

Thanks for clicking through to read my one-page explanation(s) of design thinking process. On page 2, you will find a bullet explanation if you don't like wading through lots of text.

-Miguel Guhlin (@mguhlin)

Overview of the Design Thinking Process

An iterative, recursive process implies revisiting each of the steps as needed. In the first, **Empathize**, the goal is to understand people's experiences and motivations. As you seek to understand the needs of others, a problem (or series of problems) they grapple with, you set aside your own assumptions. You gather data and information.

As your understanding increases, your efforts flow into the second step, **Define**. In this stage, you analyze all the information and observations, then work to define the problem in a human-centered way. For example, you might express a problem in this way: "We need to increase parent involvement in school activities by 10%." This recognizes the problem you have as an educator. However, the real need is what the parents desire. That statement of the target audience's need could take the form of this problem definition: "Parents need to know how to better support student learning in math and reading to ensure their children's success." One way to assist you in looking for ideas/solutions involves changing the types of questions you ask. Those questions could start with "How might we...assist parents in learning what they need to know to help children succeed in math/reading at home?" The more specificity, the better.

[CHECK OUT THE DESIGN THINKING TOOLKIT:](#) This resource comes in multiple languages and adapts design thinking for educators. "The toolkit contains a Design Thinking process overview, methods and instructions that help you put Design Thinking into action, and the Designer's Workbook to support your design challenges."

With the problem defined, learners can move forward into the third step, **Ideate**. The goal of this stage is to gather source material for building prototypes and getting innovative solutions into the hands of those who need it. You can rely on a variety of ideation techniques, such as [Brainstorm](#), Brainwrite, [Worst Possible Idea](#), [SCAMPER](#). The goal of ideation is to generate as many ideas or problem solutions as possible. At any point, as more information becomes available, new insights revealed, the problem may be defined, and empathize stage revisited. This is also true in the fourth step, **Prototype**.

In the Prototype step, the goal is to create inexpensive scaled down versions of a product. Tools like [3D printers](#), [SketchUp Pro](#), [coding solutions](#) (e.g. MakeCode/Micro:bit) fit well as ways of introducing **rapid prototyping**. Rapid prototyping makes it easier to fail faster, communicate faster with scale models, ensure quick creation of many designs to share with stakeholder(s), and save money with 3D printing rather than traditional manufacturing methods. In coding, each change in code gets a different result. Each prototype will need to be checked, made better, tested in real situation, and accepted or rejected. In the final stage, **Test**, solution(s) are tested, evaluated for success and alignment to the problem.

Empathize

- Understand people's experiences and motivations.
- Set aside your own assumptions about the world in order to gain insight
- Gather data/information from stakeholders affected

Define (the Problem)

- Analyze information/observations gathered, then define problem in human-centered way:
 - **Your Need or Wish:** "We need to increase parent involvement in school activities by 10%."
 - **Target Audience's Need:** "Parents need to know how to better support student learning in math and reading to ensure their children's success."
- Begin to ask questions that help you look for ideas or solutions, such as, "How might we...assist parents in learning what they need to know to help children succeed in math/reading at home?"

Ideate

- "Ideation provides both the fuel and also the source material for building prototypes and getting innovative solutions into the hands of your users" ([Source](#))
- Start to think outside the box, looking for alternate ways of viewing the problem
- Employ one of many ideation techniques, such as [Brainstorm](#), Brainwrite, [Worst Possible Idea](#), [SCAMPER](#)
- Get as many ideas or problem solutions as possible

Prototype

- Create inexpensive, scaled down version of a product or solution to problem (see *Rapid Prototyping*)
- Identify best possible solution for problems identified
- Each prototype is investigated, improved and re-examined, or rejected
- The goal is for each person to have a better idea of the constraints within the product, problems, and more informed perspective of how real users behave, think, and feel when interacting with the end product

Test

- Solution(s) are tested, evaluated for success and alignment to the problem.