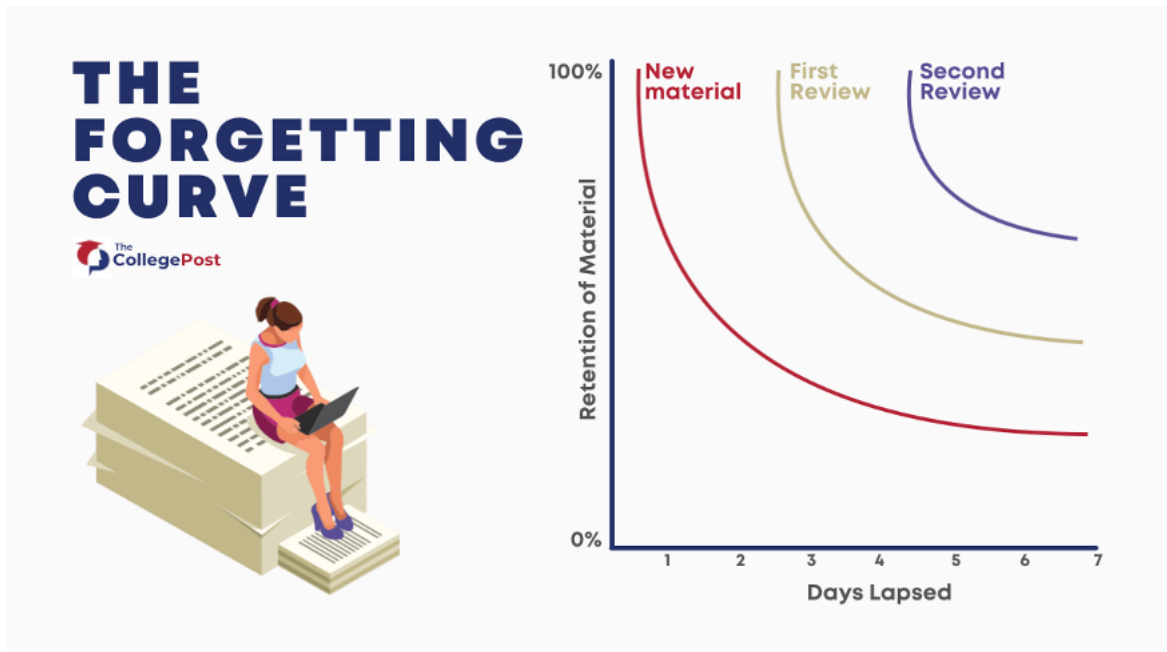


What does the research say about the most effective study techniques?

Distributed practice - Space out your learning over time.

Rather than intensively cramming right before an assessment, a more effective strategy is to distribute your study and learning over multiple sessions. This is known as *spaced practice* or *distributed practice*. By “spacing” learning activities out over time, you will be able to learn more information and retain it longer. The research says this, so why wouldn't you do it!

Unlike cramming, spaced practice involves multiple learning sessions, but each session is shorter. Having multiple sessions allows you to have a clear focus on a subset of materials during each session.



Each session is an opportunity for you to go back and review information that you previously learned. By repeatedly revisiting course materials over multiple sessions, you will be able to encode that information more effectively into long-term memory, fill in any gaps in your knowledge, and be better equipped to use that information on the next assessment.

The benefit of distributing learning over time is commonly known as the *spacing effect*. This effect has been demonstrated in over 200 research studies from over a century of research. Generally speaking, multiple practice sessions over time results in better long-term memory than a single practice session of equivalent duration or an equivalent number of repetitions.

How do I use spaced practice?

That's why we asked all students to create a flexible study planner at the start of the year to highlight all the available time they have available to embed distributed practice / spaced practice throughout a week. Make sure that you stick to the schedule and avoid skipping sessions. This will require discipline (that is, avoiding distractions and being committed to your learning activities on a regular basis), but when the SAC / exam date arrives, you will be better equipped to achieve a great result.

To sum up, when using distributed practice, you should:

- **Plan a “spaced” learning schedule ahead of time** – using the syllabus as a guide, create a schedule where you start preparing for the SAC / exam early (weeks / months ahead ideally),

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and continue doing so at regular intervals until the SAC or actual exam date (your learning should be distributed out over days / weeks).

- **Spend time preparing for the course at regular, periodic intervals** – follow through with your plans by completing multiple learning sessions at regular intervals. Unlike cramming, each session does not need to be very long and does not need to cover all course materials; you should divide up materials across the different sessions.
- **Focus on both new and old materials** – as you prepare for any assessment, be sure to learn not just new materials, but also go back and practice content that you have already learned. This helps reduce forgetting (your memories stay “fresh”). It can help to allocate a certain amount of time to new vs. old materials (for example, 75% time spent on new materials, 25% time spent on old materials).

To try this technique, review your material in spaced intervals using the Pomodoro technique similar to the schedule below:

- **Day 1:** Learn the material in class
- **Day 2:** Revisit and review
- **Day 3:** Revisit and review
- **After one week:** Revisit and review
- **After two weeks:** Revisit and review
-

THE POMODORO TECHNIQUE



Retrieval Practice

This technique refers to *what* you should be doing to prepare for assessments (that is, test yourself via practice tests or other recall-based techniques).

Learning scientists have determined that one method is especially effective at helping you retain information *and* successfully retrieve it later. That method is **retrieval practice**.

What you should be doing when studying for a course isn't just “studying”. A large body of research has shown that simply studying materials over and over (for instance, looking over your notes repeatedly) is not the most effective way to learn. Outlined below are the do's and don'ts for one of the most effective techniques to studying.

Don't: simply restudy information!

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One of the reasons why restudying, rereading, and reviewing are not the most effective learning strategies is because they do not involve the actual cognitive processes that SACs and exams require. Specifically, on most assessments you must *retrieve* information from memory. There are no notes, lecture slides, or textbooks to consult. As such, the more thoroughly you have absorbed course content – and the more able you are to successfully retrieve that information during an important assessment – the better you are likely to do.

Do: practice recalling information from memory!

After you have finished reading through a set of lecture slides, your notes, or the textbook, put it aside. Without looking at those materials, try to remember what you have just learned, either mentally or by writing it down. In effect, you are giving yourself a practice test. Some information will readily come to mind, and some information might not. Some materials might be completely understood, and other materials might not. After you have recalled as much as you can remember, go back and check the course materials. Determine if the information that you recalled was correct and examine those portions that you did not fully recall or did not fully understand. Then, repeat the process.

Technique	Effectiveness	Description of Technique
Practice Testing	High	Self-testing or using past-exam questions while learning.
Distributed practice	High	Developing a schedule of revisions / learning activities over time.
Elaborative Interrogation	Moderate	Thinking about 'why' you have answered a question or creating an explanation for a response.
Self-explanation	Moderate	Linking new information to known information or using applied questions (problem based learning).
Interleaved Practice	Moderate	Developing a schedule that mixes different techniques during a period of study.
Summarisation	Low	Writing summaries of concepts / area of study.
Highlighting	Low	The use of highlighters or underlining while read / rereading.
Keyword Mnemonic	Low	Use of key terms / acronyms / images to associate with concepts to be learned.
Imagery	Low	Attempting to form mental images of materials while reading.
Rereading	Low	Revisiting text that has already been read.

Table 1: Learning techniques and their effectiveness adapted from Dunlosky et al (2013) pg 6.

Source from: Samia Pinhas

If you have completed those steps, then you have just used retrieval practice. Retrieval practice involves recalling to-be-remembered information from memory. Retrieval practice – by itself and especially when accompanied by a subsequent check of course materials – is one of the most effective learning methods discovered to date. In fact, over 200 studies from over a century of research have demonstrated benefits of retrieval practice on memory.

How do I use retrieval practice?

There are many ways to practice retrieving information. It can be as simple as the example discussed above – put your course materials aside and simply try to recall information mentally or on a sheet of paper. Other ways to use retrieval practice include:

- **Use practice tests** – make your own practice questions, make and share questions with a study partner, use practice questions provided by the teacher or found in a textbook, or find questions from online sources (for example, Quizlet).

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- **Make flashcards** – this commonly involves writing on index cards (questions on one side, answers on the reverse). You can also make flashcards on a computer and print them out or use flashcard software systems.
- **Use a copy-cover-and-check method** – simply cover your lecture slides, attempt to recall, and then uncover to check. Like the method discussed in an earlier section of this page, this method has the advantage of requiring little-to-no added work before you start retrieval practice.
- **Answering “quiz” questions** - Get a friend or family member to quiz you on key concepts. Offer to help your friends with their work too. Quizzes are great ways to get confident about what you know and find out what you still need to learn.
- **Writing down all you can remember about a topic on a blank sheet**
- **Utilise practice tests and practice SAC:** Use practice tests / SACs or questions to quiz yourself, without looking at your book or notes.
- **Make your own questions:** Be your own teacher and create questions you think would be on a test. If you're in a study group, encourage others to do the same, and trade questions.
- Continue to **self-assess and reflect** on your work and learning using your development assessment rubrics. Self-assessment is a valuable learning tool as it can help identify your gaps in knowledge and skills, it can then assist in identifying what areas you need to focus your revision and study on, as well as help you track your own progress leading up to any exam or assessment task. You must ensure you have learnt the relevant learning intentions and success criteria after EVERY class. A question to ask yourself, what do I know and don't know?

Overall, by using retrieval practice, you are increasing the likelihood that you will successfully remember relevant information during your next high-stakes SAC and exam.

