Design Thinking: Refine Phase Student Assignment

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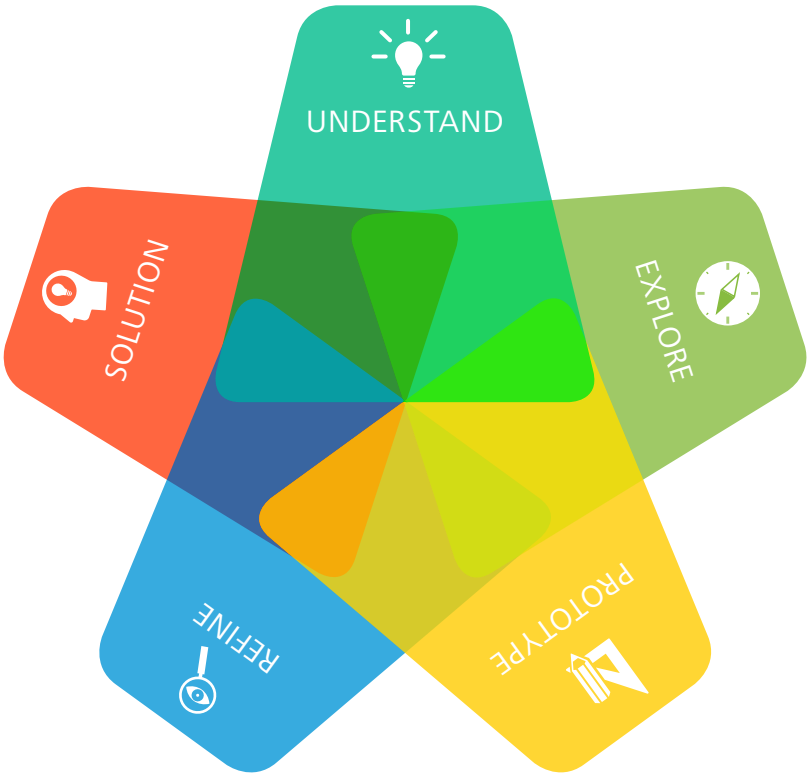
Design Thinking Overview



UNDERSTAND

The first stage of design thinking involves learning as much as you can about the problem at hand. What are the parameters? Who is the audience? Ask questions and brainstorm!

EXPLORE

Next, do some research. Explore the many different ways people have tackled similar design challenges. Think about what's possible, as well as what might be some restrictions.

PROTOTYPE

Once you have some ideas, it's time to test them. Sketch, write, mold, and use software to model your ideas as best you can. Try to communicate your concept as best you can.

REFINE

By this point, you should narrow your field of ideas down to one. Use your prototype, your knowledge of the design challenge, and the power of design software to make final refinements.

SOLUTION

Lastly, finalize your project the same way real world design professionals do every single day. Build it, print it, or present a broad overview of the finished product to your classmates.

Overview

In the refine phase, we revisit the original design challenge and its success criteria to ensure our solutions are meeting set goals. This is our time to take a fresh look at our highest fidelity prototype, review it, and take stock of how it meets the original and possibly revised goals. Remember, these goals may have morphed through the process, or it's possible that you may have departed from the destination accidently.

The following exercises can be adapted to meet any design challenge regardless of scope or medium. Dissecting our solutions at both a detailed granular level as well as from a thousand foot high-level view is always helpful. Be honest with yourself. If you don't find the holes in your solutions, the people you're designing for will.

In this design challenge, your goal is to refine your ideas and prototypes for a parklet, a sidewalk extension that offer people a place to stop, site and relax while taking in the activities of the street.

To get started, download the Green Space - Urban Planning project resources on Autodesk Design Academy, academy.autodesk.com/curriculum/green-space-urban-planning.

TIME

5-10 HOURS per level

LEVEL

Beg/Int/Adv

PREREQUISITE

Watch Riyad Ghannam, from RG Architects, share his approach to architecture using the design thinking process. This Designer Profile video is found at academy.autodesk.com/curriculum/green-space-urban-planning.

LEARNING OBJECTIVES

01 Demonstrate knowledge of why idea and prototype refinement is important and how to refine them.

02 Explain the key steps, materials and considerations to refine.

03 Apply and share best practices to refine ideas and prototypes.

04 Leverage Design Academy resources to introduce educators and students to industrial design principles through foundation exercises and projects.

05 Extend teacher/student networks through participation in the Design Academy community and with the homework assignments that accompany the article.

DESIGN BRIEF: BEGINNER

Your assignment is to research background on the refine process and assemble a team to solicit design feedback, identifying components that can be simplified, collapsed or removed.

TIME: 5-10 HOURS

STEP 1:

Research background on challenge including the Refine blog article on Design Academy (academy.autodesk.com/inspiration/blog) and the Green Space- Urban Planning project at academy.autodesk.com/curriculum/green-space-urban-planning.

STEP 2:

Assemble a team and determine how to tackle the Understand, Explore, and Prototype phases. Refer to the Design Thinking articles on Understand, Explore and Prototype on Design Academy for additional tips on how to succeed in each step. Assign roles for each team member and set a deadline to regroup and discuss.

STEP 3:

Regroup, critique the work, and create a chart that lists the elements and components in the chosen design in one vertical column. In a second column, label each element or component either "Must Have", "Should Have" or "Nice to Have". The goal is to identify what can be reduced or eliminated to streamline your solution and make it simpler.

STEP 4:

Take a hard look at the "Should Have" and "Nice to Have" components in isolation. Each team member identifies at least three components that could be simplified, collapsed or removed. Be ruthless in your choices; the best experiences are simple, focused, and easy to understand and use. Decide which aspects to refine and how. Then add some detail to a third column, titled "Next Steps."

Here is an example:

COMPONENT	RANKING	NEXT STEPS
WOOD PLANK FLOORING	MUST HAVE	
WOOD FLOORING DETAIL	NICE TO HAVE	
GUARDRAIL MATERIAL 1	MUST HAVE	
GUARDRAIL MATERIAL 2	NICE TO HAVE	
GUARDRAIL MATERIAL 3	NICE TO HAVE	BRIAN - EXPLORE REMOVING TO SIMPLIFY, AND/OR CREATING DETAIL FROM ALTERING ONE OF THE OTHER GUARDRAIL MATERIALS
GUARDRAIL ORNAMENTATION	NICE TO HAVE	
PAINT COLOR A	SHOULD HAVE	
PAINT COLOR B	NICE TO HAVE	
TALL FLOWER POTS	MUST HAVE	
MEDIUM HEIGHT PLANTERS	NICE TO HAVE	
BENCH SEATING	MUST HAVE	
FOLDABLE, MOBILE CHAIRS	SHOULD HAVE	
MOUNTED WELCOME/DONATED BY METAL SIGNAGE	NICE TO HAVE	JEAN AND TONY - EXPLORE INCORPORATING INTO EXISTING SURFACES WITH MATERIALS ALREADY REQUIRED
BULK DOG POOP BAG DISPENSER	NICE TO HAVE	
BUSH SPECIES 1	SHOULD HAVE	
BUSH SPECIES 2	NICE TO HAVE	

STEP 5:

Refine your design.

STEP 6:

Regroup, critique the revisions and evaluate if the modifications are successful. Remember to critique the work against the current goals. Compare your criteria checklists (the challenge's evolved mandates combined with the user's needs, wants and feedback) to the current state of your solution and scrutinize it ruthlessly. Refer to the Design Thinking articles on Prototype and Refine on Design Academy for additional tips on how to evolve your solutions to ensure they remain user-centered.

STEP 7: Summarize your Refine experiences individually.

Write a 500 word letter to your future self about this Refine experience. It's intended to be a memento that captures a snapshot of time in anticipation of your future Refine journeys. Have fun with it! Add doodles and emoticons. Design this self-reflection as a creative artifact. Include what worked well and what didn't, what your learned about working in a team, the time invested, any variation between your initial thoughts versus the final outcome, and suggestions to remind your future self how to improve your refining experiences down the road.

DESIGN BRIEF: INTERMEDIATE

Your assignment is to research background on the refine process and assemble a team to solicit design feedback. The design criteria has changed and you will need to look at ways to refine your design to incorporate the new criteria.

TIME: 5-10 HOURS

STEP 1:

Complete the Beginner assignment STEPS 1-3 above.

STEP 2:

Now imagine the design criteria have changed, again. Apply one of the following new mandates to the challenge and repeat STEPS 1-3 from the Beginner assignment.

Must be assembled by a layperson (e.g. IKEA style - easily shipped, light weight, smart flat-packaging, instructions for assembly, and leverage every day tools such as Alan wrenches.

- Must be modular (e.g. it must be able to be packed up, removed, easily stored in a limited space, and re-installed - for weekend use only).
- Must omit the most used material (e.g. metal, wood, rubber, etc.) because it's no longer available or now cost prohibitive.
- Must meet ADA guidelines for accessibility (e.g. the access is at least 36 inches wide, all objects protruding into the circulation paths can be detected by a person with a visual disability using a cane, slopes of ramps are no greater than 1:12, railings are sturdy, and between 34 and 38 inches high, width between railings or curbs are at least 36 inches, etc. Check additional specs here http://www.ada.gov/racheck.pdf.
- Must adhere to revised dimensions. The width is now two feet narrower in length.

STEP 3:

Regroup, critique the revisions and evaluate if the modifications are successful. Remember to critique the work against the latest goals. Compare your criteria checklists (the challenge's evolved mandates combined with the user's needs, wants and feedback) to the current state of your solution and scrutinize it ruthlessly. Refer to the Design Thinking articles on Prototype and Refine on Design Academy for additional tips on how to evolve your solutions to ensure your solutions remain user-centered.

STEP 4: Summarize your Refine experiences individually.

Admit it, this assignment was hard! Unfortunately it's also very realistic. Write a 750 word letter to your future self about this Refine experience. It's intended to be a memento that captures a snapshot in time in anticipation of your future Refine journeys. Have fuomnceu0 HOUe Refi