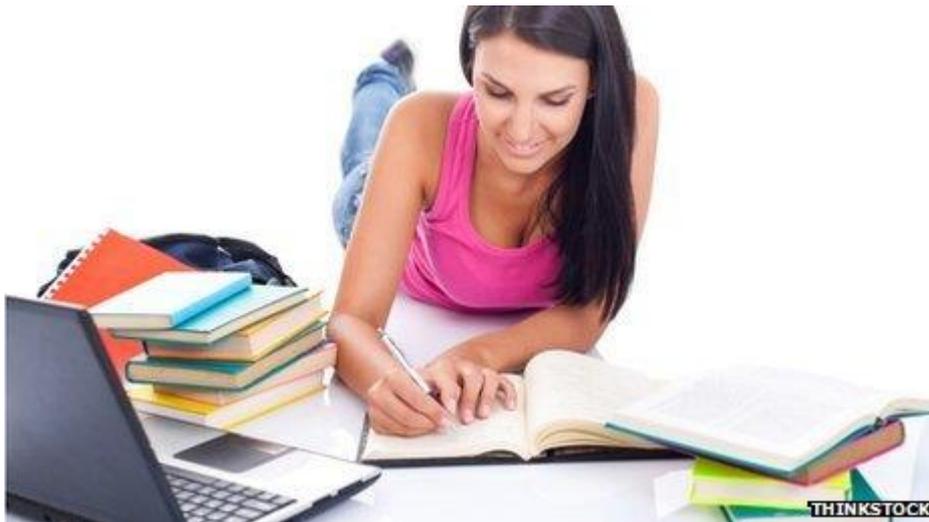


Revision techniques - the good, the OK and the useless



Revision charts, highlighter pens and sticky notes around the room are some of the methods people use to ensure information stays in their mind.

But now psychologists in the US warn many favourite revision techniques will not lead to exam success.

Universities, schools and colleges offer students a variety of ways to help them remember the content of their courses and get good grades.

These include **re-reading notes**, **summarising** them and **highlighting** the important points.

Others involve **testing knowledge** and using **mnemonics** - ways of helping recall facts and lists, or **creating visual representations** of the knowledge.

But **teachers do not know enough about how memory** works and therefore which techniques are most effective, according to Prof John Dunlosky, of Kent State University.

Help - or hindrance?

He and his colleagues reviewed 1,000 scientific studies looking at 10 of the most popular revision strategies.

They found that **eight out of 10 did not work**, or even hindered learning.

For example, many students love to take a highlighter to their notes.

But **Prof Dunlosky's research** - published in Psychological Science in the Public Interest, a journal of the Association for Psychological Science - **found that picking out individual phrases in florescent yellow, green or pink can hinder revision.**

"When students are using a highlighter they often focus on one concept at a time and are less likely to integrate the information they're reading into a larger whole," he says.

"That could undermine their comprehension of that material."

But he's not suggesting that highlighters should be abandoned as he recognises they are **"safety blankets"** for many students.

Teachers regularly suggest reading through notes and essays from lessons and making summaries.

But Prof Dunlosky says: "To our surprise it turns out that **writing summaries doesn't help at all**."

HOW THE TECHNIQUES FARED

- **Elaborative interrogation** - being able to explain a point or fact - **MODERATE**
- **Self-explanation** - how a problem was solved - **MODERATE**
- **Summarising** - writing summaries of texts - **LOW**
- **Highlighting/underlining** - **LOW**
- **Keyword mnemonics** - choosing a word to associate with information - **LOW**
- **Imagery** - forming mental pictures while reading or listening - **LOW**
- **Re-reading** - **LOW**
- **Practice testing** - Self-testing to check knowledge - especially using flash cards - **HIGH**
- **Distributed practice** - spreading out study over time - **HIGH**
- **Interleaved practice** - switching between different kinds of problems - **MODERATE**

"Students who go back and re-read learn as much as students who write a summary as they are reading."

Some revision guides advise using memory aids, or **mnemonics**.

Prof Dunlosky says they can work well for remembering specifics, like Richard of York gave battle in vain, which allows people to remember the colours of the rainbow,

But he warns they are **not applicable to other kinds of material**. "They won't help you learn long passages or mathematics or physics."

So what does work?

Only two of the 10 techniques examined turned out to be really effective - **testing yourself** and **spreading out your revision over time**.

"Students who can test themselves or try to retrieve material from their memory are going to learn that material better in the long run", says Prof Dunlosky.

"Start by reading the text book then make **flash cards** of the critical concepts and test yourself.

"A century of research has shown that repeated testing works."

This is because the student is more engaged and it is harder for the mind to wander.

He adds: "Testing itself when you get the correct answers appears to produce a more elaborative memory trace connected with your prior knowledge, so you're building on what you know".

Starting late

However the best strategy is to plan ahead and not do all your revision on one subject in a block before moving on to the next - a technique called "distributed practice".

Prof Dunlosky says it is the "most powerful" of all the strategies.