

SCIENCE OF LEARNING TAKE - OVER (PART 2)

Did you know?

Your brain contains **billions** of neurons (scientists estimate about 86 billion to be more precise!)

Neuroplasticity is the brain's ability to change over time. Children's brains have a far greater capacity for change than adults' do!

Learning causes a physical change in the brain as neural pathways are strengthened.

Studies have shown that people who are bilingual, people who can juggle and even London taxi drivers who have to memorise complex route maps all have certain brain areas that are larger than controls!

True or false?

1. Revision is relearning information in preparation for tests and exams.
2. Rereading information is a good way of learning.
3. You need to be looking at the information in order to learn it.

Read on to find out which ones are true, and which ones are false!

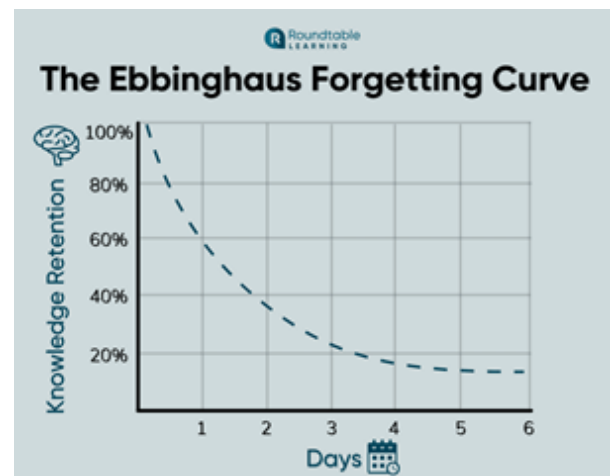
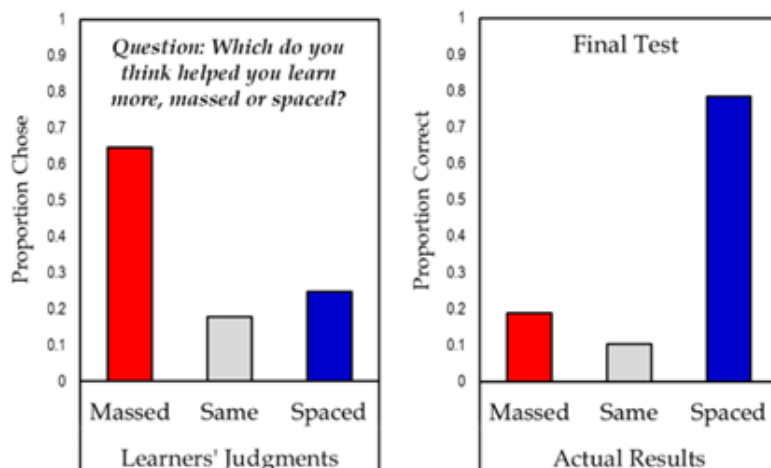
Revision Myths

What is revision?

Myth: revision is relearning information in preparation for tests and exams.

Reality: revision is what we do to prevent forgetting happening in the first place!

The Research: research shows that forgetting happens gradually over time, but by rehearsing information we can prevent this forgetting from happening at all. **Spaced practice**, where rehearsal is repeated at regular intervals over time, is vastly more effective than cramming lots of information right before a test, despite what people commonly believe! This can be seen in the results of the study given here (Appleton-Knapp, Bjork and Wickens, 2005) where people believed massed testing (all in one go) was more effective than spacing learning, while the results of the test showed the complete opposite!



Research also tells us that new knowledge builds on existing knowledge, and revision can help students to have a really secure knowledge base on which to build over time.

SCIENCE OF LEARNING TAKE - OVER (PART 3)

What makes revision effective?

Myth: rereading information is a good way of learning.

Reality: active revision strategies are much more effective in the long term than passive ones.

The Research: a well known study by Craik and Lockhart demonstrates that learning is much more effective when people have to do something active with the information. In one study, participants were presented with a series of words. For some words, they just had to process the word quite superficially (e.g. decide if the word rhymed with another word) while for other words they had to process the word at a deeper level (e.g. fit the word into a sentence). The researchers then retested them and found that the words they had to process at a deeper level were recalled far better than the words they processed at a more superficial level. The theory behind this is that we are more likely to remember something when we actively engage with it.

Examples of more active revision strategies include:

- Making flashcards or quizzes of information.
- Making mind maps with pictures or links between information.
- Re-explaining what you have learnt to someone else.
- Fitting information into a knowledge organiser (such as the Cornell notes system).

The Power of Retrieval Practice

Myth: you need to be looking at the information in order to learn it.

Reality: you learn the most when you are testing yourself on what you know.

The Research: Many studies have demonstrated just how important testing yourself is when learning information. In fact, the more you test yourself, the more likely you are to retain that information in long term memory! This can be done in lots of ways, such as having a go at past papers, answering questions, or even just '**brain dumping**'. This is where you write down everything you know on a topic you've just learnt about. Not only that, testing yourself can help you to identify what you do and do not know, so you know where to focus your efforts next time.

Revision Top Tips

1. Revision is something that students should be doing regularly from Year 7 - and not just for tests!
2. Make sure revision is active, not passive. Avoid simply rereading, copying or highlighting notes.
3. Build in some form of self-testing to make revision even more effective.
4. Make sure you are organised! Make a plan for what you need to revise and when you are going to do it.
5. Aim for little and often.
6. Find a space that is free from distractions (e.g. put your phone on silent).
7. Trial different strategies for different subjects and find what works for you.