Guide for Creating a Design Challenge

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Get to a Great Topic

Before launching a Design Challenge, you have to know what problem your team or students are trying to solve. Scoping your challenge properly is critical to the success of the project. When scoping a challenge, we need to consider the humans (kids, parents, the homeless, the elderly, etc.) who we are designing for, what context they exist in, and what problems they might face in that context. An effective way to start narrowing in a on a problem to solve is to map the context first. Use the tool below to develop a meaningful challenge for your students to work on.

Choose a context (school, home, community, etc.) and sketch it below. Include the humans who exist in this context as well as a location, objects, etc. Label everything.

Next, use the boxes to the right to describe the elements of the context, including the humans involved.

Users

Who is involved in this context? *Students, teachers, families? Pedestrians, drivers, cyclists?*

Objects

What are common objects in the context? *Cars, bicycles, rocks? Food, forks, table?*

Locations

What are the common locations in the context? *Kitchen and dining room? Road, intersection, parking lot?*

Actions/ Interactions

What are common actions & interactions between the humans in the context? *Dinnertime conversation? Customer service interaction?*

What are the problems or challenges that the humans in this context face? Generate a list below.

What are the opportunities for improvement or innovation for the humans in this context? Generate a list below.

Move from Topic to Challenge

Now that you have mapped a context and the humans who exist within it, and generated problems or challenges they face, it's time to turn a problem into an opportunity to design new solutions.

Pick the two most interesting problems or challenges that you generated on the last page. Using the boxes below, answer the questions for each problem or challenge.

Problem/Challenge/Opportunity 1

What is the problem/challenge/opportunity?

Who are the different constituencies involved?

What are the opportunities for secondary research (books, internet, etc.) to learn more about this challenge?
How might you connect this challenge to content you are teaching already?

Problem/Challenge/Opportunity 2

What is the problem/challenge/opportunity?

Who are the different constituencies involved?

What are the opportunities for secondary research (books, internet, etc.) to learn more about this challenge?
How might you connect this challenge to content you are teaching already?

Now, turn the most interesting problem/opportunity into the design challenge your students will be working to solve. Using the challenge frames below, generate multiple prompts for the one problem.

+ Redesign the _____ experience.
Examples: Gift-giving. Morning Routine. Saving & Spending.

+ How might we improve _____.
Examples: Exercise. Lunch. The First Day of School. Walking downtown.

+ How might we increase _____.
Examples: Recycling. Walking. Intergenerational communication.

+ How might we decrease _____.
Examples: Bullying. Pollution. Homelessness.

Pick the best challenge frame from the list you generated above to use to launch design challenge.

Process Phases

Review the phases of the design thinking process in preparation for planning the design challenge. Below are definitions of each phase, a list of considerations to make while planning and different methods you can faciltate with students for each phase.

EMPATHY

The EMPATHY phase of the process is focused on understanding the experiences, emotions and motivations of others. Designers use specific empathy methods to learn more about the needs of the users for whom they are designing.

Planning Considerations

+ Who will students talk to or observe in order to understand the challenge in a new way? Will students be able to engage with a diverse group of users with varying backgrounds and experiences?

+ Is there a way for students to immerse themselves in the experiences of the users for whom they are designing?

+ What are the opportunities for secondary research to help your students learn more about the challenge and the humans involved?

+ How long will you spend on the Empathy phase of the project?

Empathy Methods

+ Interviewing:
Remind students to ask open-ended questions and ask "why" a lot. Students should refrain from sharing their own opinions. Active listening is the key to a great empathy interview. Students should interview in pairs, with one student asking the questions and the other student taking notes. Have the students prepare their questions in advance.

+ Probes:
Have students use empathy probes to facilitate a deeper conversation with a user.

+ Observation:
Have students observe the people they are designing for to understand their needs. Use the framework of Action, Environments, Interactions, Objects and Users.

DEFINE

The DEFINE phase of the process is focused on developing a point of view about the needs of your user. During this stage of process, designers narrow from lots of information to a statement that is inspiring and specific.

Planning Considerations

+ How have students captured their empathy data? How will students share their data with others?

+ How will students organize their data to help them find patterns?

+ How will you support students in their critical thinking and analysis?

+ How long will you spend on the Define phase of the project?

Define Methods

+ Empathy Map:
Have students use Empathy Maps to unpack what they noticed the users said and did during the observation or interview. Ask students to also make inferences about what they think the users thought and felt.

+ Point of View (POV) Madlibs:
Use POV madlibs to help students frame who the users are, what their needs are and why their needs matter to them.

+ HMW Questions:
Have students generate HMW questions based on their POV statements. How Might We questions are a useful tool for framing solution generation. These questions are specific enough to be inspirational and broad enough to allow room for many new ideas to emerge and develop in many different directions.

IDEATE

The IDEATE phase of the process is focused on generating as many solutions to a problem as possible. Once many solutions have been generated, students will select one to move forward to prototyping.

Planning Considerations

+ How will you teach students the Rules of Brainstorming?

+ Where will the brainstorm take place?

+ How will you facilitate the brainstorming session? Make sure students brainstorm solutions to multiple HMW questions.

+ How will you facilitate the selection process?

+ How long will you spend on the Ideate phase of the project?

Ideate Methods

+ Rules of Brainstorming:
Defer judgment, Go for volume, One conversation at a time, Be visual, Headline your idea, Build on the ideas of others, Stay on topic, Encourage wild ideas.

+ Yes, And:
Use an improv game to help students build a collaborative, open mindset using the response, "yes, and!" An example starter prompt is: "Let's Plan a Party..."

+ Host a Brainstorm:
Give students a pad of post-its and a sharpie marker. Make sure team has their HMW question posted. Play fast-paced music.

+ Selection:
Have students select which ideas are worth prototyping for each of the following categories (Most likely to succeed, Most likely to delight, Most game-changing if...). Have the group narrow to one idea from there.

PROTOTYPE

The PROTOTYPE phase is when designers construct representations of their solutions. These respresentations are intended to elicit feedback and answer specific questions about a concept.

Planning Considerations

+ How will students build their prototypes?

+ What materials will be available to them? What tools?

+ How will you help students develop the questions they are trying to answer with their prototypes?

+ How will you help students design their prototypes to answer their questions?

+ How long will you spend on the Prototype phase of the project?

Prototype Methods

+ Improv Prototyping:
Have students create a skit that tells the story of their idea using improv techniques. This process will help students make decisions about their prototype, determine what props they need, etc.

+ Rapid Prototyping:
Have students use low resolution materials (pipe cleaners, cardboard, tape, etc.) to design a tangible representation of their idea. This representation should be an object that testers can interact with and give feedback on.

+ Experiential Prototyping:
Have students create a low-resolution way for testers to experience the concept. Testers should feel immersed in the concept in order to react and give feedback. For example, use tables, chairs and cardboard boxes to create a retail experience.

TEST

The TEST phase of the process is focused on getting specific feedback about how ideas can improve. It is important to remember during this phase that prototypes are imperfect but feedback is a gift.

Planning Considerations

+ With whom will students share their prototypes and how?

+ How will students capture feedback?

+ How will you help students develop follow-up questions?

+ How long will you spend on the Test phase of the project?

Test Methods

+ Testing:
Help students prepare to test their prototypes. Remind them to consider how to structure the testing experience. Also, remind them that they are not selling their idea, but they are using their prototype to get feedback from potential users.

Questions to consider:

+ What props are needed?
+ How will the students help the tester understand their prototype?
+ Are there roles for different members of the team to play when simulating the experience for the tester?

Planning Process Phases

Plan out each phase of the design thinking process for your students.
Refer to the Process Phases sheet to help you plan.

EMPATHY

The EMPATHY phase of the process is focused on understanding the experiences, emotions and motivations of others. Designers use specific empathy methods to learn more about the needs of the users for whom they are designing.

Empathy Methods

+ Which method will your students use?

+ What do you need to prepare?

+ How long will students work on this method?

+ What are the design deliverables students need to create in order to move forward in the process?

+ What are special considerations for this phase (field trip? speaker? community partner? etc.)?

DEFINE

The DEFINE phase of the process is focused on developing a point of view about the needs of your user. During this stage of process, designers narrow from lots of information to a statement that is inspiring and specific.

Define Methods

+ Which method will your students use?

+ What do you need to prepare?

+ How long will students work on this method?

+ What are the design deliverables students need to create in order to move forward in the process?

+ What are special considerations for this phase? (will students print pictures of users? etc.)?

IDEATE

The IDEATE phase of the process is focused on generating as many solutions to a problem as possible. Once many solutions have been generated, students will select one to move forward to prototyping.

Ideate Methods

+ Which method will your students use?

+ What do you need to prepare?

+ How long will students work on this method?

+ What are the design deliverables students need to create in order to move forward in the process?

+ What are special considerations for this phase (where will you host the brainstorm? etc.)?

PROTOTYPE

The PROTOTYPE phase is an iterative development of tangible artifacts or experiences intended to elicit feedback and answer specific questions about a concept.

Prototype Methods

+ Which method will your students use?

+ What do you need to prepare?

+ How long will students work on this method?

+ What are the design deliverables students need to create in order to move forward in the process?

+ What are special considerations for this phase (are there special materials needed, etc.)?

TEST

The TEST phase of the process is focused on getting specific feedback about how ideas can improve. It is important to remember during this phase that prototypes are imperfect but feedback is precious.

Test Methods

+ Which method will your students use?

+ What do you need to prepare?

+ How long will students work on this method?

+ What are the design deliverables students need to create in order to move forward in the process?

+ What are special considerations for this phase (who are the users who are going to test? etc.)?

Scope & Sequence

Planning to teach multiple design challenges over the course of next year? Introduce design thinking to your students by running a 90 minute partner challenge. Next, scope a challenge at your school. Finally, have your students tackle a community-based challenge.

90 Minute Partner Challenge

During a 90 Minute Partner Challenge, students will design a solution to a problem their partner faces using the framework provided. This activity will take students through an entire design cycle, from empathy to testing, quickly.

Example: Redesign your partner's morning routine.

What challenge topics might you facilitate?

1

School-Based Challenge

For your students' first full-scale design challenge, have them solve a problem at school. This will make facilitating empathy work easier to organize and less intimidating for your students. A challenge of this scale will likely take 4-8 weeks.

Example: How might we improve the lunch experience for 1st graders?

What challenge topics might you facilitate?

How might you plan the phases of the design process over the course of this challenge?

2

Community-Based Challenge

Once your students have developed familiarity with the design thinking process, have them apply their skills while tackling a community-based challenge. A challenge of this scale will likely take 4-8 weeks.

Example: How might we increase voter turn out in local elections?

What challenge topics might you facilitate?

How might you plan the phases of the design process over the course of this challenge?

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