Some Phenomena of Memory Applied to Studying

Over the past century, research in learning, memory and cognition has produced several strategies that will help make your study time more effective and help you remember what you learn. This list summarizes some of the most important findings. One thing that you will notice is that the strategies are **active**. They require your attentive, involved participation. Your brain is not a passive sponge!

1. **Elaborate: Reading the book or attending a lecture is only the first step.**
   - ☞ Make up questions about the material you have just read. (And then answer them. And then check your answers.) And make up questions before reading, or before the lecture.
   - ☞ Put the information you want to remember into a sentence.
   - ☞ Form a visual image of the information you want to remember – bizarre visual images are especially helpful (and this is the basis of several mnemonic devices).
   - ☞ Summarize what you just read in your own words.
   - ☞ Don't rely solely on highlighting; it can convince you that you are thinking about the material, when you are in reality only moving your hand.

2. **Organize: It's easier to remember information that is organized.**
   - ☞ Organize the information you want to remember into a hierarchy, or an outline, or alphabetically, or a diagram, or however else makes sense.
   - ☞ Group things you want to recall into categories, and let the category names serve as triggers for the items.

3. **Associate: It's easier to remember information that is meaningful to you, and meaningless material is most difficult to recall.**
   - ☞ Try to relate what you're learning to something you already know.
   - ☞ Try to make what you're learning personally meaningful to you.

4. **Overlearn it: Overlearned material is remembered for a very long time.**
   - ☞ Working on a topic until you really NAIL it, not just until you think you sort-of have it, is a very effective way of memories more lasting**.**

5. **Review immediately: Forgetting is more rapid when you do not immediately rehearse or review the material you just learned.**
   - ☞ Review what you've just learned immediately, and then use the Expanding Rehearsal Method (below) for subsequent review.

6. **Take breaks: Spaced practice almost always results in better retention than massed practice, for equivalent time spent studying.**
   - ☞ Space your study sessions; don't cram. Studying a subject a half hour a night for a week allows you to remember more than cramming for 3.5 hours in one night.
   - ☞ **The Expanding Rehearsal Method:** initially study something, then immediately rehearse it, wait a few seconds, rehearse it again, wait longer still, then rehearse it again. If you must cram, do it early in the semester; then review the material in several short sessions with a few days between each review session.

7. **Quiz yourself! Know what you know (and don't know):**
   - ☞ One of the most effective ways of learning material is trying to recall the material. Trying to remember an answer, finding out what it is and then trying to remember it again later greatly improves the chances that you will remember it on an exam. Quizzing yourself on what you just learned also helps to improve your recall when you need it on an exam.
   - ☞ Quizzing yourself on what you just learned helps you to identify gaps and problem areas in your knowledge.
8. **Make Mistakes: Making a mistake in trying to recall material, and then correcting it, improves memory for the material.**

9. **Don't mistake familiarity for knowing. It's easier to recognize something you have learned than it is to recall it.** When you read or reread something, you may be lulled into believing that you "know" the material because you recognize it from having read it before. You don't "know" it unless you can close the book and write down the important points, or unless you can explain it to someone else, without looking**.**

10. **Apply What You're Learning: Do exercises that accompany your reading.**
    - ☞ In many courses, especially quantitative and language courses, teachers often assign problems and exercises. Do them! Do more than what's assigned. These help to solidify your knowledge, as well as point out your problem.

11. **Study in a variety of places: People remember material better if they have learned it in a variety of different places.**

12. **Watch Out for the Middle: Things you learn first and things you learn last are generally remembered better than things you learn in between (the serial position effect).**
    - ☞ Spend a little more time reviewing the material contained in the middle of a reading assignment, or covered during the middle of a semester, than you do on the beginning and end.

13. **Teach it.** Explaining something that you are trying to learn and remember to someone else is one of the best ways to ensure that you understand it and to fix it firmly in your memory**.**

14. **Study with no words in the background.** Don't study in front of the TV, and don't study with music with vocals playing. The presence of speech and singing will interfere with your ability to encode, and hence retain, verbal materials.

15. **Rehearse: Rote rehearsal and repetition are ways to increase your ability to remember something.** However, they are less effective than the other strategies discussed here (which also involve rehearsal and repetition, but with elaboration, association and organization that you contribute to the process.)

16. **The SQ3R system of reading/studying uses many of these principles.** http://www.ucc.vt.edu/stdysk/sq3r.html

PS. Don't Procrastinate!