

Active learning

Get better value for your study time

Active learning is engaging with the material being learnt. If active learning strategies are used your retention and comprehension will be enhanced.

When learning is active, students do most of the work. They use their brains...studying ideas, solving problems, and applying what they learn. Active learning is fast-paced, fun, supportive and personally engaging...to learn something well it helps to hear it, see it, ask questions about it, and discuss it with others. Above all students need to "do it" – figure things out by themselves, come up with examples, try out skills, and do assignments that depend on knowledge that they already have or must develop.
Silberman, 1996

Unfortunately, passive learning techniques are popular, mainly because they seem easier than active learning. However, this is just not true. Passive learning is often repetitious and boring, involving techniques such as reading, highlighting and re-reading. When you have a great deal of information to learn, the study approach you take is important. You need to develop better ways to get value for your study time.

Using active learning can help you maximize your study time. It can also be fun, as many active learning strategies involve collaborative learning.

The more information you need to deal with, the more you need to think about strategies that are creative, have meaning for you and help you decide how and what to remember. The following are examples of active strategies to learn specific information.

- **ROY G BIV** is a creative way to remember the order of the colours of the rainbow - **R**ed **O**range **Y**ellow, **G**reen, **B**lue **I**ndigo and **V**iolet.

Or, consider this legal story to help you remember the 5 aspects of a contract:

- I made Jane an **offer**. She **accepted** and after due **consideration** I was **certain** of her **intention**.

What do you need to know?

The first step in active learning is to decide what you need to know and how well you need to know it.



Level of knowledge	What use is this level?	Study tips
1. <i>Recognition</i> 'I've seen that before'	Not much, even in multiple choice exams	Passive study strategies strengthen this level
2. <i>Prompted recollection</i> 'I know the start, but I get lost in the middle'	You can build on this level. It's important to be clear about what you know and what you don't	Now that you've identified gaps, you can use active learning strategies to consolidate
3. <i>Understanding</i> 'I can tell you how this works'	This is what you need for exams	Train yourself to respond to smaller and smaller cues
4. <i>Expert knowledge</i> 'I could use that idea here too'	For advanced and/or postgraduate research and assignments	Adapting ideas to new situations shows that you are really in command of your subject material

You need to be at least at level 2 to do well at university. The best way to move beyond simple repetition is to use active learning strategies.

The Active Learning Process

The essential elements of active learning are:

- Motivation
- Mental transformation and manipulation of material
- Matching the strategy to the material being learned - you need to be willing to experiment with subject-appropriate ways of interacting with the information you need to learn

TRY THE FOLLOWING EXAMPLES:

Change the format of information. Use this for tables, lists, theories or systems:

- Turn a list into a table and/or re-arrange the columns into a table
- Turn a dense paragraph into a list of bullet points

Write frequently. If you need to write about information:

- Use past exam papers and try to answer the questions without note. This will help you work out your strengths and weaknesses in the subject
- Practice writing under timed exam conditions
- Start by writing point form responses or just an introduction to an essay. Actually write an answer, don't just read the questions

Work collaboratively with friends

- Share and test your ideas and knowledge with other students. The very act of explaining a technique or approach to a problem is an active learning strategy
- Explain what you know to a friend. Use diagrams and notes the first time, then try it on someone else from memory. Encourage the listener to ask questions
- Test your knowledge verbally by exploring the ideas in your own words and in everyday language

Create missing links. This is useful for material that you need to know in sequence:

- Make some copies of formulae or an equation or a set of procedures. Write out different steps on each copy, and during different study sessions, try to re-write that section or step. Gradually work towards erasing all of the steps except a title prompt, and then practice recreating the entire piece
- Practice writing out all of the labels on a diagram

Change your perspective. Useful for learning diagrams, figures and structures:

- Try to learn what you have been taught from a different visual perspective. For example, if you have been studying the structure of the muscles of the right leg, try drawing them in the left leg. The point is to draw, recreate or imagine the image or concept from a different perspective

Increase your associations:

- Look up the topic covered by your textbook on the Internet to make links with course content. You may find research or pictures or even an interactive page that approaches the same material in a new way
- As well as reading the information, practice saying, drawing, or explaining it

Do it! A useful approach to practical procedures, oral exams, practical exams, oral presentations, and demonstrating equipment:

- If you are being tested in a practical skill you can increase your competency by either practising the technique or mentally rehearsing the steps.
- Practice verbal presentations, interviewing skills or oral exams in front of a mirror or with your friends and/or family. Ask them to question you further to help clarify your answers

These ideas will get you started and assist you to develop active learning techniques. However, the best active learning strategies are, by definition, those you make up for yourself – that is, when you are mentally active with the material.

Explore your learning styles

We all learn and process information differently. There is no one way to study, so find out what your learning style preferences are and use appropriate study techniques.

Think about how you learn (or remember) things:

- Do you see them (visual)?
- Do you hear/talk about them (verbal/auditory)?
- Do you do them (active)?
- Do you think about them (reflective)?
- Do you like facts and concrete examples (sensing)?
- Do you learn creatively (intuitive)?
- Do you learn in detail and in order (sequential)?
- Do you like the big picture first (global)?

Here are a few study and revision tips for different learning styles:

Visual learners remember visual details and prefer to see what is being learnt. Study by using concept maps, creating diagrams and colour-coding. Visual memory is strongest in 3-D so spend some time constructing your own mental images of concepts.

Verbal learners enjoy oral discussion and can study by talking aloud or discussing material in study groups. You can also record your summaries onto tape and listen to these. Mnemonics based on songs may also suit you. You can also revise by explaining concepts aloud to others.

Active learners like to be actively engaged with the material. You can take notes and tap a rhythm to remember information. You can work with models or create tasks for yourself such as puzzles and fill-in sheets.

Reflective learners learn best when time is allocated for thinking about and digesting new information. You can stop and periodically review new work, write summaries and think of possible questions about new information. Put aside time to consider your ideas about the concepts you are learning. Spend time creating your own overviews of topics.

Sensing learners enjoy learning facts and solving problems by well-established methods. You are generally careful, practical and patient and like new knowledge to have some connection to the real world, so link information to the real world. You can also revise by substituting different examples in your old tutorial scenarios or problems, and work out applications for the theories.

Intuitive learners prefer discovering new relationships and can be innovative in their approaches to problem solving. You tend to work faster and dislike repetition and work that involves a lot of remembering and routine calculations. You can revise by creating your own tables, summaries and practice questions.

Sequential learners like to start from the beginning and prefer to know the detailed facts first and then build on these. You can go through a problem methodically, step-by-step. Try some other revision techniques such as fill-in sheets, or error-analysis of where your problem-solving took a wrong turn.

Global learners may be able to solve complex problems quickly or put things together in novel ways once they've grasped the bigger picture, but may have difficulty explaining how they did it. Try using a 'big picture' summary or 'mind map' based on lecture notes, concepts and theories, and use real world examples where individual pieces fit together.

Resources

The [Index of Learning Styles](#) is a self-scoring questionnaire for assessing preferences on four dimensions of the Felder-Silverman model. Access it at:

<http://www.ncsu.edu/felder-public/ILSpage.html>

For information on active and cooperative learning see:

http://www.ncsu.edu/felder-public/Cooperative_Learning.html

Silberman, M. (1996). *Active learning: 101 strategies to teach any subject*. Boston: Allyn and Bacon.