LEARNING HOW TO LEARN:

POWERFUL MENTAL TOOLS TO HELP YOU MASTER TOUGH SUBJECTS

JAN 2015 SESSION ON COURSERA

Final Project by Justin Cano

(use your arrow keys or the buttons on right to navigate)

INTRODUCTION & PURPOSE

Hi there. If you landed here, chances are you're taking Professor Barbara Oakley's Coursera class on Learning How to Learn, and you're here to peer review or to just take a look at my final project. If not, that's cool too :)

The purpose of this slideshow presentation is for me to exhibit what I've learned from taking this class. Hopefully, you'll learn something from this, too!

TOPICS COVERED

This project aims to cover three (3) topics that I've especially enjoyed learning from taking this class:

- Focused and diffused modes of thinking
- Procrastination
- Chunking

FOCUSED AND DIFFUSED MINDS

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Did you know that our brains operate in two different kinds of states? Even if you didn't, it makes sense once you understand them.

Basically, our brain switches between these two states or modes whenever we are in the process of learning something (and we're *always* learning something!). These modes are known as the **focused** and **diffused** modes.

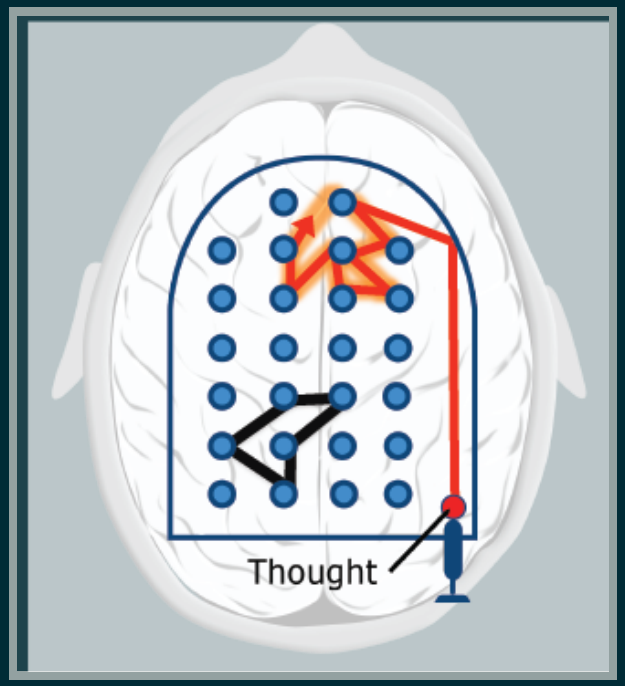
ANALOGY

Professor Oakley explained early on in the course that one of the best ways to learn is to use an analogy to help better understand an idea.

We can think of our thoughts as neurons rapidly traveling throughout our brain.

In conjunction, we can think of our brains as pinball machines and neurons as the pinball. Following this analogy, we can then start to think of a *thought* as the pinball (*neuron*) moving throughout a pinball machine (our *brain*).

FOCUSED MODE



You're probably already familiar with the **focused** mode. Our brains enter this mode when, well, we are trying to focus or concentrate on something (like when we are trying to solve a math problem, for example).

During this mode, the neurons in our brains travel tight paths to try to reach memories and experiences we are familiar with.

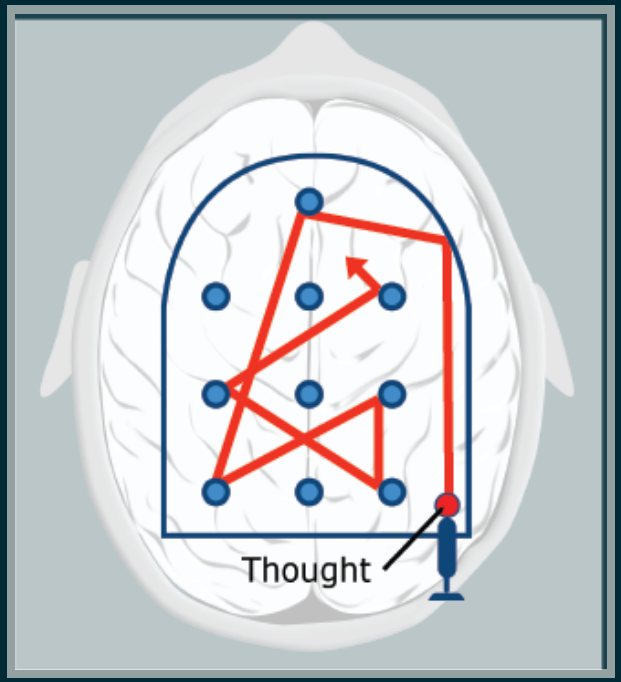
2 + 2 = ...?

For example, we know that 1 + 1 = 2 (at least you should know this!).
For the sake of this example, pretend that you don't know what 2 + 2 is equal to.
If this is the first time you're trying to solve 2 + 2, your focused mind reaches into your previous knowledge and experience and remembers that 1 + 1 = 2.
From here, you can begin to understand how addition works, and can figure out that 2 + 2 = 4!

DIFFUSED MODE

Your diffused mode of thinking switches on when you're out of focused mode.

In this mode, your brain is more relaxed, allowing thought neurons to travel more freely throughout different regions in your brain and may help open you up to new ideas that weren't immediately available from the more constrained mode of focused thinking.



ZOMBIE BRAIN

Though you may not realize, your subconscious is working in the background, and your "Zombie" brain takes over.

So if you're having a hard time trying to understand a complex idea or concept, just take a break! When you switch back to your focused mode, you may discover something you didn't realize before.

PROCRASTINATION

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Procrastination is something we all fall victim to at some point (me especially!). Contrary to some belief, putting off things until the last minute is not an effective way of learning.

WHY DO WE PROCRASTINATE?

The explanation is pretty simple: when we are faced with a little bit of discomfort or anxiety from having to deal with working or starting an assignment, we try to funnel our attention onto a more pleasant task (such as watching TV or surfing the internet).

By doing so, we present ourselves with a (brief) reward of feeling happy. But this feeling lasts only temporarily!

THE PROCRASTINATION HABIT

If you find yourself getting into the habit of procrastinating, it typically goes something like this:

1. The ***cue*** - what kicks off your habit
2. The ***routine*** - what you do when the cue occurs
3. The ***reward*** - the brief reward of happiness when performing your routine
4. The ***belief*** - the belief that this is all a habit of nature and you can't change (but you can!)

THE PROCRASTINATION HABIT

If you find yourself getting into the habit of procrastinating, it typically goes something like this:

1. The ***cue*** - text message
2. The ***routine*** - sending a response
3. The ***reward*** - chatting with friends and avoiding *boring* work!
4. The ***belief*** - if I don't respond in a timely manner, my friends won't like my anymore :(

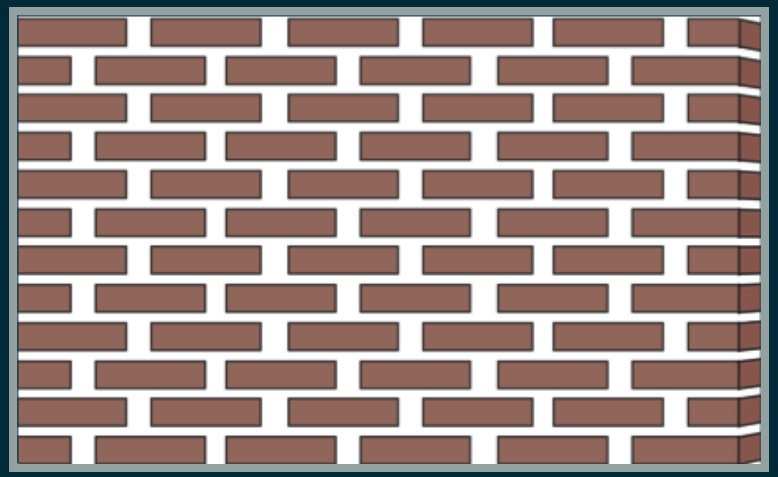
WHY IS PROCRASTINATION A BAD THING?

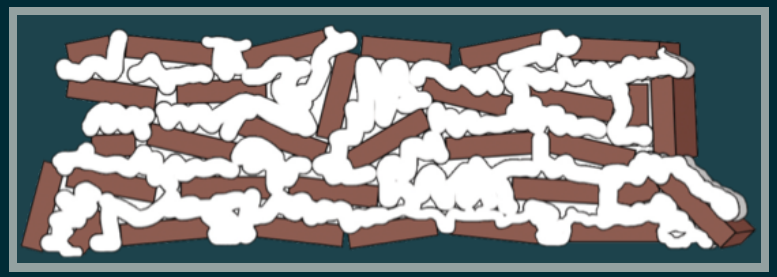
Effective learning happens when we create strong neural structures in our brains for our "thought neurons" to travel through.

The way we we create neural structures in our brains is by learning something new. We can strengthen these neural structures by gradually building upon these thoughts and ideas with more thoughts and ideas that relate to them, and we can continue to strengthen and reinformce these neural structures through ***recall*** and ***deliberate practice***.

DON'T HIT YOUR HEAD ON A BRICK WALL, BUILD ONE INSTEAD

Imagine the process of learning like the process of building a brick wall. A strong, sturdy brick wall takes time to build, brick by brick at a time, letting the cement dry and hold so that we may continue to add more bricks to it. If we procrastinate on building the wall, then we won't have time to let the cement dry, causing the wall to collapse!





BEATING PROCRASTINATION

Often, the reason why we procrastinate (on an assignment, for example) is because we think of the assignment as a whole (the ***product***).

We think may think something like, "Oh, this assignment is only 5 questions, I can put it off til later cuz I'd rather be surfing the web or something"...until "later" becomes the night before it's due!

But we can get over this! Usually, the hardest part is starting. If we focus on the ***process*** of working towards something, rather than the ***product*** of finishing the assignment as a whole, we can relieve ourselves of the anxiety of having to do so much work.

so much work.

THE POMODORO TECHNIQUE

So let's focus on the ***process***. The **Pomodoro Technique** is a way to help get yourselves into short, undistracted work sessions, while giving yourself a break in between sesssions.

HOW DOES IT WORK?

First, free yourself of all distractions - put away your phone, turn off the TV and even the internet if you have to. Get yourself into a comfortable work/study environment.

Then, set a timer for 25 minutes and begin to study - distraction free. When the 25 minutes is up, give yourself a short 5 minute break. Lather, rinse, repeat!

You'll find that you can get a lot done in just 25 minutes!

CHUNKING

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As I mentioned earlier, usually the hardest part of getting over procrastination is actually starting your work early. Aside from being able to beat procrastination, there (many) are other positive benefits to starting earlier.

One such benefit of starting early is that you have the ability to take in complex ideas by breaking them into *chunks*, and, once you start to form a "library" of chunks, you'll find that certain chunks can be related and begin to start building upon them.

BACK TO THE BRICK WALL

Remember the brick wall analogy a few slides ago? Well, let's dig a little deeper.

If we continue to follow the brick wall analogy, then "chunks" are your bricks. You'll start by laying out your chunks and piecing them together with cement. When the cement dries, i.e. you begin to understand the "chunked" ideas, you can continue to build your wall, laying down more chunks and strengthening those neural structures.

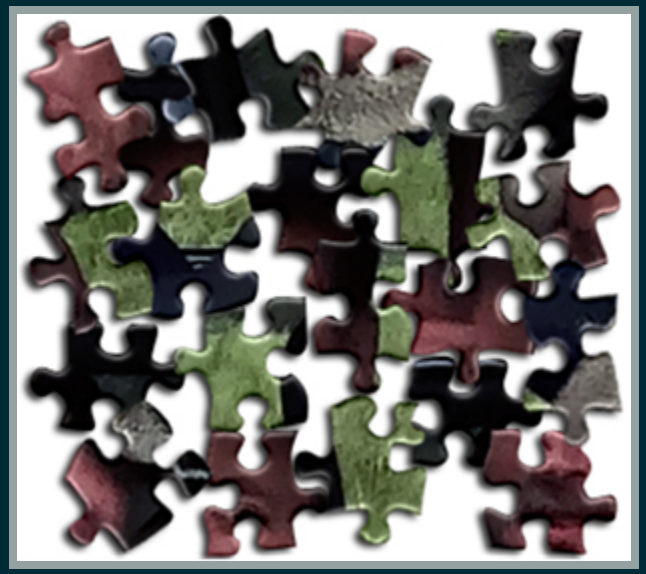
SO WHAT IS A CHUNK, ANYWAYS?

When you first look at a brand new concept, it sometimes doesn't make much sense. A ***chunk*** is only a small part of that concept that you can understand. By *chunking* complex ideas into smaller bits and pieces, you can then piece them together to help you understand the concept as a whole.

"Chunking is the mental leap that helps you unite bits of information together from meaning." - Barbara Oakley

JUST PIECES TO A PUZZLE

If we think of a complex idea as a huge jigsaw puzzle, then ***chunking*** is synonymous to first putting together smaller pieces of the puzzle to see smaller parts of a larger picture. When we collect a "library" of chunks, its easier to see how it all fits together!



CONCLUSION

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Thank you for making it this far and watching my presentation!

These are topics that I have already applied to my life, both as a working professional and a lifelong learner. I have learned a lot by taking this course, and I hope that it will enourage you to take the class as well!

THE END

CREDITS

- All images from Professor Barbara Oakley's lecture slides from Learning How to Learn: Powerful mental tools to help you master tough subjects via Coursera
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