

How to Study and Learn (Part One)

All thinking occurs within, and across, disciplines and domains of knowledge and experience, yet few students learn how to think well within those domains. Despite having taken many classes, few are able to think biologically, chemically, geographically, sociologically, anthropologically, historically, artistically, ethically, or philosophically. Students study literature, but do not think in a literary way as a result. They study poetry, but do not think poetically. They do not know how to think like a reader when reading, nor how to think like a writer while writing, nor how to think like a listener while listening. Consequently, they are poor readers, writers, and listeners. They use words and ideas, but do not know how to think ideas through, and internalize foundational meanings. They take classes but cannot make connections between the logic of a discipline and what is important in life. Even the best students often have these deficiencies.

To study well and learn any subject is to learn how to think with discipline within that subject. It is to learn to think within its logic, to:

- raise vital questions and problems within it, formulating them clearly and precisely
- gather and assess information, using ideas to interpret that information insightfully
- come to well-reasoned conclusions and solutions, testing them against relevant criteria and standards
- adopt the point of view of the discipline, recognizing and assessing, as needs be, its assumptions, implications, and practical consequences
- communicate effectively with others using the language of the discipline and that of educated public discourse
- relate what one is learning in the subject to other subjects and to what is significant in human life

To become a skilled learner is to become a self-directed, self-disciplined, self-monitored, and self-corrective thinker, who has given assent to rigorous standards of thought and mindful command of their use. Skilled learning of a discipline requires that one respect the power of it, as well as its, and one's own, historical and human limitations.

Because we recognize the fact that students generally lack the intellectual skills and discipline to learn independently and deeply, we have designed a *Thinker's Guide for Students on How to Study and Learn*. Its goal is to foster lifelong learning and the traditional ideal of a liberally educated mind: a mind that questions, probes, and masters a variety of forms of knowledge, through command of itself, intellectual perseverance, and the tools of learning. It respects equally the traditions of John Henry Newman, Bertrand Russell, and Albert Einstein. It emphasizes that all bona fide fields of study

share common intellectual structures and standards of reasonability. It emphasizes that foundational intellectual structures and standards of reasonability are worth learning explicitly and in themselves, since they help us more deeply interconnect and understand all that we learn. This miniature guide also emphasizes foundational intellectual dispositions and values that define the traits of the disciplined thinker in all fields: intellectual autonomy, intellectual humility, intellectual integrity, intellectual perseverance, intellectual empathy, confidence in reason, and fair-mindedness.

In this column, and the next few columns, we will focus on the ideas highlighted in this miniature guide – for we believe they are essential to the cultivation of the educated mind.

The miniature guide begins with the following eighteen ideas for becoming a master student:

Idea #1: Make sure you thoroughly understand the requirements of each class, how it will be taught and what will be expected of you. Ask questions about the grading policies and for advice on how best to prepare for class.

Idea # 2: Become an active learner. Be prepared to work ideas into your thinking by active reading, writing, speaking, and listening.

Idea # 3: Think of each subject you study as a form of thinking (If you are in a history class, your goal should be to think historically; in a chemistry class to think chemically; etc....)

Idea # 4: Become a questioner. Engage yourself in lectures and discussions by asking questions. If you don't ask questions, you will probably not discover what you do and do not know.

Idea # 5: Look for interconnections. The content in every class is always a SYSTEM of interconnected ideas, never a random list of things to memorize. Don't memorize like a parrot. Study like a detective, always relating new learning to previous learning.

Idea # 6: Think of your instructor as your coach. Think of yourself as a team member trying to practice the thinking exemplified by your instructor. For example, in an algebra class, think of yourself as going out for the algebra team and your teacher as demonstrating how to prepare for the games (tests).

Idea # 7: Think about the textbook as the thinking of the author. Your job is to think the thinking of the author. For example, role-play the author frequently. Explain the main points of the text to another student, as if you were the author.

Ideal # 8: Consider class time as a time in which you PRACTICE thinking (within the subject) using the fundamental concepts and principles of the course. Don't sit back

passively, waiting for knowledge to fall into your head like rain into a rain barrel. It won't.

Idea # 9: Relate content whenever possible to issues and problems and practical situations in your life. If you can't connect it to your life, you don't know it.

Idea # 10: Figure out what study and learning skills you are not good at. Practice those skills whenever possible. Recognizing and correcting your weaknesses is a strength.

Idea # 11: Frequently ask yourself: "Can I explain this to someone not in class?" (If not, then you haven't learned it well enough.)

Idea # 12: Seek to find the key concept of the course during the first couple of class meetings. For example, in a Biology course, try explaining what biology is in your own words? Then relate that definition to each segment of what you learn afterward. Fundamental ideas are the basis for all others.

Idea # 13: Routinely ask questions to fill in the missing pieces in your learning. Can you elaborate further on this? Can you give an example of that? If you don't have examples, you are not connecting what you are learning to your life.

Idea # 14: Test yourself before you come to class by trying to summarize, orally or in writing, the main points of the previous class meeting. If you cannot summarize main points, you haven't learned them.

Idea # 15: Learn to test your thinking using intellectual standards? "Am I being clear? Accurate? Precise? Relevant? Logical? Am I looking for what is most significant?"

Idea # 16: Use writing as a way to learn by writing summaries in your own words of important points from the textbook or other reading material. Make up test questions. Write out answers to your own questions.

Idea # 17: Frequently evaluate your listening. Are you actively listening for main points? Can you summarize what your instructor is saying in your own words? Can you elaborate what is meant by key terms?

Idea # 18: Frequently evaluate your reading. Are you reading the textbook actively? Are you asking questions as you read? Can you distinguish what you understand from what you don't? Consider, for a moment, idea#12: Seek to find the key concept of the course during the first couple of class meetings. For example, in a Biology course, try explaining what biology is in your own words. Then relate that definition to each segment of what you learn afterward. Fundamental ideas are the basis for all others. To help students internalize this idea, we help them identify the underlying idea for the subjects they study, through the following elaboration: Virtually all courses have some inherent unity which, when understood, ties all the learning of the

course together (like a tapestry). This unity is typically found in foundational ideas that define the subject and its goals. Below are suggestions for beginning to understand the foundational ideas behind some of the major disciplines. Use them to begin to think within the subjects. However, you must make sure you can state, elaborate, exemplify, and illustrate each of these ideas IN YOUR OWN WORDS with your own examples and illustrations. Otherwise, you are merely mouthing words that have no definite meaning in your mind. Mathematics as learning to think quantitatively Economics as the study of “who gets what, when, & how” Algebra as arithmetic with unknowns Sociology as the study of human conformity to group norms Anthropology as the physical and historical study of humans in light of their evolution from non-cultural into cultural animals Physics as the study of mass and energy and their interaction Chemistry as the study of elementary substances & the manner in which they react with each other Philosophy as the study of ultimate questions with a view to living an examined life Biochemistry as the chemistry of life processes in plants & animals Science as the attempt to learn through quantifiable observations and controlled experimentation Theology as the study of theories of spiritual reality Ethics as the study of principles to be used in contributing to the good of, & avoiding unnecessary harm to, humans and other sentient creatures Art as the application of skill and judgment to matters of taste and beauty (as in poetry, music, painting, dance, drama, sculpture, or architecture) Professions as ways of earning a living through the skilled and artful use of knowledge in everyday life We then provide students with this essential Idea: When beginning to learn a subject, It is helpful to formulate an organizing idea to guide your thinking. Our hope is that students begin to think critically within the subjects they study. To do this, they need the intellectual skills and discipline essential to the educated mind.

{Information in this article is taken from Paul, R. & Elder, L. 2001, *The Thinkers Guide to How to Study and Learn*, Dillon Beach, CA: Foundation for Critical Thinking.}