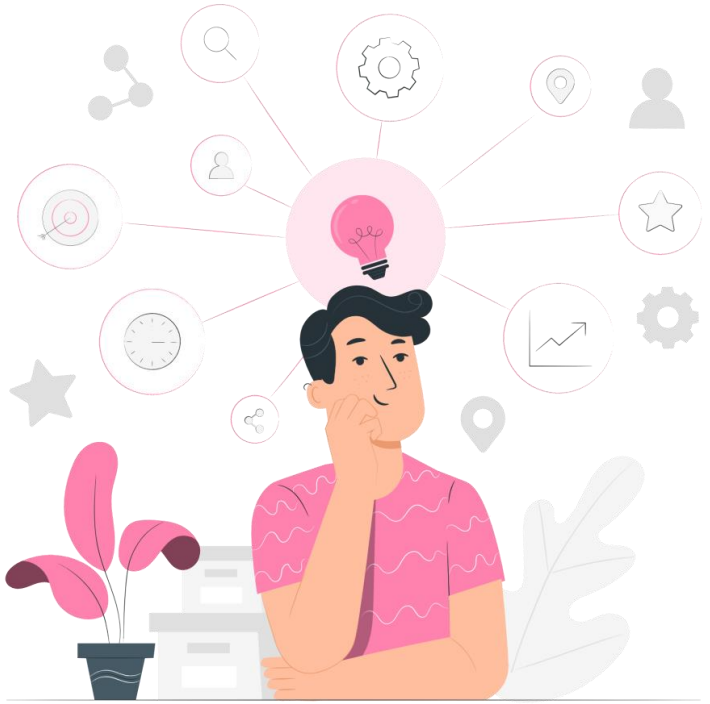
Gerd Waloszek, Introduction to Design Thinking, 2012:

https://experience.sap.com/skillup/introduction-to-design-thinking/

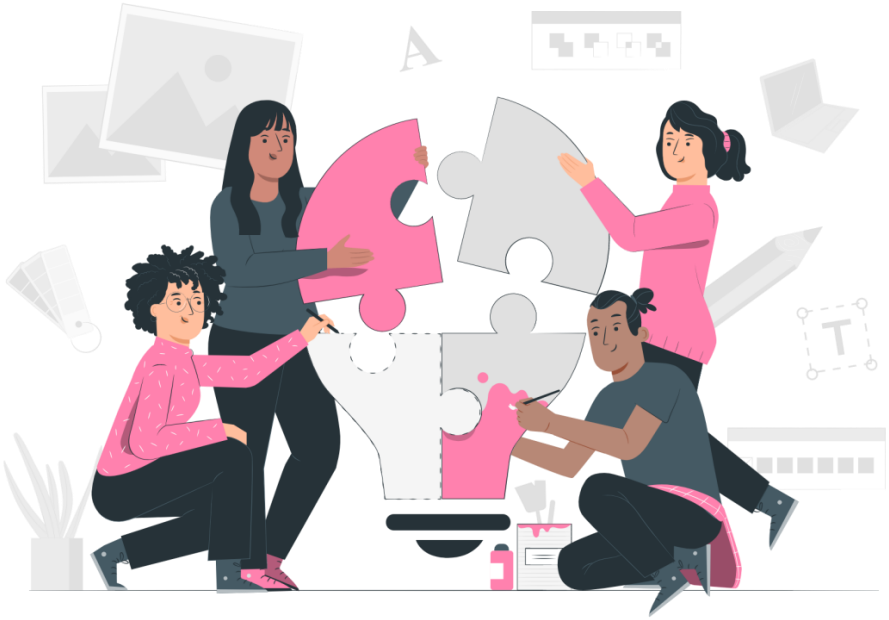
5 Ways to Use Design Thinking in Your Classroom

Design thinking is a user-focused way to solve problems that are being implemented in many economic sectors. Read on to learn how to incorporate design thinking in your classroom, as well as resources to get you started.



Design Thinking

Design thinking sounds like it might be complicated, but at its core, it's simply a way to solve problems. The main aspect of design thinking that sets it apart from any other problem–solving methodologies is that it focuses on the user, or the person having the problem. The designer solves the problem by empathizing with the user trying to get into their shoes.



This type of thinking can be applied to many situations. While the concept is rooted in design, many businesses are incorporating design thinking as well.

As it is applicable to many situations, you can incorporate it into your classroom, regardless of the subject or age that you teach. Read on to learn the principles of design thinking, examples of projects and resources for your next design thinking venture.

The Problem

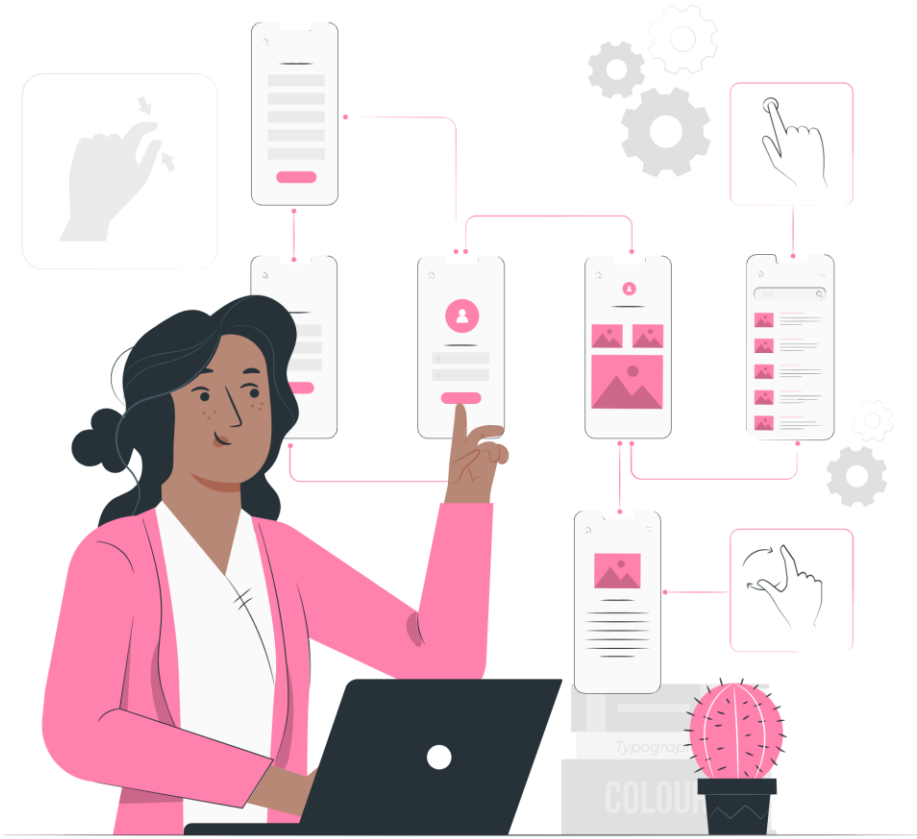
The first step of design thinking is establishing the problem. It can be a small problem that applies only to your students, or a large-scale problem like immigration or the environment. Students can get involved in determining the problem they will solve.

For example, maybe the problem will be related to the school. Ask the students what problems they see and write them all on the board. They might note that students are throwing away cans instead of using recycling bins, or that one of the swings is broken on the playground. The students can vote on the problem that they will all be working to solve. Make sure that students have a clear idea of the user.

As the teacher, you will need to establish the length of this project: it might be a two-hour project, or it might last the entire semester. Also determine if students will be working alone, in pairs, in groups, or any number of possible formats.

The Brainstorming

Now that the problem has been established, the brainstorming can begin. Let's take the recycling example from earlier. The user of the recycling bins would be the students. Students might start the brainstorming process by conducting interviews with other students.



Based on the answers to the interviews, they can start brainstorming solutions. If the interviews revealed that there are not enough recycling bins, the students would brainstorm how to solve this problem. Design thinking is positive, and there are no wrong answers during brainstorming. You or the students should write down all ideas; some teachers like to use sticky notes and let the ideas flow freely.

The Designing

Now that the students have brainstormed solutions, they can start designing. The way that they design can be tailored to fit your age group. Small children can draw, while older ones might be able to create a visual digital presentation or design a 3-D object.

If the results from the interviews were that there are not enough recycling bins, the brainstormed solution might be to increase the number of bins or make them more visible. In the design phase, some students might use a layout of the school and mark where new bins would be added. Other students might advocate for changing the shape of the bins or altering their color to make them more noticeable.

Taken a step further, how would these ideas be implemented? If more bins are needed, who will pay for the bins? If there isn't an answer, maybe the students should also consider fundraising or sponsorship ideas as part of their design phase.

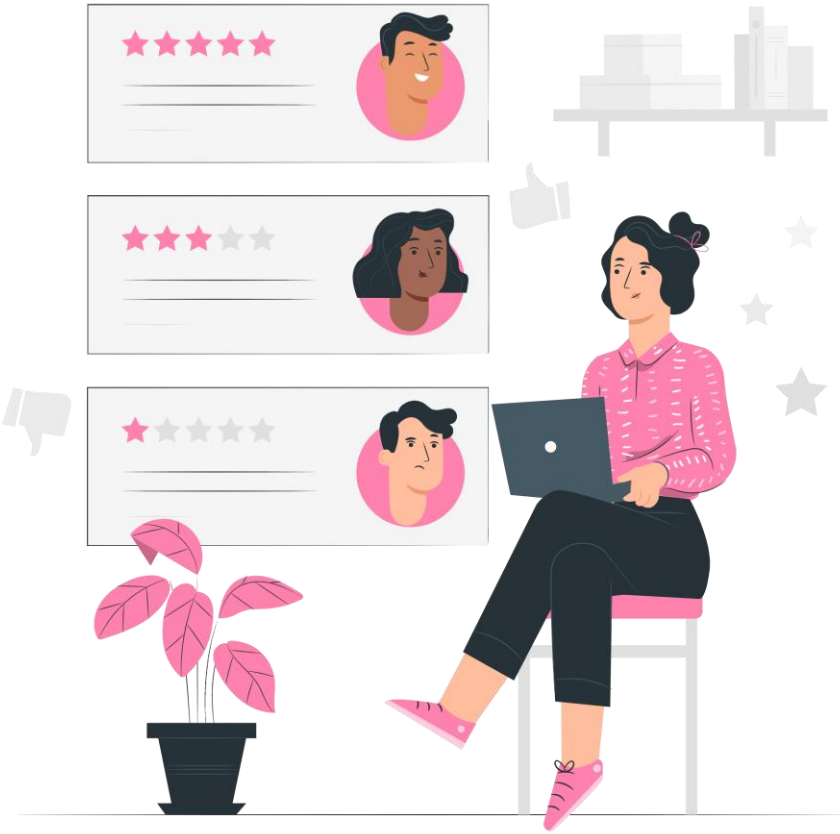
The Presentation

Once a design is established, students should present their designs, either to their peers, other groups, the classroom or the users that were interviewed at the start of the design thinking process. The presentation portion is critical as it results in feedback, which leads to further improvement.

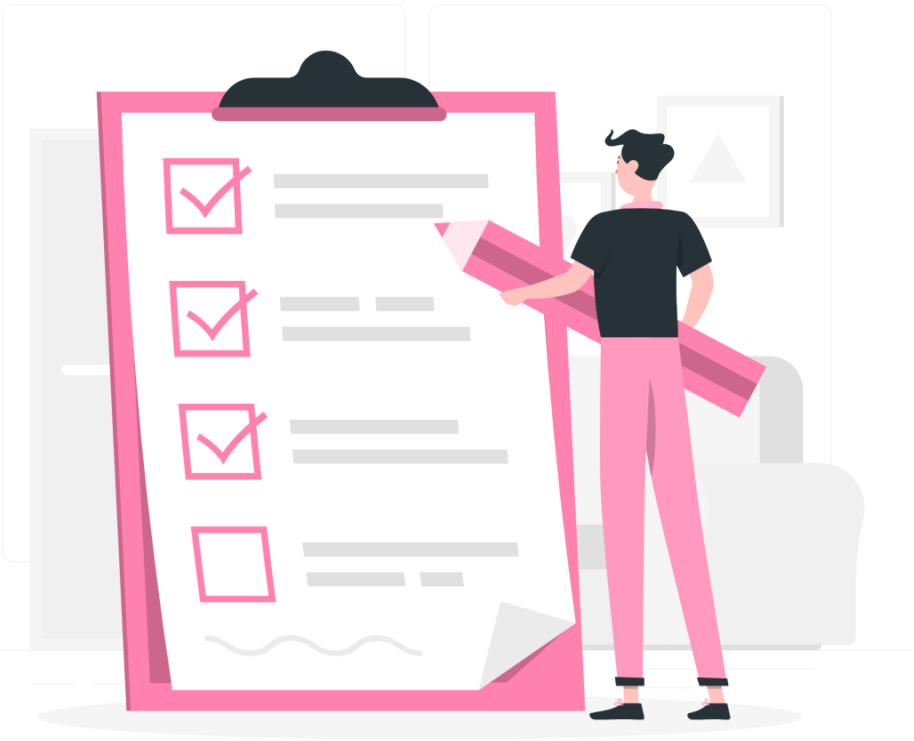
The Redesign

Based on feedback, some parts of the design might need to be changed. Design thinking is cyclical, always incorporating user feedback to continue to improve the solution. Good design doesn't exist in a vacuum, and there is often more than one answer – that's why we don't still drive Model A cars or use black and white televisions.

As Kaan Turnali writes in a Forbes article about design thinking, consider Edison's quote about failure and inventing the light bulb: "I have not failed, not once. I've discovered ten thousand ways that don't work."



With the recycling example, maybe the audience didn't like the locations of the new bins for a certain reason, or thought the new bin shape would make them look too much like trash cans. If time permits, students would take this feedback and return to the brainstorming phase.




Q&A