

Prototyping

In this phase of design thinking your students are developing and refining their ideas and they are designing and even building their solutions. In addition to this Digital Destiny principle, these activities support “Learning through dialogue and interaction” and “Learning through reflection and evaluation.”

Expected Outcome(s)

Students will:

- *Be able to demonstrate active listening behaviours*
- *Be able to develop and refine possible solutions to a real life problem*
- *Be able to apply their creative and building skills*
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Timing

The timing of this activity is dependent on many factors: experience, age, classroom culture, and how you implement it, etc., the minimum amount of time you should plan for each method is 30-45 minutes.

Material

Large chart paper

Depending on how your students will engage in prototyping you may need a wide variety of materials, such as:

Popsicle sticks, glue, yarn, cardboard, wood, paper, beads, nails, tools, etc

Prepare yourself

Decide which method of prototyping the students will use and gather those materials.

Display the final ideas the students selected on a board so that everyone can see them.

Step-by-step or course

1 The Pitch

Before starting Prototyping it is useful to create a short pitch of the idea(-s) selected for prototyping. Now that the students have selected 1-3 ideas to address their problem they will begin with developing a pitch.

What is a pitch? It's the information you share about an idea to help persuade your audience that it is a *good* idea!

On a large piece of paper, the students can describe in a text or bullet points the 1-3 ideas they selected as their favorite. Work as individuals or in small teams. In your description include:

Picture: a drawing or a photo that illustrates the idea

Name: Give the idea a catchy title

Tag line: Describe the idea in a short punchy line

Value to user: Describe why users want to adopt your solution

Value to organization: Describe why your school, community or any organization want to put resources into this solutions

Impact on SDGs: Describe the impact the idea/solutions would have on specific SDGs.

1 Prototyping #1

Is the design (drawing (digital/hand), building, etc) of your solution or product that helps you explore and think about how it will work before you actually make it. In the classroom there are various methods for prototyping.

Drawing:

Students begin by sketching out their ideas on a piece of paper. They begin with their first sketch. Whether they are working in a group or on their own they need feedback on their first draft.

- Set the students up at tables and have them rotate around the room 2-3 times to explain their sketch and get feedback from other students.
- Then they resketch their design
- Repeat the rotation and feedback sessions
- Complete the final sketch

Depending on the class and timing, this can be the end of the prototyping exercise.

Building/Construction:

With more time and materials, offer the students the opportunity to build or construct a physical representation of their sketch. Plan enough time that students can complete their construction. Once everyone has completed, allow each student or group to present their construction and display it with their pitch.

1 Prototyping #2

If your students have been using the design thinking process with a story this is an option to use with them as a kind of prototyping.

Storyboarding:

In this exercise the students can draw out the story. They began with an end user (empathy map), they understood that person's pain (problem tree), they defined the person's problem (problem statement), they brainstormed and now they have a solution. Students can draw or write a short story in which they imagine applying the solution and imagining how it impacts the end user. As they do this some good questions to consider are:

- a. What changed for the person with this solution?
- b. Did new challenges arise for the person?
- c. Does the solution take away the person's pain and gain?
- d. What about the solution needs to be changed? *Make the change and try again from the beginning of applying the solution to the person.*

Extra:

Depending on the prototype, they can perform a sketch based on the last created story in order to showcase the solution and its impact.

4 Reflection

The process of prototyping can be challenging, exciting and sometimes frustrating. It is important to allow the students to reflect on the experience. Consider offering the students some time to write for themselves before opening for a class discussion.

Suggested questions:

What did it feel like to sketch, get feedback and apply that feedback?

How did your sketch change or develop from the feedback?

How did you find giving feedback to your classmates on their sketches?

How do you feel about your final sketch/construction?