Integrating Design Thinking in Problem Solving Projects

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What Is Design Thinking ?

HUMAN-CENTRIC
innovation methodology

Why Design Thinking?

- In the current agile and highly competitive global business environment, innovation is very critical for any organization to grow and succeed
- Design thinking is both an ideology and a process, focused on practical and creative innovation in an extremely user-centric way
- Companies such as Apple, Bank of America, Boeing, Coca-Cola, IBM, Nike, Procter & Gamble, and Whirlpool have integrated Design Thinking into corporate strategy
- When design thinking approaches are applied to business, the success rate for innovation has been seen to improve substantially

Why Design Thinking?

Source: Gallup

GE MRI Scanner Case Study - Doug Dietz

7 Year Old Girl did was crying before getting her scan. Parents had to plead her to get the necessary scan and be brave.

She Said: 'My brother gets to camp, but I can't go'

80% of kids had to be sedated before the scan

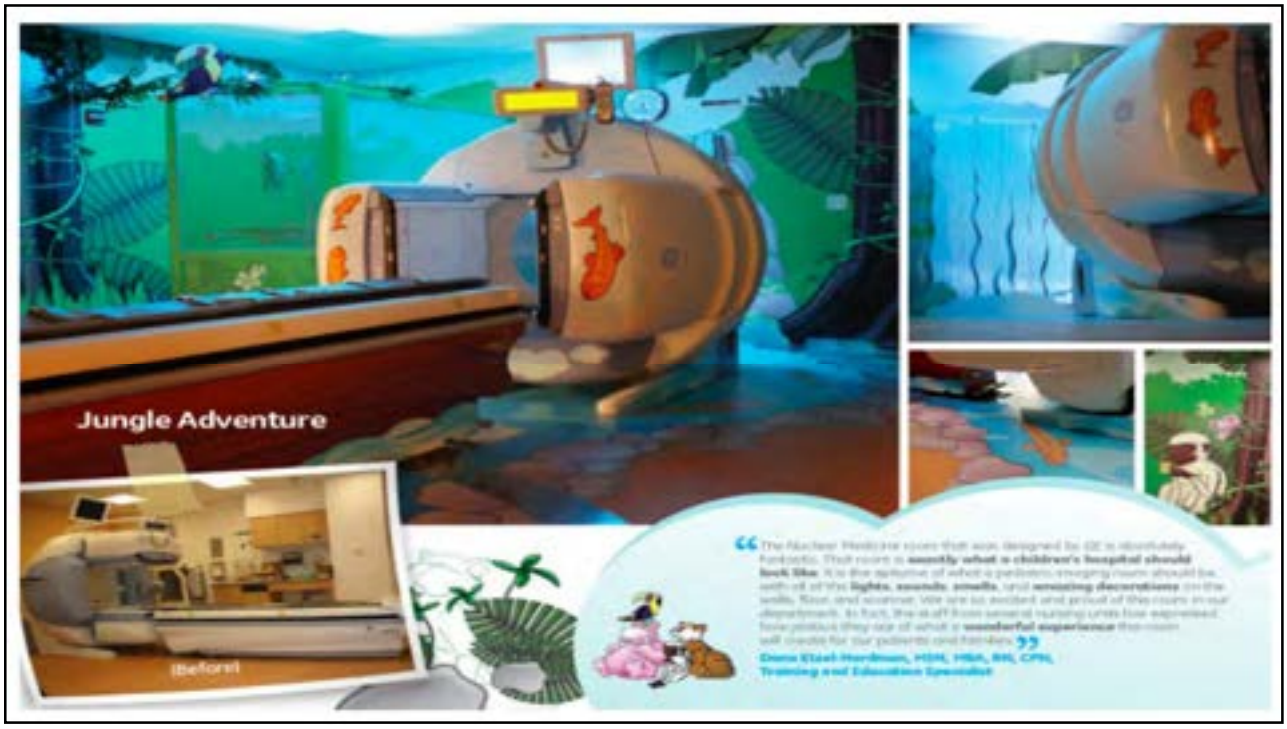
How would you solve the issue of children not willing to get the necessary MRI scans to make them healthy?

Doug's Interpretation:

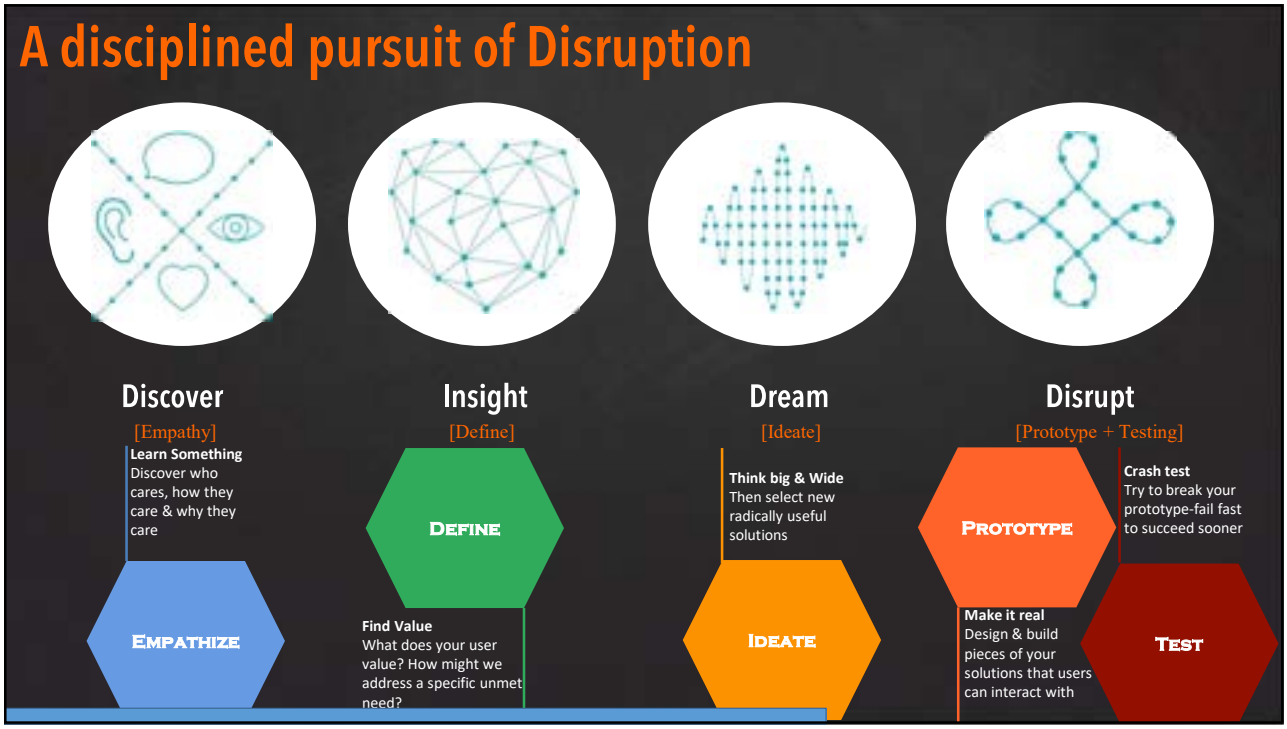
Life-threatening illness sucks all the adventure out of her life.

Doug's Challenge:

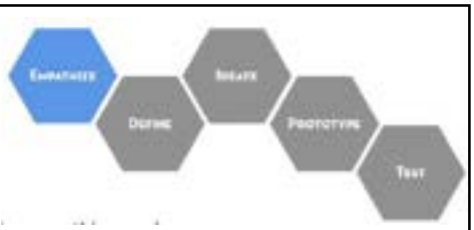
How do I make her hospital scan experience exhilarating and fun?



Pirate Island


A disciplined pursuit of Disruption
Discover
[Empathy]
Learn Something
Discover who cares, how they care & why they care
EMPATHIZE
Insight
[Define]
DEFINE
Find Value
What does your user value? How might we address a specific unmet need?
Dream
[Ideate]
Think big & Wide
Then select new radically useful solutions
IDEATE
Disrupt
[Prototype + Testing]
PROTOTYPE
Crash test
Try to break your prototype-fail fast to succeed sooner
Make it real
Design & build pieces of your solutions that users can interact with
TEST

Design Thinking – Empathize Phase



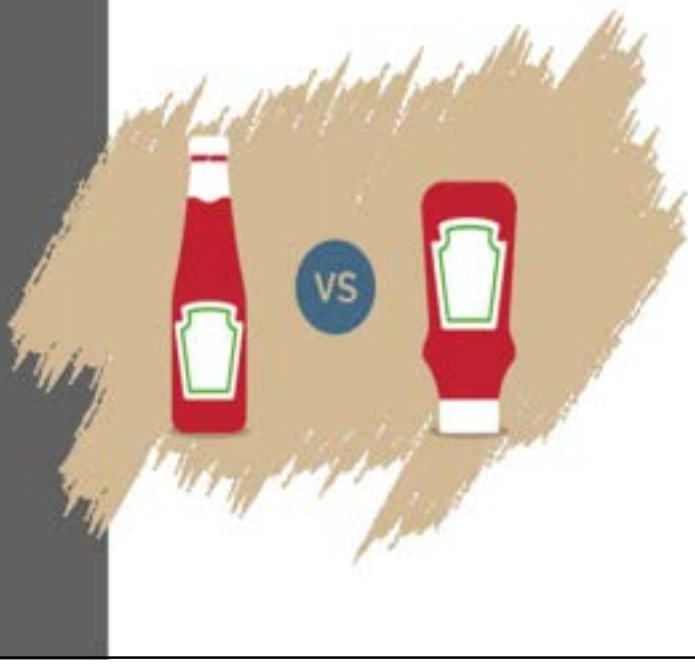
Key Ideas of Empathize Phase:

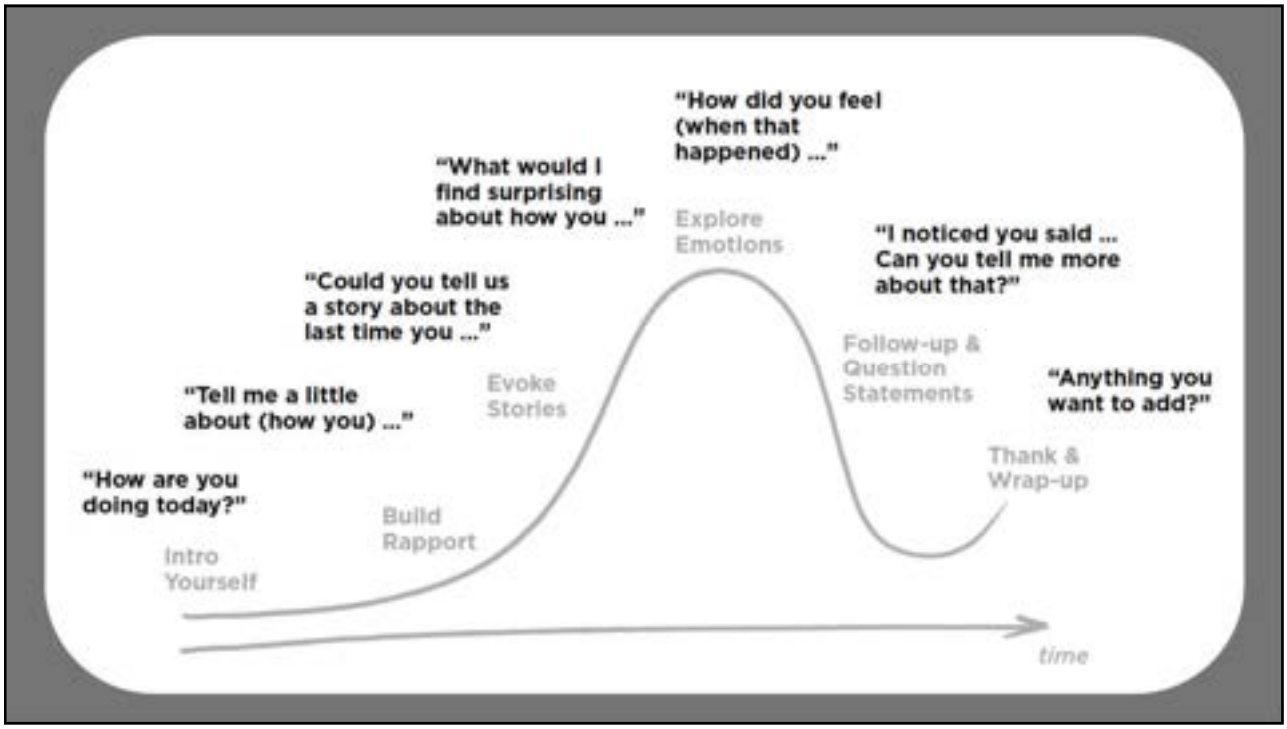
- Observe: View users and their behavior in the context of their lives.
- Engage: Interact with and interview users through both scheduled and short 'intercept' encounters.
- Immerse: Experience what your user experiences

Benefits of Integrating Empathize Phase in Define Phase:

- Empathize phase helps to uncover needs that customers have which they may or may not be aware of by exploring emotions that guide their behavior.
- By focusing on specific user/customer, we identify the right customers for whom we are developing solution for.

Over 90%




"How did you feel (when that happened) ..."
"What would I find surprising about how you ..."
Explore Emotions
"I noticed you said ... Can you tell me more about that?"
"Could you tell us a story about the last time you ..."
Follow-up & Question Statements
"Anything you want to add?"
Evoke Stories
"Tell me a little about (how you) ..."
Thank & Wrap-up
"How are you doing today?"
Build Rapport
Intro Yourself
time

GROUP DISCUSSION:
WHAT DOES THIS PERSON NEED?

Define

Traditional Problem Framing:

People complain that elevators are **too slow**

Solution Space:

Make them **faster**
Add more elevators
Decrease number or people per elevator

Reframe:

How might we make the waiting **experience *feel* shorter**

Solution Space:

Improve the experience:
Distract riders from the wait
make the ride enjoyable

Design Thinking – Define Phase

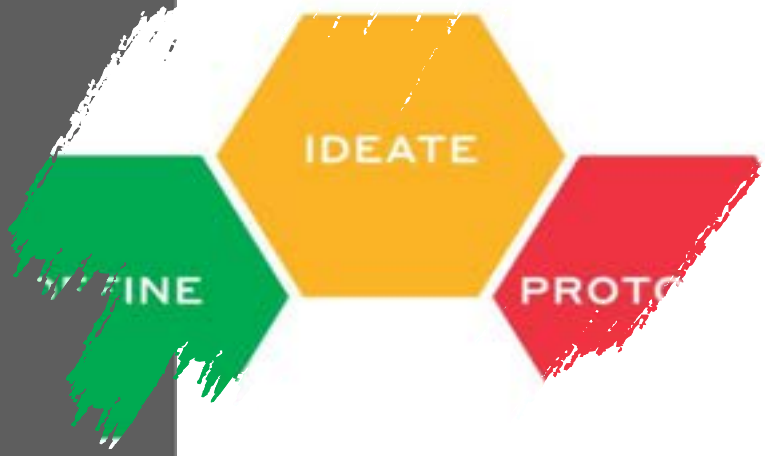
Key Ideas of Define Phase:

- Two key goals:
  - Develop a deep understanding of our customer and the design space
  - Develop an actionable problem statement: your key themes that capture the hearts and minds of people we met in empathize phase

Benefits of Integrating Define Phase:

- Ensure that Problem Statement and Project Objective also incorporates hearts and minds of customers and not just hard facts

Ideate



Pacific Power and Light (PP&L) Design Thinking Case Study

Problem: Ice storms result in the accumulation of a significant ice load accumulating on the power transmission lines. If not removed, this ice will accumulate to the point that the lines will be over-stressed and break.

The linemen hated this job because it meant they would have to go into the woods, climb poles and towers, and shake the lines under extremely unpleasant conditions. A number of them were hurt when they fell from the icy poles and towers.

Ideation:

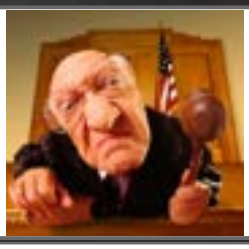
- Brainstorming with just linemen and supervisors not successful to develop solution
- Brainstorming with linemen, supervisors, accountants, secretaries, and people from the mail room

Pacific Power and Light (PP&L) Design Thinking Case Study

Brainstorming Tips

Build On Others Ideas

Use YES | AND



Defer Judgement

HAVE FUN !

Encourage Wild Ideas

Go For Quantity

Design Thinking – Ideate Phase

Key Ideas of Ideate Phase:

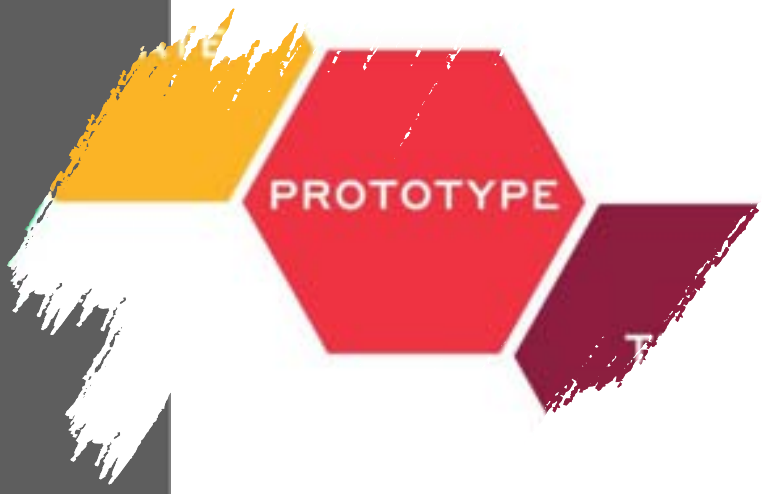
- Explore a wide solution space – both a large quantity of ideas and diversity among those ideas.

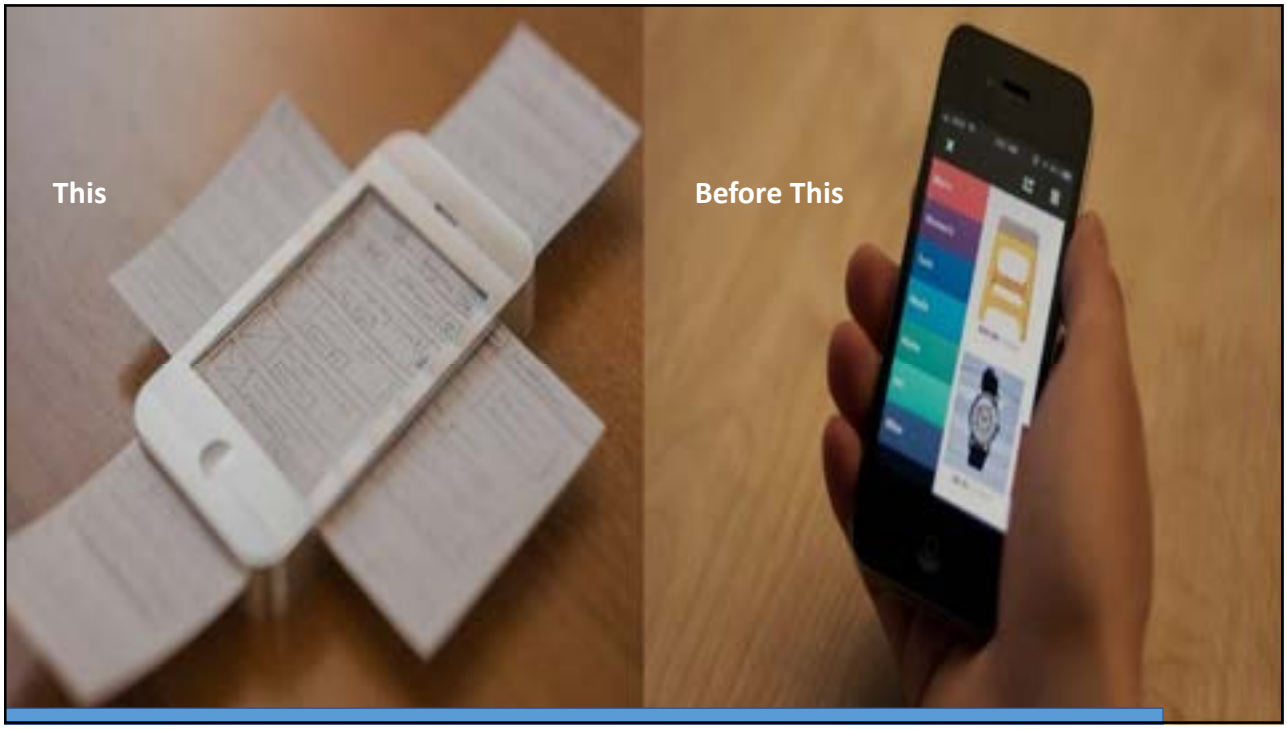
Benefits of Integrating Ideate Phase in Improve / Develop Phase Of Project:

- Drives team beyond obvious solutions

From narrow experts to interdisciplinary thinkers

Prototype





Design Thinking – Prototype Phase

Key Ideas of Prototype Phase:

- A prototype can be *anything* that takes a physical form
- Prototypes are most successful when people can experience and interact with prototypes.

Benefits of integrating Design Thinking in Improve / Develop Phase of Project:

- Broader scope of prototyping:
  - Learn
  - Eliminate ambiguity
  - Reduce miscommunication
  - Start a conversation
  - Fail quickly and cheaply
  - Manage the solution-building process

From prototype once to prototype often – fail fast and fail forward

Test

Extreme Users:
- Power users
- Non users

60-80% of the population

Extreme

Extreme

Case Study:
Pizza Cutter

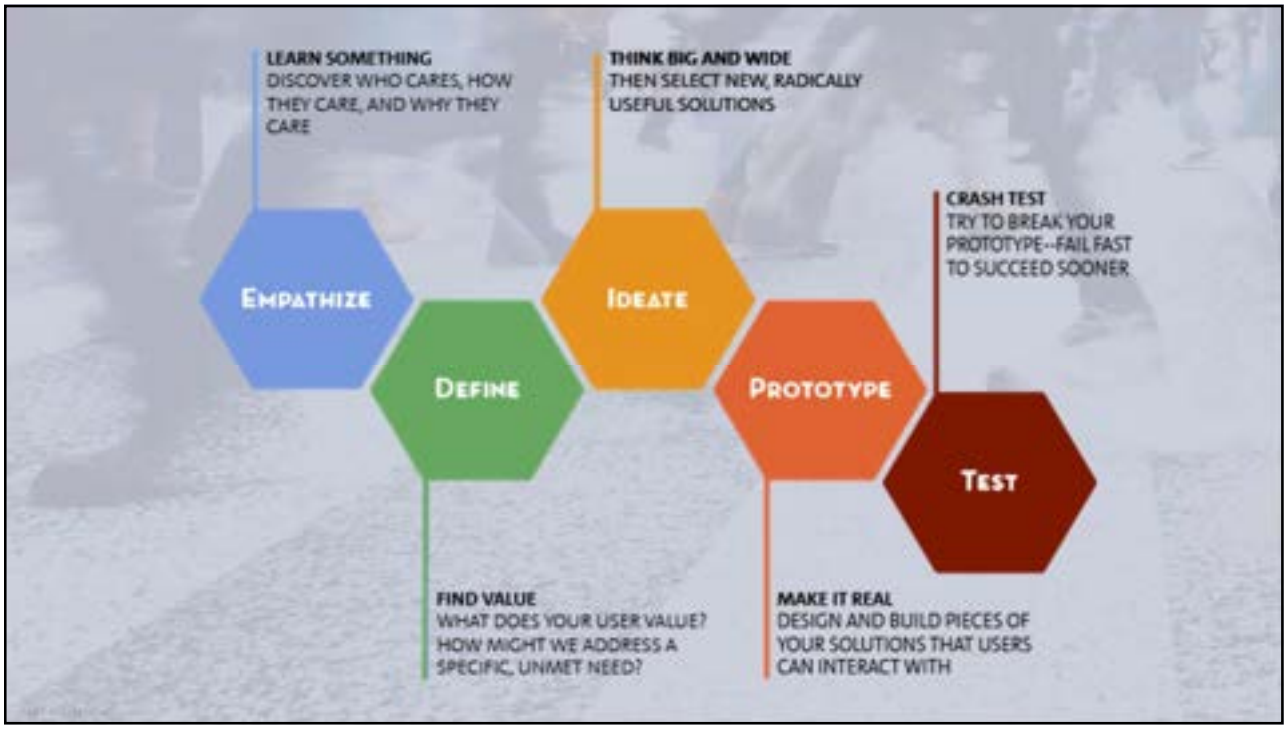
Design Thinking – Test Phase

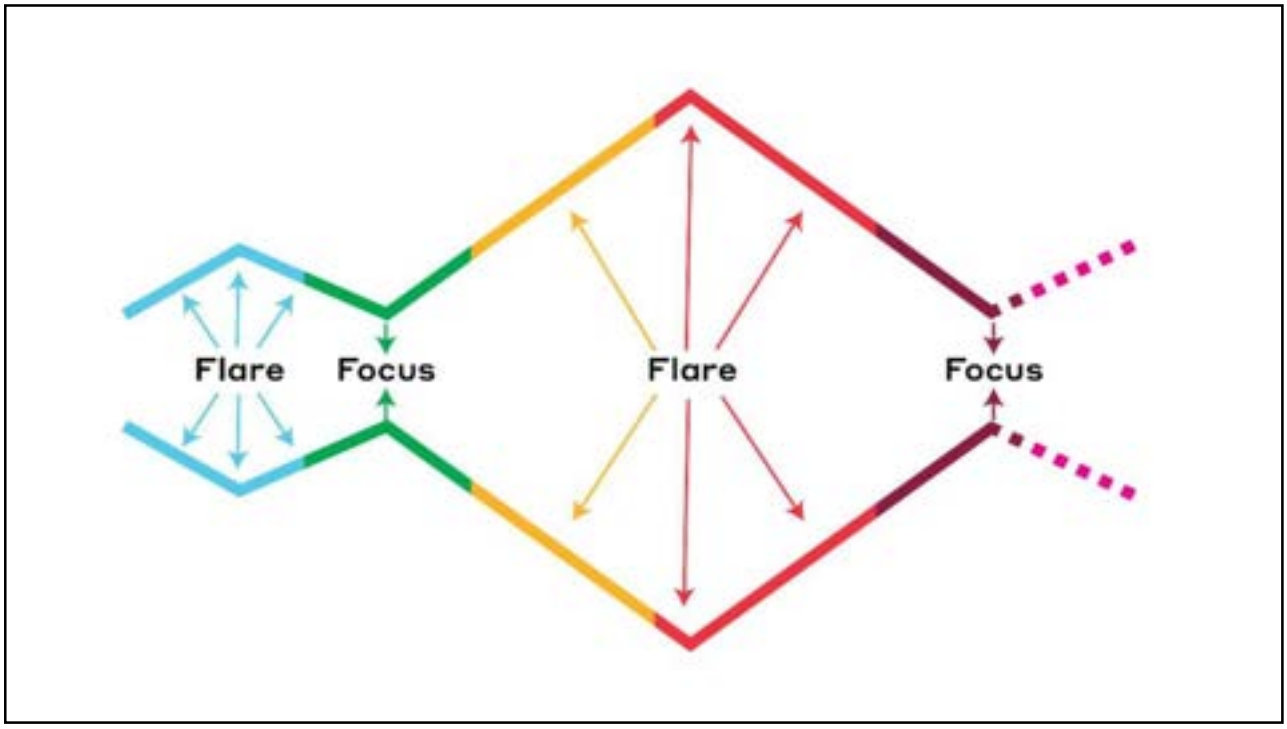
Key Ideas of Test Phase:

- Purpose:
  - To refine our prototypes and solutions
  - To learn more about our user
  - To test and refine our key themes

Benefits of integrating Design Thinking in Improve / Verify Phase of Project:

- Continued interface with users / stakeholders during test phase


LEARN SOMETHING
DISCOVER WHO CARES, HOW THEY CARE, AND WHY THEY CARE
THINK BIG AND WIDE
THEN SELECT NEW, RADICALLY USEFUL SOLUTIONS
CRASH TEST
TRY TO BREAK YOUR PROTOTYPE--FAIL FAST TO SUCCEED SOONER
EMPATHIZE
DEFINE
IDEATE
PROTOTYPE
TEST
FIND VALUE
WHAT DOES YOUR USER VALUE? HOW MIGHT WE ADDRESS A SPECIFIC, UNMET NEED?
MAKE IT REAL
DESIGN AND BUILD PIECES OF YOUR SOLUTIONS THAT USERS CAN INTERACT WITH


Flare
Focus
Flare
Focus

Summary

- Design Thinking and problem solving methodologies are aligned in their framework. Integrating Design Thinking and problem solving mythologies will strengthen overall Continuous Improvement culture of any organization
- Design thinking is focused in deeper understanding of emotions / behaviors of customers (internal and external) which ensures teams have defined the right problem to solve
- During solution development, Design Thinking drives teams beyond obvious solution. It is difficult but important to build on each other's ideas
- Design Thinking mindset of failing fast and fail forward improves efficiency in development and implementation of solution

Feedback from 2-Day Design Thinking Workshop for K-12 Grade Teachers of Oakland School District, Michigan

Teachers have incorporated Design Thinking in the curriculum of Middle School and High School Students

(Days 1-2) Please provide any feedback on the first two days of d.Solve with Kush Shah, our design thinking trainer.

Loved how easy & open ended his facilitation was to follow!

Very helpful to understand the process

Organized breaks improved the experience

I enjoyed our mini challenges.

I thought it was very informative.

Kush was awesome.

Loved Kush and his informative stories!

He was cool.

Kush was an awesome introduction into the course. He really gave us the knowledge we needed to get us comfortable for the challenge.

He was an excellent presenter. Really enjoyed the stories and interactions with him.

The first two days were amazing. Kush did a great job presenting the information and providing feedback.

More rounds of interviews and prototype iterations

Organized, easy to follow, well-paced, great examples

Helped to put this process into a real-world context.

Just did a great job bringing the process to life and showing how it is related to all areas.

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