Learning How to Learn Slidepack

KevinHo

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Author

Hi I'm Kevin Ho.

I'm now developing this slide pack as a way to consolidate the lessons I've recieved from the Coursera Course "Learning how to learn"
`https://www.coursera.org/learn/learning-how-to-learn`

Why am I using R? Because I'm learning that too through the Coursera Data Science Specialisation. So by building this in R I hope to build skills as a data scientist.

About this pack

The content of this pack is designed to serve as a summary or a cheat sheet.

The course itself was (cleverly) designed to using the lessons taught in the course. I reccommend going hrough the course to get a feel for a material and to use this pack as reference only.

Also I've pieced this together randomly but through a checklist. This should help interleave my learning and maybe yours!

Thanks for reading, learning, and caring for your future.

Lets go!

Contents

- Concepts
- Brain chemistry
- Techniques

Concepts (Memory)

Short term meory is like a fuzzy blackboard. You can only focus on a few things at a time and if you don't stay focused on them they'll disappear.

Long term memory is like a storage warehouse where you can pull out concepts ideas or neurons.

As you start learning concepts and material (recall especially) this helps solidify your long term memory. Each time you're forced to remember something it goes through a process of reconsolidation. But just by recalling you might create a false memory. So its good to test and check.

Concepts (Thinking Modes)

There are two modes of thinking. Focused and diffuse modes. When you're focused you're using your working memory in your prefrontal cortex. You'll this is when you're trying hard to understand a concept.

Diffuse mode is when your mind is relaxed and wandering around. However having a diffused mode of thinking after focused allows your brain to make more creative connections in the material you're trying to learn.

Both modes of learning are important to help understand material.

Study material before you sleep, get enough sleep, exercise, use pomodoros, and use the hard start jumpt to easy technique to help utilise your diffuse mode of thinking.

Concepts (Chunking)

A chunk is a group of neurons that is used to firing together. It represents and idea or concept that you have learnt. By learning the bigger picture you can piece chunks together. By testing your chunks in different situations (interleaving) you can grow your chunks and compress them in your working memory. This allows you to then creatively piece together bigger ideas in your working memory to understand even more abstract things.

Concepts (Habits/Zombies)

You willpower is limited. Therefore it is imperative that you form proper habits so that your default modes works for you and your goals.

You have bad habits like procrastination. This is when you try to do something your brain doesn't want to do because it actually feels pain when associated with the ideas. But if you preservere the pain will go away.

Make a plan for each habit you want to change. And the change will come easier. Remeber the 4 parts, Cue, process, reward and belief. When your plan succeeds CELEBRATE!

Brain Chemistry (Parts of the brain)

Your focused mode occurs in the prefrontal cortex. This lights up when you're concentrating. When you're in the diffused mode of thinking your default mode network lights up.

There is also the left and right part of the brain. The left is more active when focusing on a hard topic and procedural. The Right is more about the big pictures. When dealing with problems give both sides a chance to examine it.

Brain Chemistry (Helpful habits)

Sleep. While you're awake your brain produces toxins. Sleep also helps consolidate material you've learnt that day.

Exercise. It helps produce more neurons especially in the hippocampus

Interact with others about a topic. Make sure you stay focused. It helps get around einstellung and allows for more creative thinking.

Reward. When you reward yourself for completing these habits your get a release of dopamine. This helps solidify those habits.

Brain Chemistry (Chemicals)

- Acetylcholine - This chemical makes neurons connect together better
- Dopamine - This is the reward brain chemical. This can occur for things you want and don't want to do
- Seretonin - This chemical is more prevalent in social leaders of groups.

Learning is heavily driven by emotion. Learn how to harness your moods to produce the best out of these chemicals.

Techniques (Pomodoro)

Have a timer. Set it for 25mins. For that time be focused and work hard.

After that relax for 5 mins. Reward yourself with meditation, a warm drink, stretch, a mental high-5.

This is a process and not a product. And the reward will reinforce the habit of repeating the process.

Techniques (Stop Procrastination)

- ► Eat the frog, do the hardest thing first
- ► Keep a planner jounral so you can see what works
- ► Plan an end time to the day
- ► Delay rewards until you finish the task. Your brain will try and rationalise why its OK to deviate.
- ► Setup Routines and habits (work and play time). Commit to them
- ► Gain trust in the system
- ► Have backup plans for when you still procrastinate

Techniques (Spaced Repetition)

You brain remembers things better if you repeat recalling the material. Especially at increasing time intervals. You're better of spending 10mins a day over 6 days revising than doing 1 hour all in one go.

Use Anki and flash cards or other testing techniques to help solidy this method.

Also try to modify the enviroment or the way you recall. Your brain picks up mental cues from your enviroment so when you're in a test room under pressure it might be suddenly hard to remember the material.

Techniques (Picture Walk THEN focus)

Take a picture walk of the chapter before you read the material in detail. This helps setup the bigger picture or framework of what you're trying to learn. This includes reading chapter headings

Techniques (Mind Palace)

This is a method to remember a list of unreleated items

1. Think of a place you know very well. Like your home or school.
2. As you go through each section or room in your home place an item from you list into that room.
3. Imagine the silliest metaphor or analogy of that item. Picture it. Feel it. Smell it. Hear it. Pretend to be it. The more you engage your mental senses the easier it'll be to remmeber the item in the room
4. Repeat for each item
5. Then when you recall walk through the house again and it'll be easier to generate mental images of each.

Its surprisingly effective at first and becomes more efficient the more you practice the technique.

Techniques (Nerves)

Its normal to be nervous in a test situation. However there are ways to deal with it

- ▶ Just telling yourself that you're excited and not nervous can immediately calm you down
- ▶ Take deep belly breaths to slow down your heart rate (practice this before the test)
- ▶ Splash cold water across your face
- ▶ Hold your breath for 30 seconds and exhale slowly
- ▶ Sleep. Its so important.

KH: I added some techniques that I learnt from free diving. Google "mammilian dive reflex" if you want to know more about staying calm

Techniques (Chunks)

Get an overview of the material first before learning it in detail. Like the picture walk.

As you learn each chunk test yourself. Test yourself in areas where you're weakest at. Then randomise your recall to interleave your learning. This will help you build context so you know all the chunks, when to use them, when not to use them, and the concept that ties them all together.

Techniques (LADY LUCK FAVOURS THOSE WHO TRY!)

Even if its hard, the next piece will be easier

THANKS FOR LEARNING ABOUT LEARNING!