



Workshop on Design Thinking for Teachers and Students at Nanyang Girls' High School

Design Thinking Workshop

This Presentation can be Found Online at:



http://www.nygh.sg/interdisciplinary/design_thinking.pdf

Design Thinking Workshop



What is Design Thinking?

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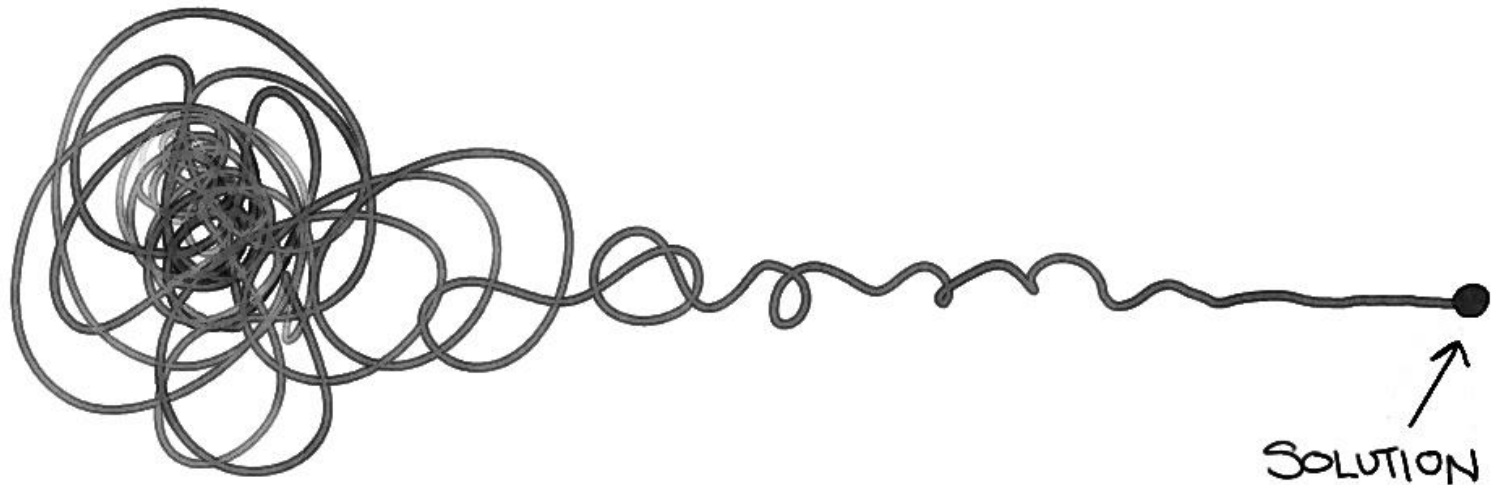
What is Design Thinking?

- Design thinking provides a way to think about creative work. It starts with *empathy*, working to really understand the problems that people are facing, before attempting to create solutions.
- Design thinking is *human centred problem solving*, with an emphasis on collaboration, creativity and empathy. The key to the process is empathising with the user's needs to solve the problem.
- You do not need to be very creative to succeed at design thinking, it is a *structured process* that you can learn.

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What is Design Thinking?

- A human centred, prototype driven, design process.



- Creative confidence – *make the world a better place!*

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What is Design Thinking?

E.D.I.C.T.

Empathise	Define	Ideate	Create	Test
<ul style="list-style-type: none">• Learn about your audience or customer.	<ul style="list-style-type: none">• Think about what will help your audience or customer live a better life.	<ul style="list-style-type: none">• Ideate ideas on improving what you have chosen.	<ul style="list-style-type: none">• Think about how to show your ideas of improvement to others.	<ul style="list-style-type: none">• Test the extent to which your idea meets the needs of your audience or customer.

- **Note:** You may find that in some versions of design thinking, some of these sections are merged together.

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What is Design Thinking?

- Creative Thinking

- Creative thinking involves encountering gaps, paradoxes, opportunities, challenges, or concerns, and then searching for meaningful new connections by generating:

- Many possibilities.

- Varied possibilities (from different perspectives).

- Unusual or original possibilities.

- Details to expand or enrich possibilities.

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What is Design Thinking?

- Critical Thinking
 - Critical thinking involves examining possibilities carefully, fairly, and constructively, and then focusing thoughts and actions by:
 - Organising and analysing possibilities.
 - Refining and developing promising possibilities.
 - Ranking or prioritising options.
 - Choosing or deciding on certain options.

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Can I please have
an actual example
of the design
thinking process?

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Overview of the Design Thinking Process

- Nanyang Girls' High School 2016 – Sec. 1
Interdisciplinary Studies:

a) Garden to Table

b) The Built Environment

- Scenario:

It is the year *2036* and Nanyang Girls' High School has won the prestigious *Sustainable School Award*. Your group has been nominated to make a model of the school and present it at a national exposition to illustrate the concept of *sustainability* to the general public.

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Overview of the Design Thinking Process

1 - Empathise

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Overview of the Design Thinking Process

1 - Empathise

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Overview of the Design Thinking Process



2 - Define

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Overview of the Design Thinking Process

3 - Ideate

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Overview of the Design Thinking Process

4 - Create



4 - Create

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Overview of the Design Thinking Process



5 - Test

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Before we begin,
please be willing to
take risks and
make some
mistakes!

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Taking Risks and Making Mistakes

- For this activity, you will need to work in pairs.

1. Stand up and find a partner.

2. Face you partner.

3. Count to three, alternating backwards and forwards from one person to the next.

One – Two – Three – One – Two – Three – One – Two...

☺ Celebrate every time you make a mistake!

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Taking Risks and Making Mistakes



One

Two

Three



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Taking Risks and Making Mistakes



One

Two

Three

One

Two

Three



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Taking Risks and Making Mistakes

4. Now, instead of saying “one”, snap your fingers.
 5. Now, instead of saying “two”, clap your hands.
 6. Now, instead of saying “three”, stamp your feet.
- ☺ Celebrate every time you make a mistake!

Questions:

- Did the activity become more easy or more difficult?
- Did you feel more comfortable or less comfortable making mistakes as the activity progressed?

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What are the
Five Key Stages
in Design
Thinking?

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Five Key Stages in Design Thinking

E.D.I.C.T.

Empathise	Define	Ideate	Create	Test
<ul style="list-style-type: none">• Learn about your audience or customer.	<ul style="list-style-type: none">• Think about what will help your audience or customer live a better life.	<ul style="list-style-type: none">• Ideate ideas on improving what you have chosen.	<ul style="list-style-type: none">• Think about how to show your ideas of improvement to others.	<ul style="list-style-type: none">• Test the extent to which your idea meets the needs of your audience or customer.

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Stage One:
Empathise

- Learn about your audience or customer through interview.

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Stage One – Empathise – Interview

- Who are you designing for?
- What are their problems?
- It is easy to miss things that you are not looking for:
 - Be a *tourist*.
 - Be an *alien*.
- Spot things that everyone else takes for granted and ask questions to draw-out new information.
- The most important thing when conducting an interview is to hear what is *not* being said. Expression. Body language.
 - Interview for *discovery*, not to validate an existing point-of-view.

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Stage One – Empathise – Interview

- Interviewing – closed questions and open-ended questions.
- *Closed questions* result in short or single word answers. They are often used in interviews to obtain factual / demographic data. Examples of closed questions include:
 - What is your age?
 - What time do you wake-up?
 - Do you like ice-cream?
 - Do you prefer to play badminton or tennis?
 - Where were you born?

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Stage One – Empathise – Interview

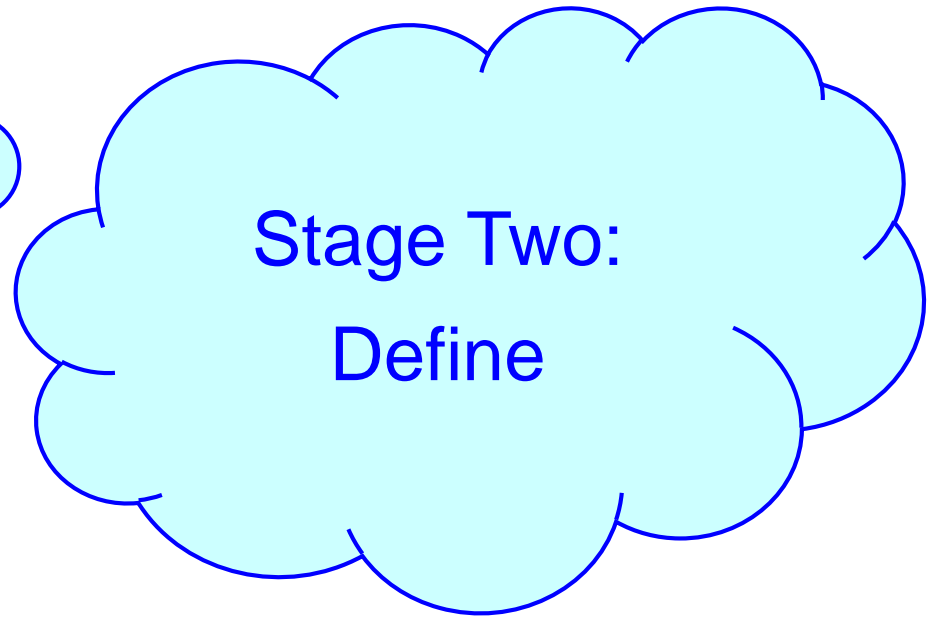
- Interviewing – closed questions and open-ended questions.
- *Open-ended questions* provide the interviewer with rich and meaningful information about the user. This information gives insights into the user's needs. Examples of open-ended questions include:
 - Tell me more about that?
 - What do you mean?
 - What do you like to do for fun?
 - Why would you want to do that?
 - Tell me about a time that you...

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Stage One – Empathise – Interview

- Get into groups of four to six people.
- You will work together and go through one cycle of design thinking.
- Firstly, you will interview someone from another group about their time management.
- Ask questions to probe any issues or problems that they face managing their time throughout their day.
 - Within your group, there should be two people conducting the interview and two people taking notes.
- Time – 20 minutes.

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- Think about what will help your audience or customer live a better life.

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Stage Two – Define

- Empathy Map for Interview.
- The *say / do* section of the map is for direct quotes and observations the interviewer sees and hears.

Say / Do	Think / Feel
Emma says that she is often late for school – anxious expression.	

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Stage Two – Define

- Empathy Map for Interview.
- The *think / feel* section of the map is where one infers and assumes things about the user based upon data in the *say / do* section. It is alright to make assumptions.

Say / Do	Think / Feel
Emma says that she is often late for school – anxious expression.	Maybe concerned that she will get into trouble if this happens too often.

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Stage Two – Define

- Construct an empathy map for the interview that you have just conducted.
- While constructing the empathy map, think carefully about what was said and the person's body language. What are the main issues that the person is facing?
 - Time – 20 minutes.

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Stage Three:
Ideate

- Ideate ideas on improving what you have chosen.

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Stage Three – Ideate

- Create a *needs statement organiser* about the person who you interviewed.

Describe Your User...	...Needs A Way To...	...Because

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Stage Three – Ideate

- Create a *needs statement organiser* about the person who you interviewed.

Describe Your User...	...Needs A Way To...	...Because
1. Hard working Emma...	...organise her life...	...she is very busy.
2. Caring secondary school student...	...prioritise her responsibilities...	...she has a lot going on in her life.
3. Active and busy teenager...	...eliminate distractions...	...she finds it hard to say “no”.
4. Unorganised and busy Emma...	...remember homework assignments...	...she wants to be great at everything.

- Try to generate 15 items.

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Stage Three – Ideate

- Create a *needs statement organiser* about the person who you interviewed.

Describe Your User...	...Needs A Way To...	...Because
1. <i>Hard working Emma...</i>	...organise her life...	...she is very busy.
2. Caring secondary school student...	<i>...prioritise her responsibilities...</i>	...she has a lot going on in her life.
3. Active and busy teenager...	...eliminate distractions...	<i>...she finds it hard to say "no".</i>
4. Unorganised and busy Emma...	...remember homework assignments...	...she wants to be great at everything.

- Try to generate 15 items.

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Stage Three – Ideate

- Create a *needs statement* about the person who you interviewed.

..... needs a way to because

• Hard working Emma *needs a way to* prioritise her responsibilities *because* she finds it hard to say “no”.

- Create a *needs statement table* about your user. The table should be at least 15 items long.
- From the needs statement table, create *three* key *needs statements* for your user.

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Stage Three – Ideate

- The needs statement test.
 - a) Read your needs statement and ask the question, are there more than 50 potential ways to meet this need?
Is it generative?
 - b) Read your needs statement and ask the question, does my needs statement describe 2 people or 200 people?
Is it specific enough?
 - c) Read your needs statement and ask the question, if my user's best friend read this needs statement, would they immediately know who you were describing?
Does it resonate?
- Time – 20 minutes.

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Stage Four:
Create a
Prototype

- Think about how to show your ideas of improvement to others.

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Before we begin Stage 4, here are some tips about brainstorming.

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Brainstorming

- Yes... ..*but* and Yes... ..*and*

1. Form a group of four-to-six people.
2. Stand or sit in a circle facing each other.
3. You are going to spend three minutes planning a party.
 4. Identify the person who is going to start round one.
 5. This person should make a suggestion for the party, e.g., “We should have balloons”.
6. Another person will reply with a reason why this is *not* a good idea, e.g. “*Yes, but* the balloons will pop”.

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Brainstorming

We should
have
balloons!




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Brainstorming



We should
have
balloons!



*Yes, but the
balloons will
pop!*

- Continue for two minutes.
- How is your party?

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Brainstorming

- Yes... ..*but* and Yes... ..*and*

7. Identify the person in your group who is going to start round two.
6. This person should make a suggestion for the party, e.g., “We should play party games”.
8. Another person will reply with a reason why this *is* a good idea, e.g. “*Yes, and* the winners can have prizes”.

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Brainstorming

We should
play party
games!




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Brainstorming



We should play party games!



Yes, and the winners can have prizes!

- Continue for two minutes.
- How is your party?

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Brainstorming

- Be accepting of other people's ideas.
 - Withhold your judgements.
 - Build on the ideas of others.
 - Seek opportunities.
 - What is possible?
 - How will you build it?

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And some tips
about creativity.

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Creativity

S. C. A. M. P. E. R.

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Creativity

S. C. A. M. P. E. R.

S – Substitute

What might you use or do
instead?

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Creativity

S. C. A. M. P. E. R.

C – Combine

What things might be combined or synthesised to form new ideas?

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Creativity

S. C. A. M. P. E. R.

A – Adapt

What might be changed or
used in a different way?

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Creativity

S. C. A. M. P. E. R.

M – Modify / maximise /
minimise

What might be made larger
or smaller?

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Creativity

S. C. A. M. P. E. R.

P – Put to another use

How might something be
used or applied in a new or
different way?

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Creativity

S. C. A. M. P. **E.** R.

E – Eliminate

What might be deleted? What
might you do without?

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Creativity

S. C. A. M. P. E. R.

R – Reverse

Look at the problem in the opposite way – what could be restructured?

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Stage Four – Create a Prototype

- Make is when everything becomes tangible. You build prototypes – things your user can interact with – so that you can find out early on what works. The mind-set that supports make is learning from failure.
- Use the materials provided to construct a solution(s) to the problem(s) that you identified your customer is concerned about.
 - Time – 30 minutes.

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Stage Five:
Test

- Test the extent to which your idea meets the needs of your audience or customer.

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Stage Five – Test

- Invite your user (the person that your group interviewed) to return to your group and explain to them:
 - a) What you have made for them.
 - b) How they use it.
 - c) Why you thought that it would be of use to them.
- Listen to their feedback. If there was time, you would incorporate their feedback into a second prototype to test.
 - Time – 10 minutes.

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This is the end
of the workshop.
What questions
do you have?



I expect to pass through
this world but once.
Any good, therefore, that I
can do or any kindness I
can show to any fellow
creature, let me do it now.
Let me not defer or neglect
it for I shall not pass this
way again.

Stephen Grellet



Presentation on
Design Thinking
by Dr. Chris Slatter

christopher_john_slatter@nygh.edu.sg

Nanyang Girls' High School

2 Linden Drive

Singapore

288683

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