



# Learning How to Learn + Design Thinking

October 26, 2019

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Prop Jerry De Villa

# What we'll do

- Introduction to Bridge 360 and facilitators
- Introduction of participants and ice breakers
- Industry 4.0
- Learning Hacks Pt 1
- Lunch Break
- Learning Hacks Pt 2
- Design Thinking 101

# I'm Prince

Chief Data and Finance Officer of Bridge360

Data science manager at Globe Fintech Innovations (Mynt)

MSc Data Science at AIM

BS Mining Engineering from UP

# Introduce Yourselves

Group into twos or threes

Introduce your partner:

His/her name

What he/she does (work/hobby)

One thing you have in common

What they are feeling in one word

Why do they want to learn how to learn?

# Industry 4.0



What is your takeaway from the Industry 4.0 video?

Why is learning important in Industry 4.0?

# Learning Hacks for Industry 4.0

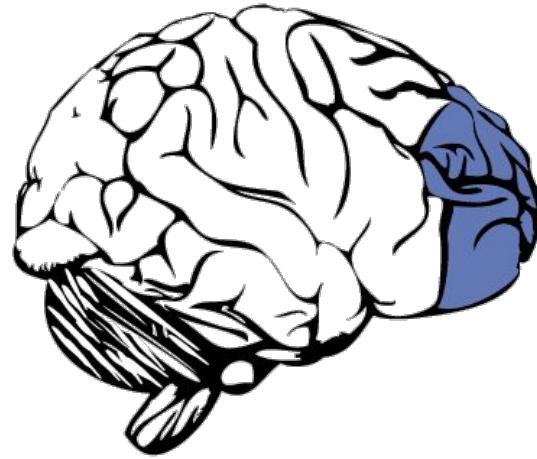
1. Take it easy: diffuse and focused mode of thinking
2. Memory Hacks
3. Thinking about Thinking: Metacognition
4. Organize your knowledge with Mind Maps
5. Feynman Technique

Main reference: A Mind for Numbers by Barbara Oakley

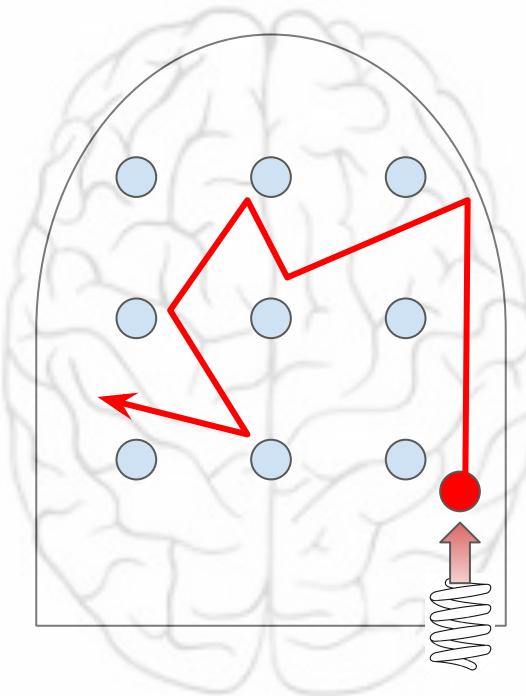
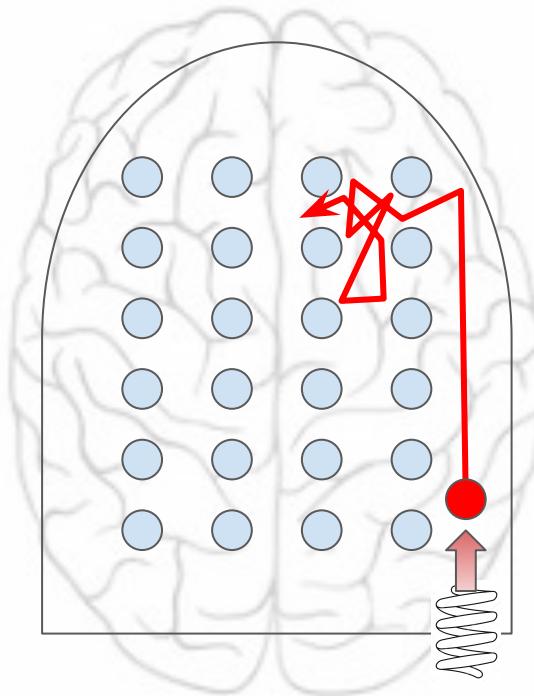
# Learning Hack #1

## Focused and Diffuse Mode

# Focused and Diffuse Mode



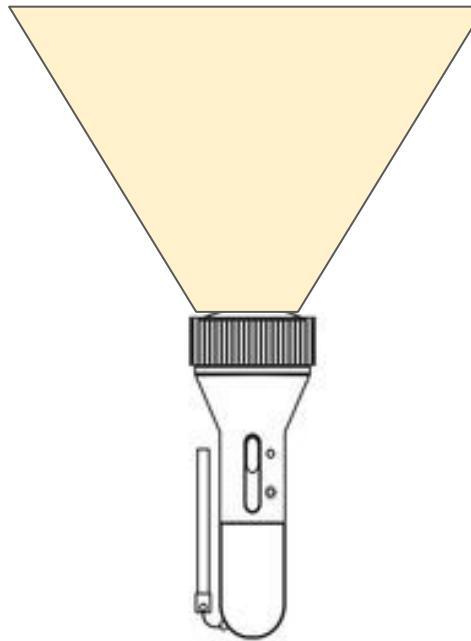
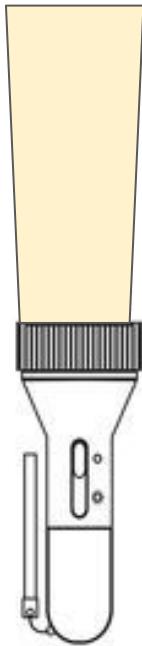
# Focused and Diffuse Mode



# Focused and Diffuse Mode



# Focused and Diffuse Mode



# From an evolutionary perspective



Why do we do diffuse mode? To avoid...

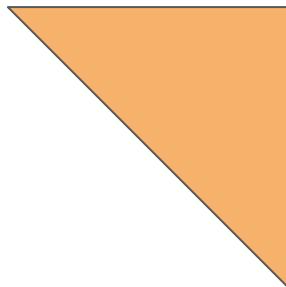
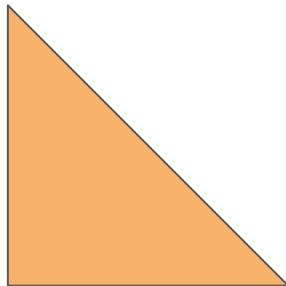
## The Einstellung Effect

The tendency to solve a problem using the first thing that comes to mind.

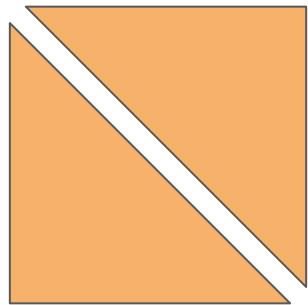
Even if it isn't the best solution!

# Exercise

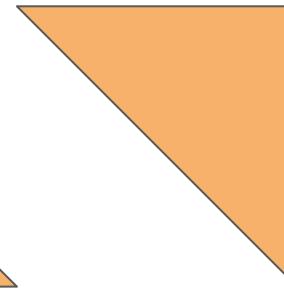
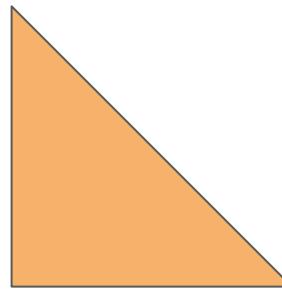
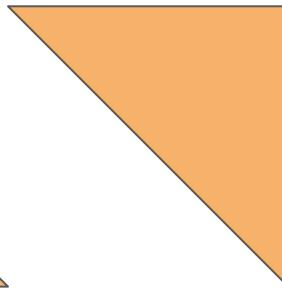
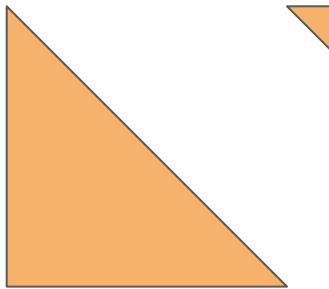
# Try to make a square



# Try to make a square



# Try to make a square



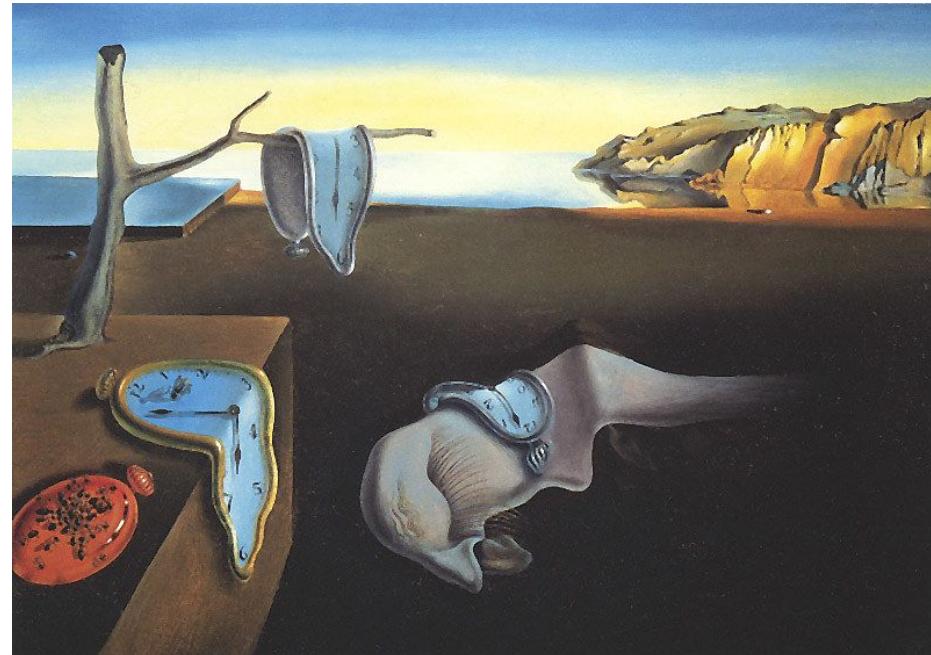
# When solving a difficult problem

Put hard, focused effort into solving the problem. If you're stuck embrace it!

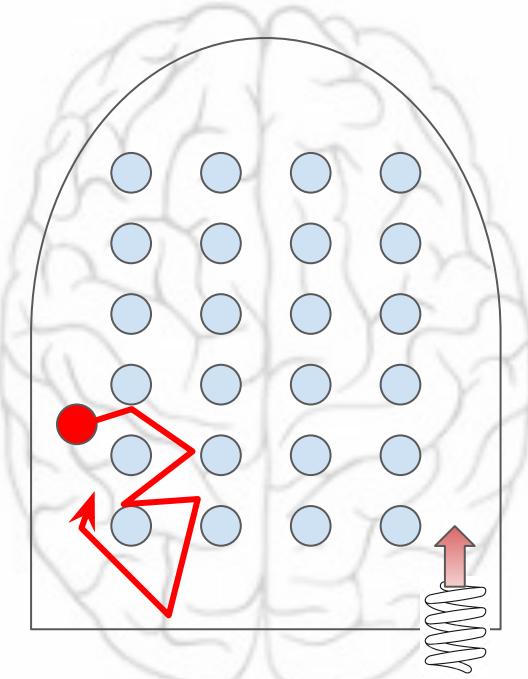
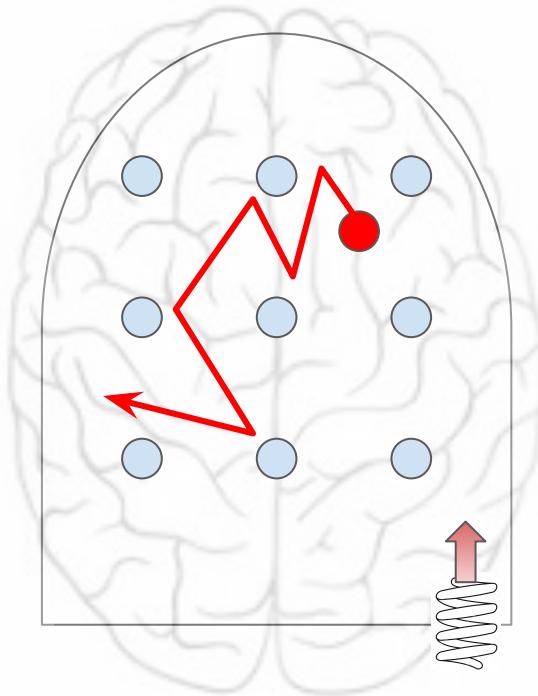
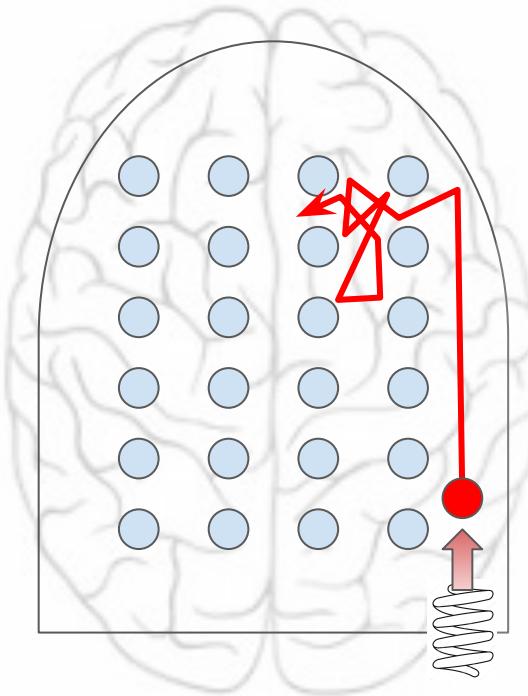
Then rest. Take a walk. Wash the dishes.

Come back to the problem. Rinse and repeat.

# How Salvador Dali Used Focused-Diffuse Modes



# Why it works?



# Exercise

# Move only 3 coins to form a triangle that points down



How many errors in the sentence?

“Thiss sentence contains threeee  
errors.”

# You can't do diffuse and focus modes at the same time

- When we focus too much on a problem, we block diffuse mode
- Don't try too hard -- when you're focusing too much, you're preventing creative thinking via diffuse mode
- The trick is to alternate between two modes - focus first then diffuse

# Feeling stuck?

It's perfectly fine to feel stuck or frustrated!

What to do: step away and do something else!

Do not try too hard!

Have fun! Your diffuse mode will do the rest.

**Pro Tip:** Focus then rest, but not too long! A good rule of thumb is max of 1 day of rest, then go back to the problem.

# What did Magnus Carlsen do in this video?



# How to alternate between focused and diffuse mode?

Focus on the task at hand

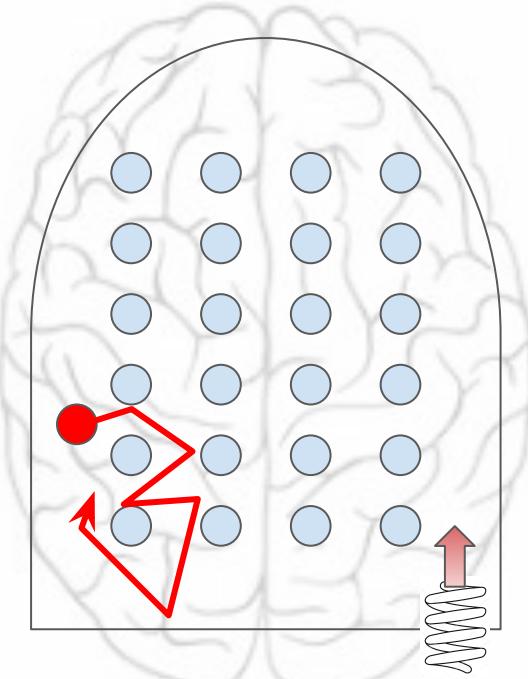
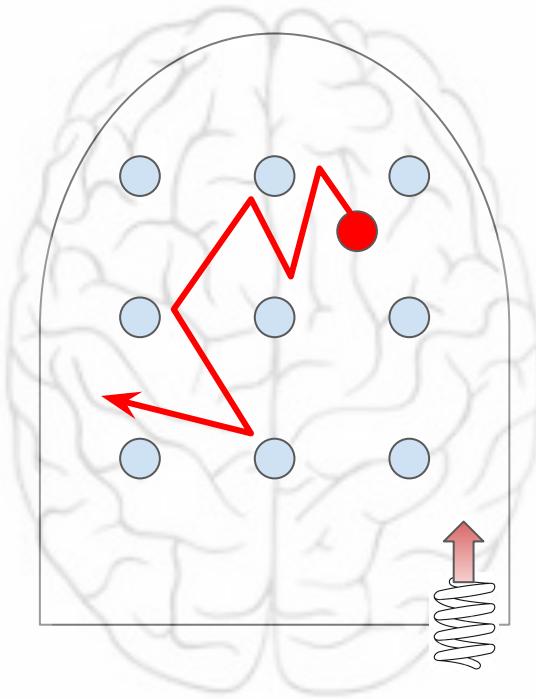
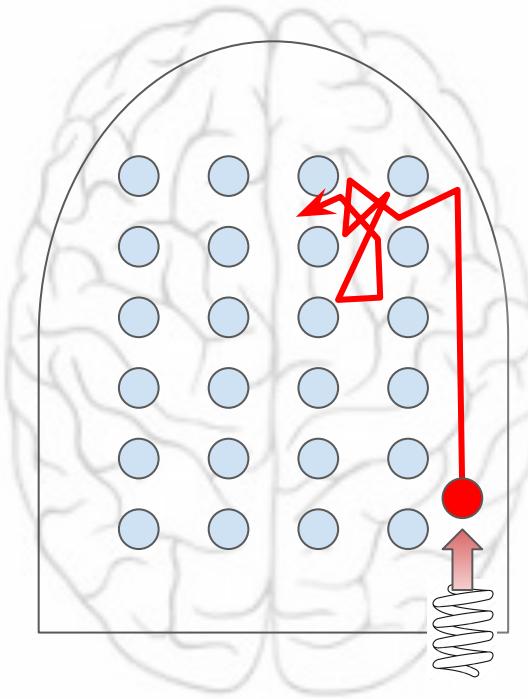
Rest. Do something else. Reward yourself:

- Talk with friends
- Walk
- Watch TV
- Surf the web
- Wash the dishes
- Take a bath
- Take a nap / sleep

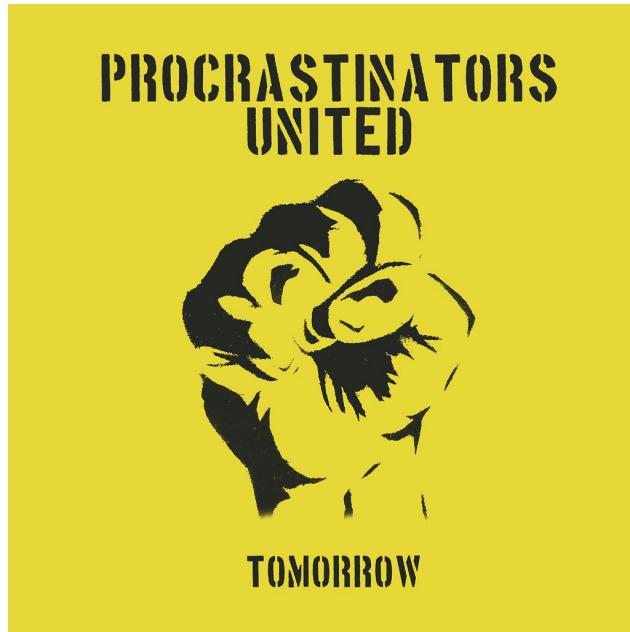
Go back to your problem

# What other ways can you do to trigger diffuse mode?

# Why it works?



# But I'm a procrastinator



# Tips: How to Tackle Procrastination?

At the start of the day, **write down three or more things** you want to accomplish

# Exercise

Write down three or more things you want to accomplish today

# Tips: How to Tackle Procrastination?

## Pomodoro technique

Set a timer for 25 minutes

Do your task, don't think about finishing!

After the time, rest, reward yourself.  
(Diffuse)



# Tips: How to Tackle Procrastination?

At the end of the day, **check** the things you accomplished.

Write down the things you want to accomplish by the **next day**

# Exercise

Talk with your partner about what we've discussed so far. Write them down.

Guide questions:

1. How do you know if you're in diffuse mode vs focused?
2. When you're thinking of a problem, which mode are you in?
3. When did you experience an Einstellung Effect? How can you get out of it?
4. How are diffused and focused mode comparable to a beam of flashlight?  
When can you see more? When can you see far?
5. How do you avoid procrastination?
6. Which parts of the topics confused you? Which are clear?

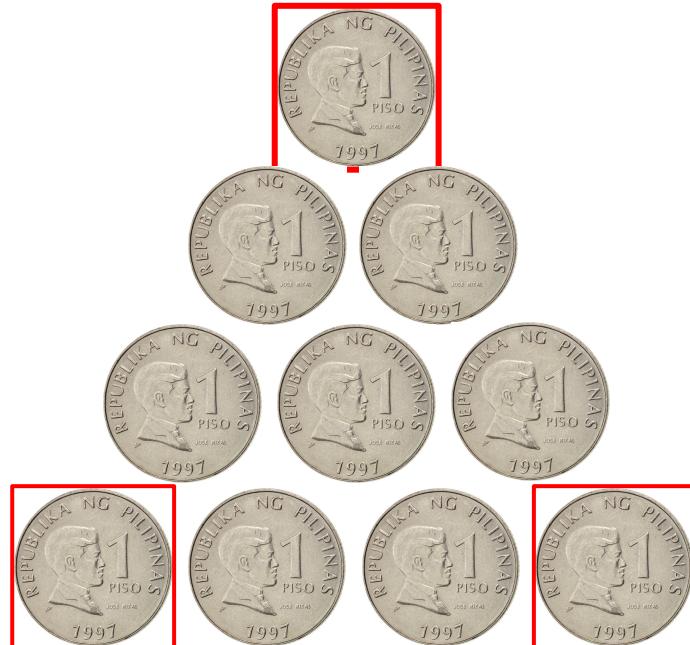
## Exercise

Let's discuss with everyone  
what you've learned.

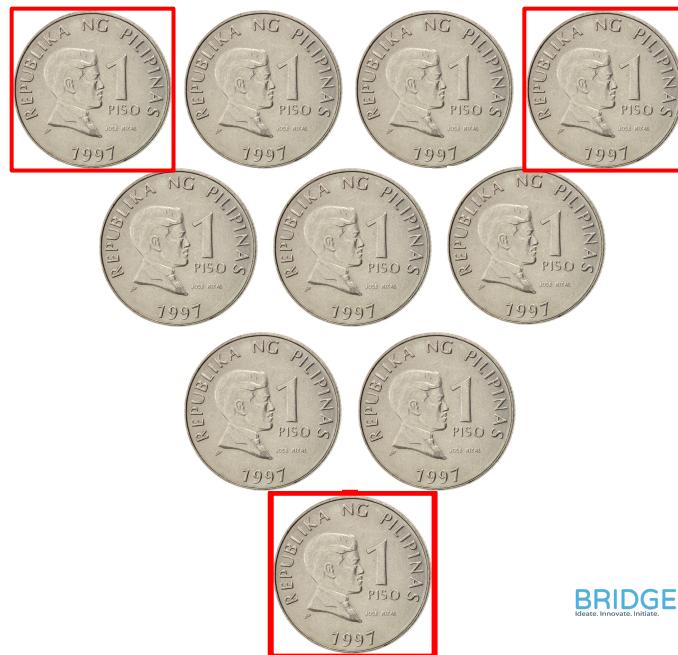
# Solutions



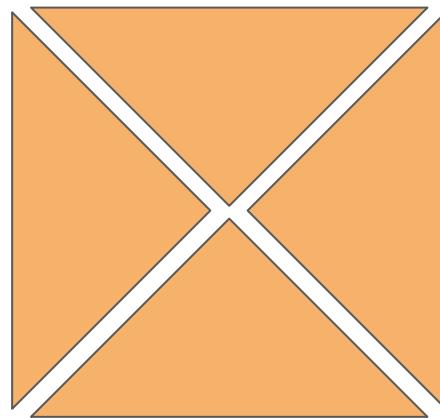
# Move only 3 coins to form a triangle that points down



# Move only 3 coins to form a triangle that points down



# Try to make a square



How many errors in the sentence?

“This**s** sentence contains three**e** errors.”

Answer: 3 errors - the third is the logic of the sentence.



# Break



# Learning Hack #2

## Memory Hacks

# Memory Hacks

1. Spaced Repetition
2. Memory Palace
3. Sleep

# Memory Hack #1

## Spaced Repetition

# Two Kinds of Memory

Working Memory vs Long Term Memory



# Two Kinds of Memory

Working Memory vs Long Term Memory



Spaced  
repetition



# Which one is better?

1. Rereading a material 20 times in one day
2. Reading a material once in a day. Reviewing the next day. Reviewing the next week. Reviewing the next month

No. 2 is better. **It's called spaced repetition!**

# Spaced repetition hack

1. After learning a new material, review the topic - actively recall it first, don't mindlessly reread!
2. A day after, recall the material and review
3. A week after, recall and review
4. A month later, recall and review

Works miracles for exams!

## Exercise

Write down: how will you use spaced repetition in your life?

Let's talk about them!

# Memory Hack #3

## Memory Palace

# Exercise

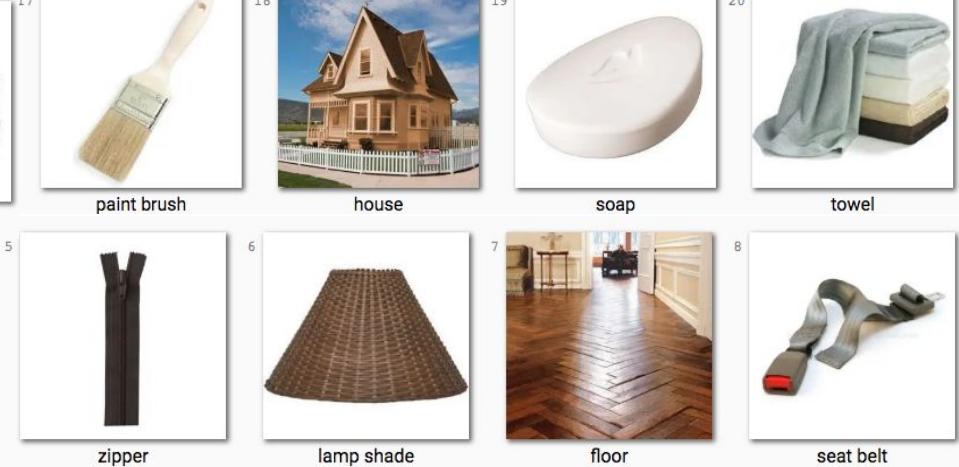


Memorize the objects in  
1 minute

Write down everything



How many did you get?



# Memory and our ancestors

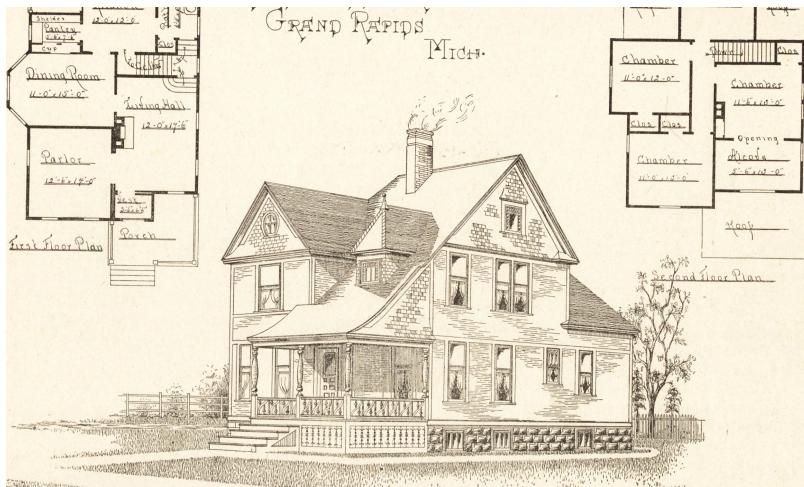


# Memory Palace

Tap in our capacity to remember spaces

Imagine a familiar place - your house, your school, etc.

Imagine the things you want to memorize in particular locations in the place



# Memory Palace + Association

Associate images with each other. Make it as absurd as possible!

How can you associate the following? One way:



“Imagine someone is in your living room. He’s taking a picture of flowers with his mouth while clipping his nails. He’s typing on the keyboard with his foot.”

# Exercise

# Use memory palace + association technique to memorize the following



1 slipper



2 vase



3 tooth picks



4 blouse



5 sandal



6 sponge



7 playing card



8 eve liner

## Share with us your memory palace!



blanket

candy wrapper

truck

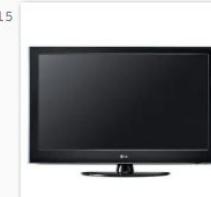
packing peanuts

credit card

teddies

camera

stop sign



greeting card

phone

flag

bowl

house

clay pot

tv

mop



rubber band

eraser

sketch pad

deodorant



carrots



glasses

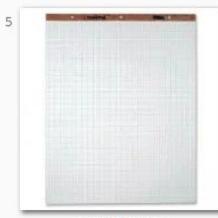


soap

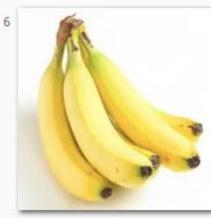


watch

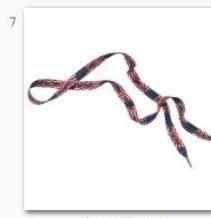
Memorize the objects in  
1 minute



grid paper



bananas



shoe lace



floor

Write down everything



1

blanket



2

candy wrapper



3

truck



4

packing peanuts



10

grid paper



11

bananas



camera



stop sign



5

greeting card



6

phone



7

flag



8

bowl



14

shoe lace



15

grid paper



tv



mop



1

rubber band



2

eraser



3

sketch pad



4

deodorant



STOP

1

carrots



STOP

2

glasses



STOP



4

watch



5

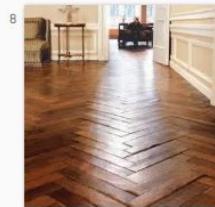
STOP



STOP

6

STOP



8

STOP

# How many did you get?

# Memory Hack #4

## Sleep

# Benefits of sleep

- Sleep flushes out built up waste in the brain allowing you to think clearly
- Sleep consolidates memory - removing unimportant ones and enforcing important ones



# Sleep Hacks

- Study a material (focused mode) before going to sleep (can work for learning a new language, math, as well as playing guitar, etc.)
- Think that you will dream about the material
- After waking up, review the material - don't just reread. Actively recall!
- Avoid staying overnight before a test! What should you have applied?

Sleep is what learning mode?

# Memory Hacks Recap

Talk with your partner about what we've discussed so far. Write them down.

Guide questions:

1. Why does memory palace work?
2. Which use case do you think memory palace can be helpful?
3. How can you transfer working memory to long term memory?
4. How do you plan to remember the learning hacks from this workshop?
5. How does sleep help memory?
6. Since we started the workshop, what's the least clear topic for you? What's the clearest?

Share with everyone what you've learned!

# Break



# Learning Hack #3

## Metacognition

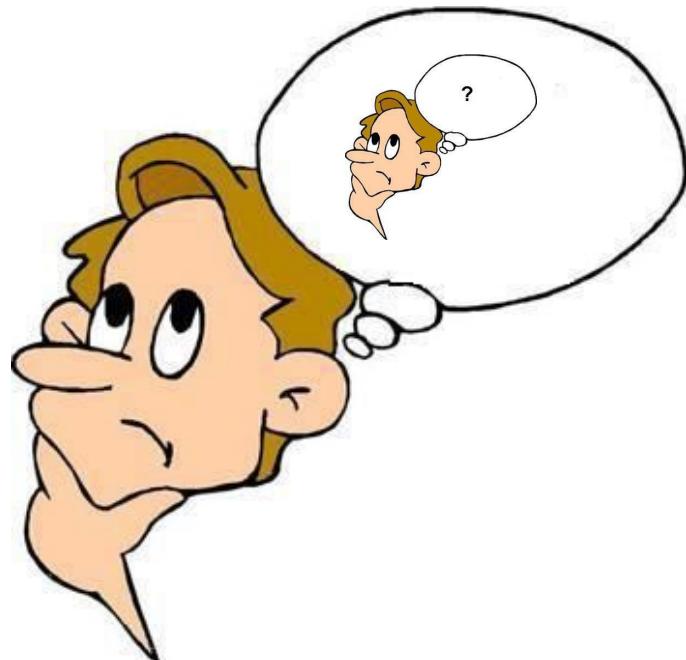
Thinking about Thinking

# Metacognition in a nutshell

Meta - referring to itself

Cognition - referring to thinking

It's like Inception!



# How to do Metacognition? It's simple!

Ask how you're ingesting the material, and try to answer them

1. Before reading/learning, “what do I know about the topic?” “What don’t I know?” “What might I learn?”
2. While learning, “What don’t I understand?” “What’s confusing?” “Why is it confusing?” “What do I really get?” “Do I think this is true?”
3. After learning, “What did I learn new?” “What did I really understand?” “Which ones don’t I understand?”

**It's literally just asking yourself questions in your head!**

But by doing so, you give your mind a **feedback loop** to make it learn better. It works!

# Getting Meta with Metacognition

Read the document we gave you. In that document you will learn:

1. What is metacognition?
2. How to do metacognition?
3. Why is it useful in learning?

**Make sure you perform metacognition while reading!**

# Getting Meta with Metacognition

Read the document we gave you. In that document you will learn:

1. What is metacognition?
2. How to do metacognition?
3. Why is it useful in learning?

**Make sure you perform metacognition while reading!**

Pls share to the team:

1. What new things you learned
2. What you found most difficult
3. What you found easy

# Break



# Learning Hack #4

## Mind Maps

Organize your Thinking

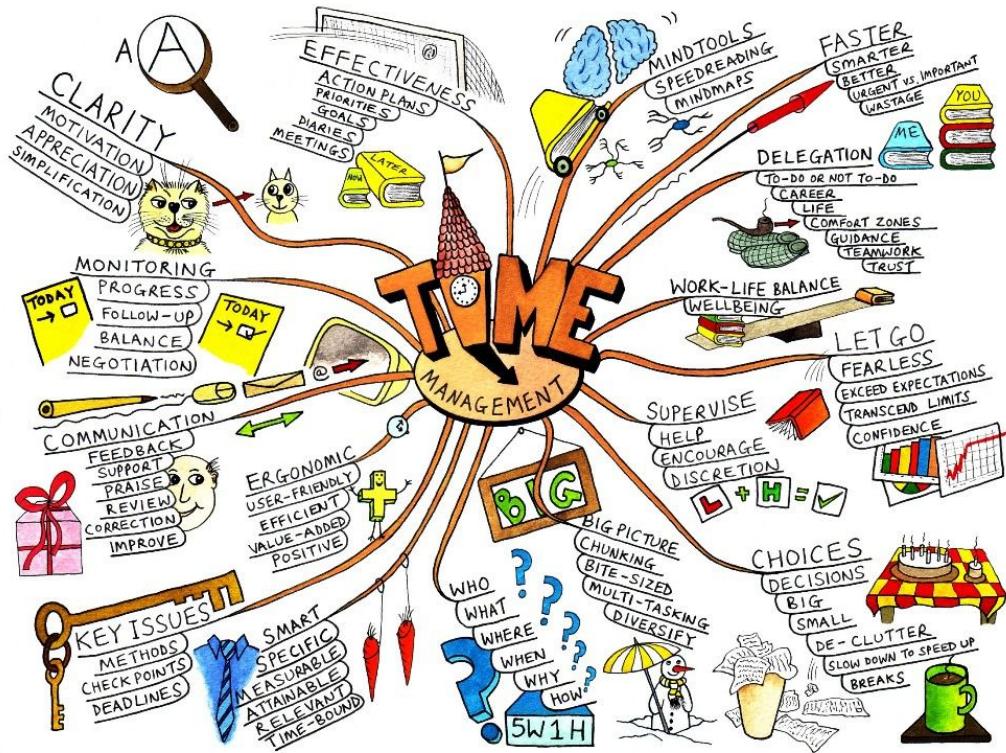
# What are Mind Maps

A way to write down information and visually show the connections between them.

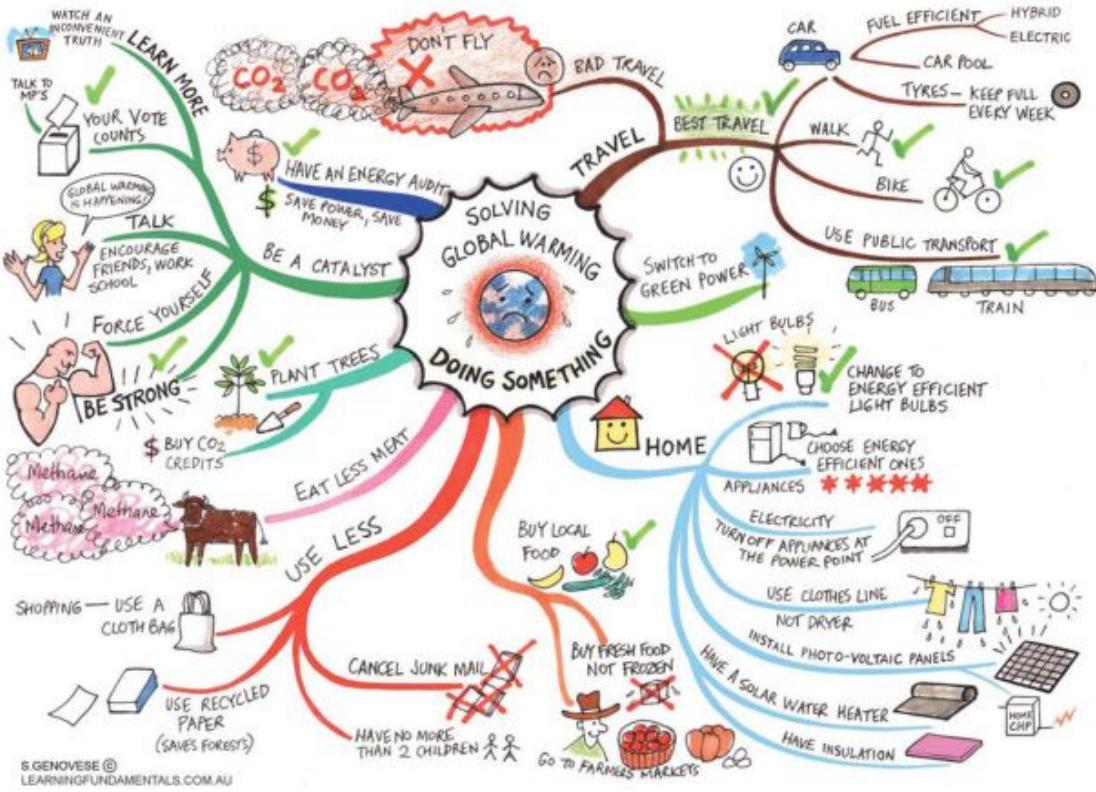
Can be used to enforce understanding through association

Can be used to aid in memory

# Examples of mind maps



# Examples of mind maps

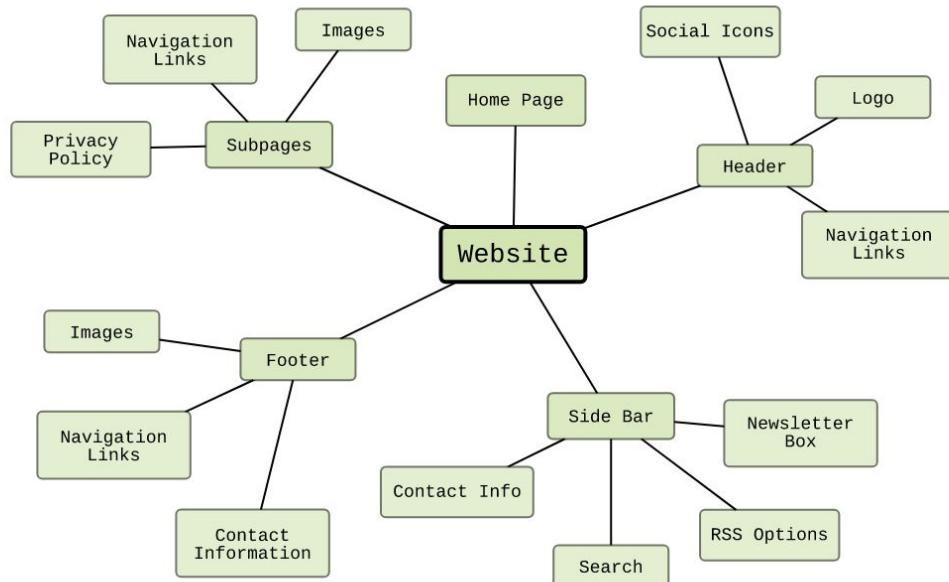


BRIDGE 360



recruitday.com

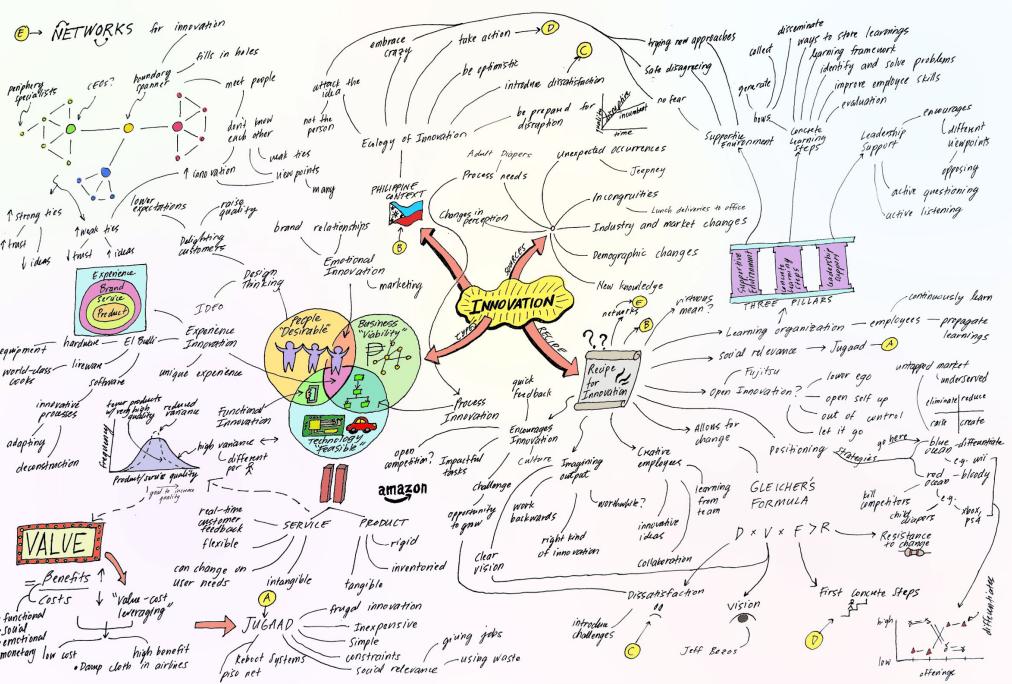
# Examples of mind maps



# Examples of mind maps

## Innovation Mind Map

LT2 - Alba, Tristan, Dy, Brian, Javier, Prince, Teves, Jude



BRIDGE 360  
Ideate. Innovate. Initiate.



recruitday.com

**Exercise:**  
Make a mind map of  
**EVERYTHING** You LEARNED so far today

**Exercise:**  
**Present your mind map to everyone**

# Break



# Learning Hack #5

# Feynman Technique

Deep understanding by explanation

# Who is Richard Feynman



- Quantum Physicist
- The Great Explainer
- Nobel Prize Laureate
- Famous for Feynman's technique to learning

"I couldn't reduce it to the freshman level. That means we really don't understand it."

# How to do the Feynman Technique

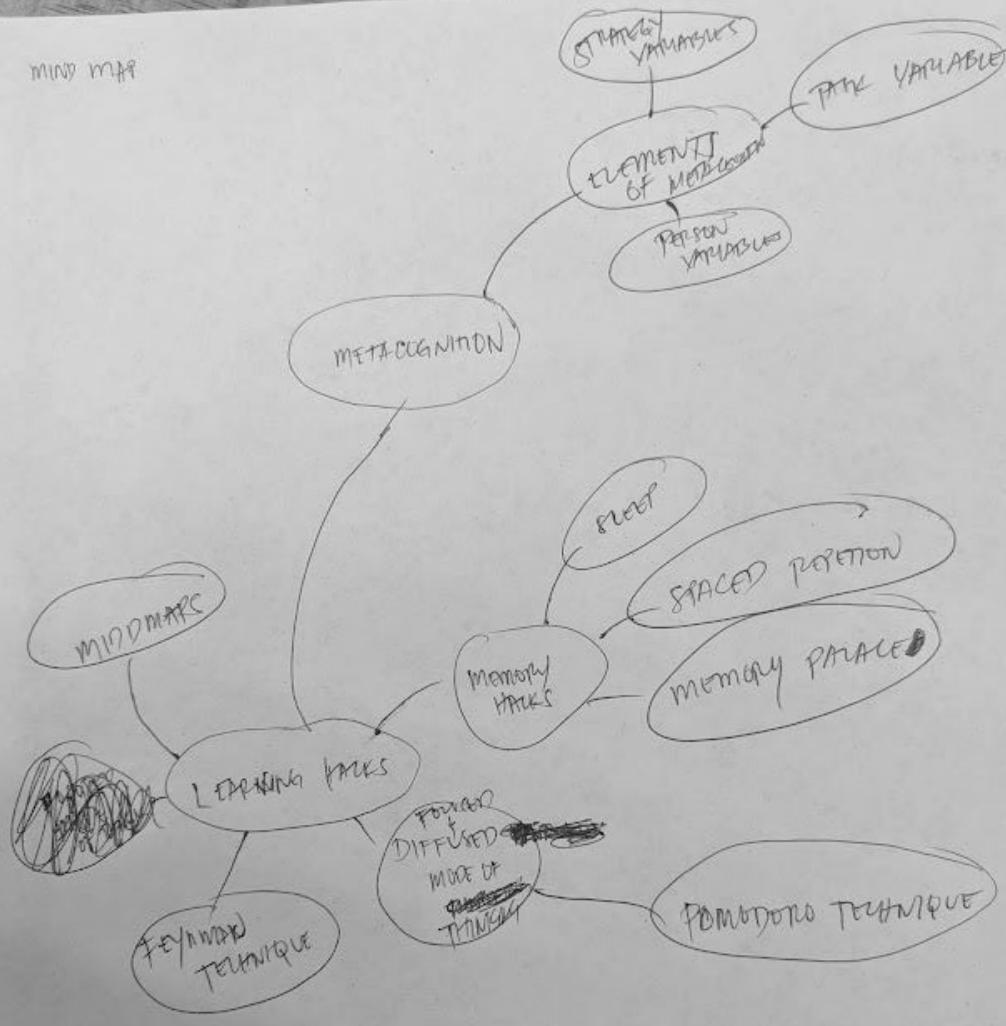
1. Find a subject you want to learn about
2. Write it down and explain as if you're teaching to a child (mind maps!)
3. Review what you know and don't know (metacognition) and try to understand (focused and diffuse)
4. Rewrite and explain

Optional but ideal: explain to a friend, esp. someone unfamiliar to the topic

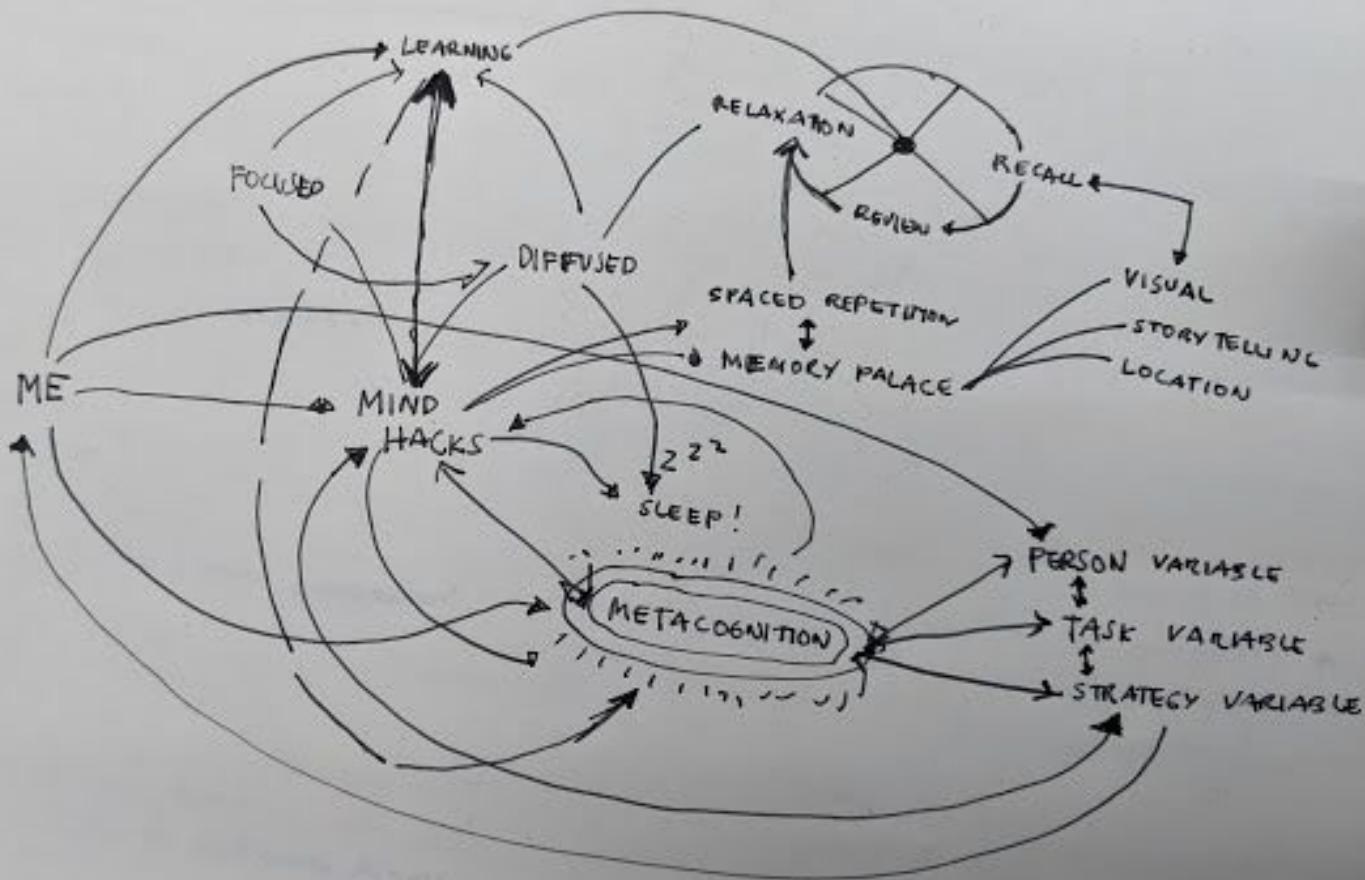
# Exercise

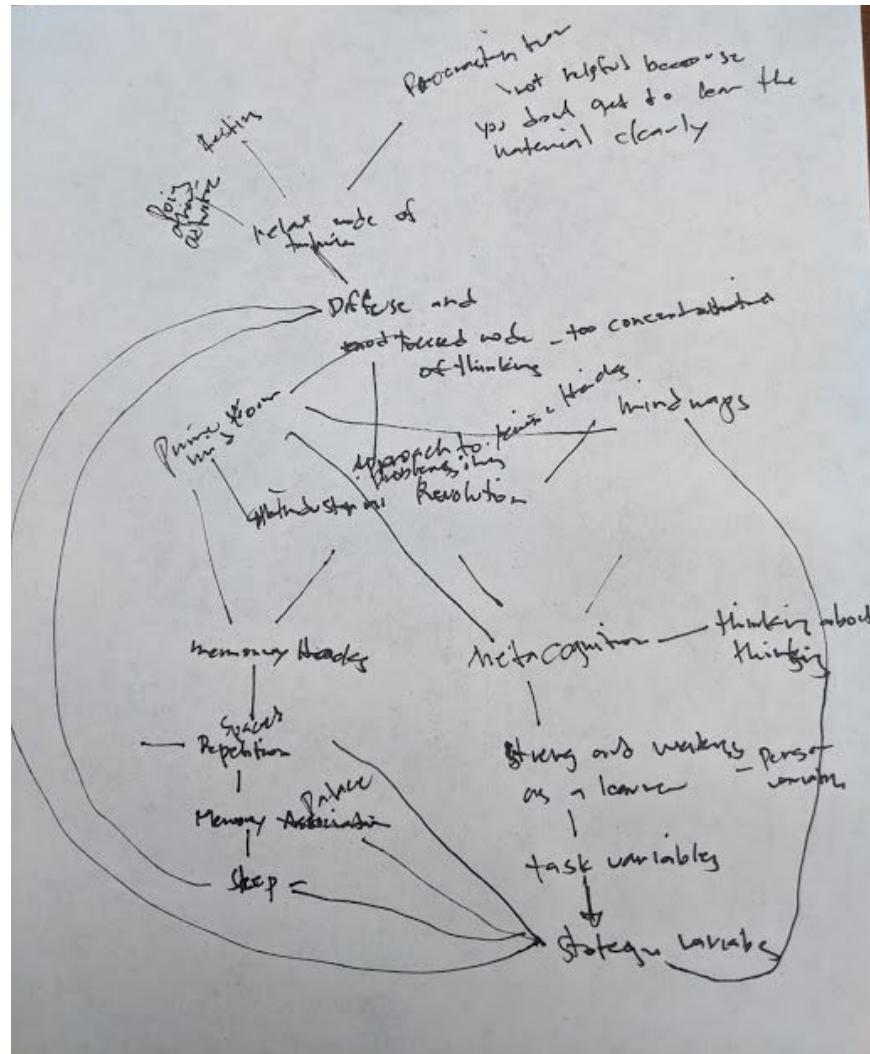
Add Feynman technique into your mindmap. Identify how does it connect to your mind map?

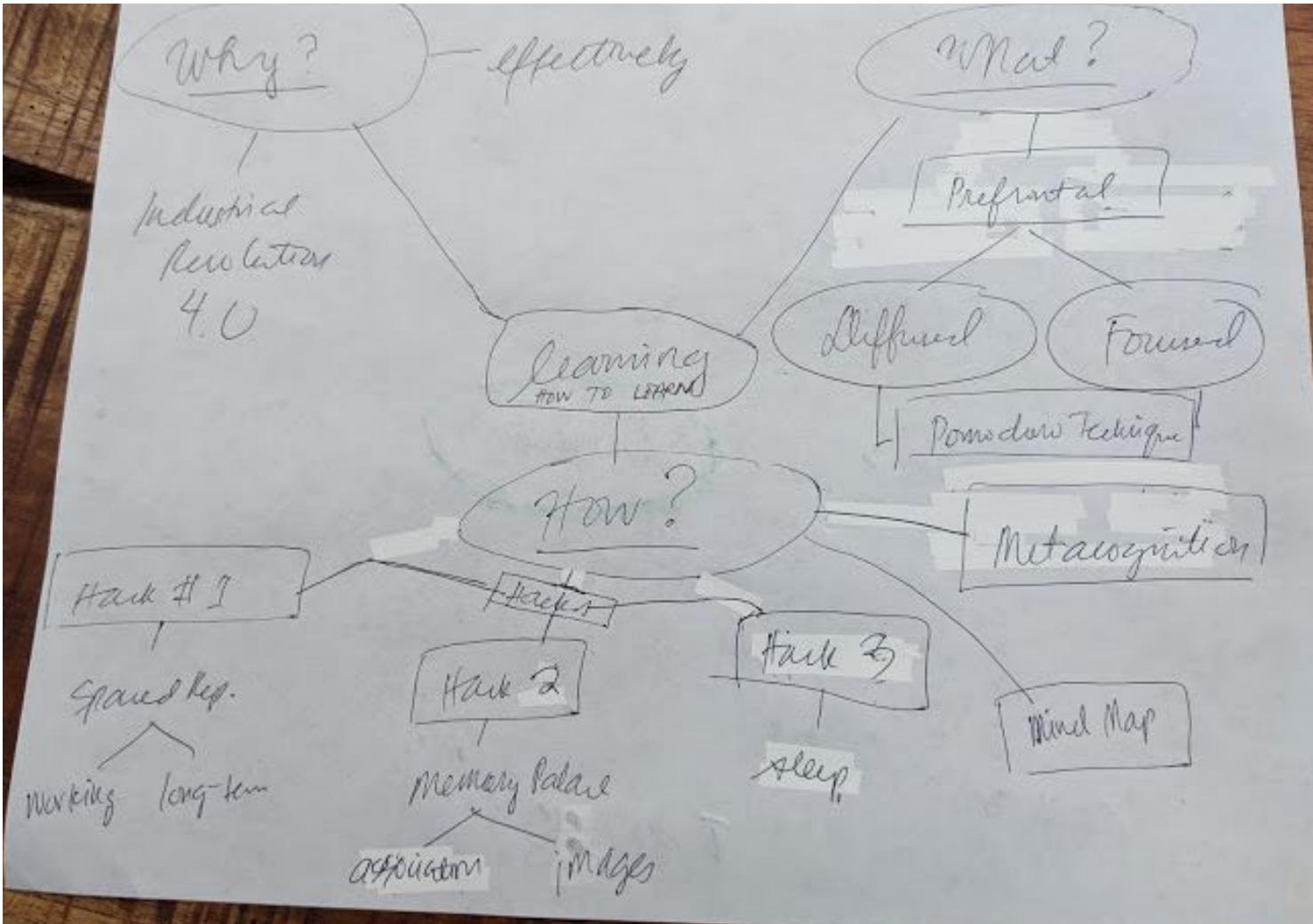
MIND MAP



# LEARNING HOW TO LEARN







# Learning How To Learn



# Exercise

Add Feynman technique into your mindmap. Identify how does it connect to your mind map?

For each member of your group

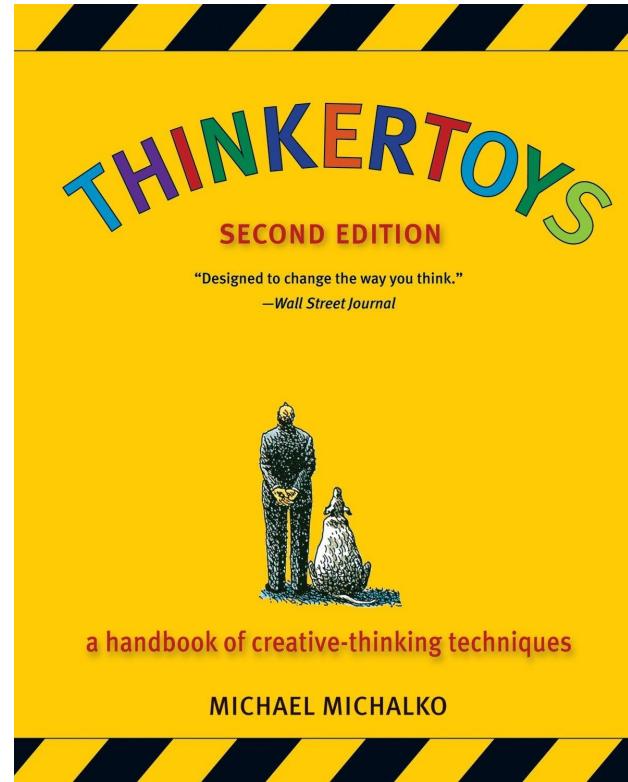
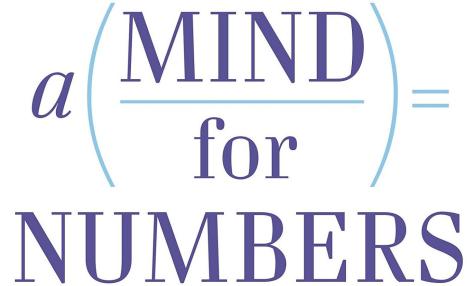
1. Decide a topic you want to talk about (unique per member)
2. Explain to your other teammates using the Feynman technique
  - a. Explain
  - b. Review and find gaps in your understanding/explanation
  - c. Re-explain

Each member must be able to explain at least one topic

# References

"A good teacher will leave you educated. But a great teacher will leave you curious. Well, Barbara Oakley is a great teacher. Not only does she have a mind for numbers, she has a way with words, and she makes every one of them count."

—Mike Rowe, creator and host of Discovery Channel's *Dirty Jobs* and CEO of mikeroweworks



Next: Design Thinking Workshop

# Evaluation

<https://bit.ly/31LSqNI>

