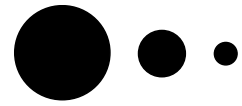


# **THE GROWTH MARATHON**

**One Stride At a Time**



**KNOWLEDGE**

**EMPATHY**

**WRITING**

**ON READING PT.2**  
**UNDERSTANDING**

**MEMORY**

**ELOQUENCE**

**VOCABULARY**

**TGM**



**THE GROWTH MARATHON**  
— One Stride At a Time —

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## Introduction

The objective of this three-part article series is to answer the following:

Why we read – How to read (and remember) – What to read

The “Why we read” aspect is covered in [Part 1](#). I suggest you have a look at it.

Always forgetting what you read? This second part covers aspects around how to remember what you have read, and to substantiate this, the Feynman technique is presented, which is an excellent technique to help understand and recall what you read. Let’s get into it.

(**Note:** Every time I say reading, I mean “Active Reading”, i.e., engaging with what you are reading.)

## Understanding and remembering what we read

The worse thing that can happen after you are done reading something interesting is forgetting what you read. It takes a few hours for some, a few days for others. Personally speaking, if I engage with material only once, after 2-3 days I can only remember a small percentage of whatever I read. I’ve been particularly horrible at remembering a lot of what I read, and this pushed me to do a bit of research on this. I’ll touch on some ways to remember what we read better, but let’s first have a look at the concept of “forgetting”.

Here comes **The Forgetting Curve**. This is a curve that shows how fast we lose information over time (forget) when we don’t engage with it, or when there is no attempt to retain it. This curve shows that human beings tend to half their memory of recently learned material in a matter of days unless they deliberately review it. This curve originates from the German psychologist Hermann Ebbinghaus’ (H.E) [self-study](#) between 1880 and 1885. He created a list of non-sense syllables (syllables created by using a consonant-verb-consonant sequence, e.g., WID, GAC, DOD etc.) and tried recalling them after different lengths of time. That’s some dedication right there.

## FORGETTING CURVE & SPACED REPETITION

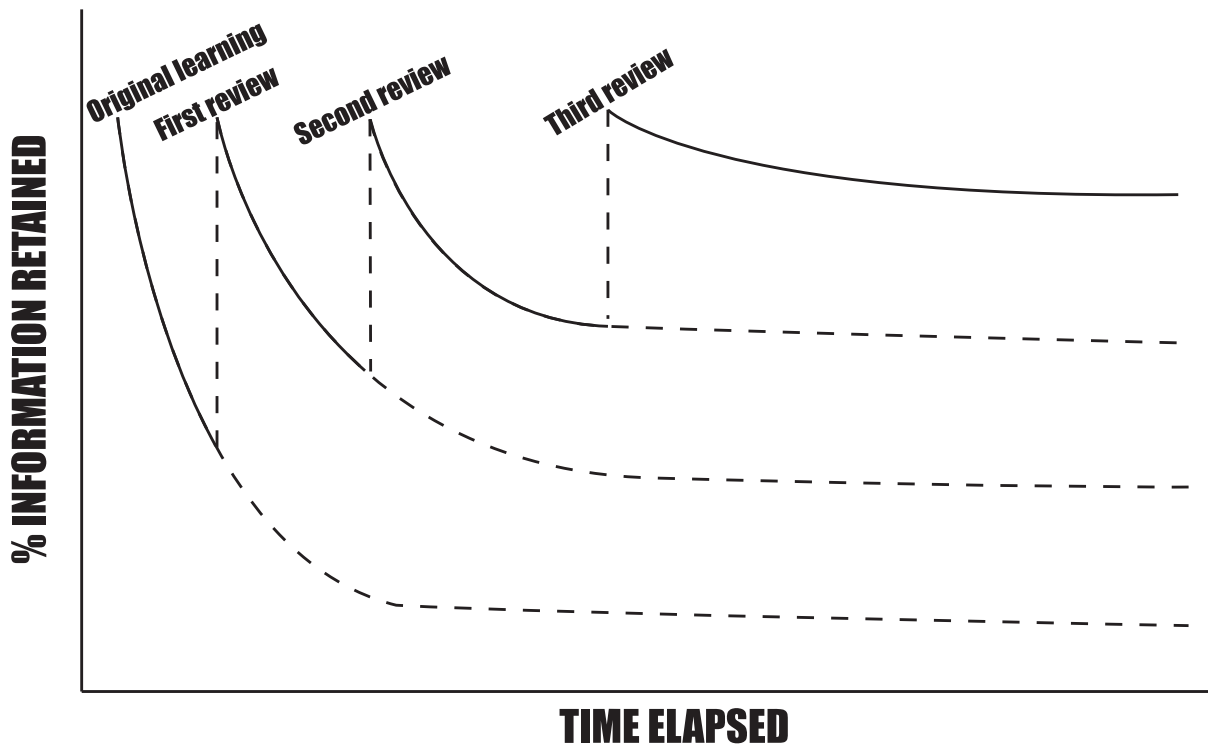


Figure 1: Forgetting Curve & Spaced Repetition (Source: [Mindtools](#))

The forgetting curve indicates that after a couple of days, we forget about half of what we've recently learned. By the end of a week, we have forgotten about everything. If we refresh our mind (via actively recalling information and then reviewing what we had forgotten) after a day, it resets the curve. This done multiple times (at different time intervals) is called **spaced repetition**.

According to his experiment, the basal forgetting rate differs little between individuals (i.e., in general, people forget at about the same rate). He also points out that the speed of forgetting depends on factors such as sleep, stress, difficulty of learned material, and representation.

His proposed methods to increase the strength of memory are:

**Spaced repetition:** Actively recalling information freshly learned after 24hrs resets the forgetting curve (remember, we forget the most after the first 24 hours). This reset needs to be done over spaced periods with the spacing between the resets increasing over time (from days to months).



**Better memory representation:** There are various ways to create better memory representation of concepts/ideas you are reading on. The idea here is to package the information in a way that your brain can easily recall. Mnemonic techniques are a good example (remember ROY G BIV? It's an acronym for the spectrum of colors red, orange, yellow, green, blue, indigo, violet).

**Overlearn:** H.E figured out that putting in more effort than the typical amount of effort when you learn something slows down forgetting.





9. **Instant practice:** This one is purely from personal experience. To solidify your understanding of a subject matter, apply what you have read as soon as you can. This will show you aspects you might not have considered when solely reading. If you read on ways to run, you'll only fully understand and appreciate if that knowledge was right or wrong after running yourself. In a similar vein, you'll only be able to appreciate the knowledge presented in this article if you put it to the test.
10. **Personal summary:** This forces you to actively recall what you have read and write it down in a concise form. This allows you to think through what you have read and highlight the most important aspects in your mind, before writing them down.

	<b>10 TIPS TO UNDERSTAND AND REMEMBER WHAT YOU'VE READ</b>	
<p><b>1. DEFINE THE PURPOSE OF YOUR READ</b>                  To make deliberate reading easier to recall, answer the question "What do I want to read and why?". This primes your brain to receive the information.</p> <p><b>2. PUT INFORMATION INTO YOUR OWN WORDS</b>                  Force yourself to break down what you have read and express it in a form you are familiar with.</p> <p><b>3. COME UP WITH QUESTIONS AND ANSWER THEM</b>                  Coming up with questions about the subject matter you are reading and answering them to a satisfactory level helps you gain a better insight into what you read.</p> <p><b>4. USE IMAGES WHERE POSSIBLE</b>                  The human brain remembers images better than words. Visualize the material you are reading or try find images related to it. It will help facilitate your recall.</p> <p><b>5. CATEGORIZE WHAT YOU ARE READING</b>                  Whenever information can be classified, doing so makes it easier for the brain to recall the information.</p>	<p><b>6. USE MNEMONICS</b>                  Quite effective to recall names, and groups of words. Remember the color spectrum? R-O-Y-G-B-I-V</p> <p><b>7. SPACED OUT LEARNING</b>                  The more you space out your learning and actively recall material learnt, the more it moves into your long-term memory .</p> <p><b>8. ASSOCIATION</b>                  To transfer information to long-term memory, it is helpful to link it to information you already know.</p> <p><b>9. IMMEDIATE PRACTICE</b>                  To solidify your understanding of a subject matter, apply what you have read as soon as you can. This will show you aspects you might not have considered when reading.</p> <p><b>10. PERSONAL SUMMARY</b>                  This forces you to actively recall what you have read and write it down in a concise form.</p>	

The above, are pointers I organized from the various sources I found, but there is a dedicated technique to understand what you are reading, it is called the Feynman Technique.

## The Feynman Technique

Considered by some as the best way to learn anything, this technique was put forth by Richard Feynman, a Nobel prize-winning American theoretical physicist (amongst other things) who lived between 1918 and 1988. He was acclaimed as one the greatest science teachers, with the ability to break down and explain complex scientific principles in plain and easy-to-understand language. This technique is derived from Feynman's studying methods when he was a student at Princeton.

To get the best out of this technique, have a notebook or something to write on when going through the steps of trying to understand a concept. This technique consists of 4-steps as shown below:

1. **Identify the subject:** The aim of this step is to write down all you know about a subject after you have studied it.

- Pick a subject
- Read about it
- Review it in your mind
- Get a notebook or paper and write that subject as a title
- Write down all what you know about that subject (from your mind).
- Add any additional material you study in those notes.

Once you are comfortable with that, move to the next step.

2. **Simplify it (Teach it to a child):** Let's point out 2 key limitations of a child (Around 10 - 12 years old):

- Cannot understand dense vocabulary or jargon.
- Has short attention span

You need to be able to explain a complex concept to a child while considering the above limitations. Definitely not an easy task. Ensuring this is possible will force you to understand the concept better and be creative in how you write it down. The less jargon you use, the better grasp you have of a concept. Use analogies and visual references when possible.

In this step take the notes you've already made and simplify their language for a child to be able to understand. Once done, go and explain it to people you know and see if they understand. They will probably have questions for you that you can use to further your understanding of the concept.

3. **Identify your knowledge gaps and fill them:** Simplifying the language of your notes will allow you to find the gaps you have. Write them down and research on each of those gaps thoroughly. Once you have covered those gaps, you can move to the next step.

4. **Review:** Once you have closed your gaps, piece your notes into a concise tale. You can read it out loud to figure out where the language seems complex or where something does not make sense for example. Use analogies to strengthen your understanding.

Once done, go and run it by a few people again and figure out if they understand it better. Once you are satisfied with the level of understanding you obtained and the quality of your notes, keep them in a safe place (having a digital copy will be best I think). Whenever you want to refresh your mind on that concept you can use those notes.



<b>FEYNMAN TECHNIQUE 4- STEPS</b>	<b>1. IDENTIFY THE SUBJECT</b>	<b>WRITE DOWN ALL YOU KNOW ABOUT A SUBJECT AFTER YOU HAVE STUDIED IT</b>
	<b>2. SIMPLIFY IT (TEACH IT TO A CHILD)</b>	<b>EXPLAIN THE CONCEPT YOU HAVE STUDIED SUCH THAT A CHILD CAN UNDERSTAND (SHOULD BE VOID OF JARGON AND CONCISE)</b>
	<b>3. IDENTIFY KNOWLEDGE GAPS AND FILL THEM</b>	<b>AFTER STEP 2, YOU WILL FIND GAPS, WRITE THEM DOWN AND RESEARCH ON THEM</b>
	<b>4. REVIEW</b>	<b>ONCE YOU ARE DONE, PIECE YOUR NOTES INTO A CONCISE TALE. REVIEW THEM AND ONCE SATISFIED WITH YOUR UNDERSTANDING, KEEP YOUR NOTES IN A SAFE PLACE.</b>



We have through why we read and ways to understand what we read. Next, we will look at how to read a book. You obviously know how to read right? Well... Let's see.

## Conclusion

This article touches on ways to understand and remember what we read. Some research done by Ebbinghaus is presented, depicting the forgetting mechanism and ways to strengthen memory. Elaborative rehearsal which helps in understanding what we read better is equally presented. The article closes off with the Feynman Technique, an absolutely brilliant technique to help one get a better understanding of concepts, subjects etc.

I think the content of this article will be relevant to anyone who is trying to continuously learn in life. The worst thing that can happen after you read something of interest is to forget about it.

I hope you enjoyed this article. The third and final part will cover the aspects "how to read" and "what to read".

What's your best takeaway from this article? Let me know in the comment [here](#).

