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## How to Succeed in College: Learn How to Learn

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*Assume that you have a younger sibling who is going to be a college freshman next Fall. Assume further that this particular sibling actually believes that you may have learned something - that is, that you may be a source of good advice on how to succeed in college. Drawing on concepts and phenomena covered in this course, list six different recommendations you would make to your sibling (with respect to notetaking, study techniques, exam performance, and so forth).*



A few years ago, I asked this question on a final exam in my graduate course on human learning and memory. I recently came across photocopies of the answers students gave. At first, I was puzzled as to why I had made those photocopies. But as I looked through them, I remembered that I had made those copies because I was impressed with how well a number of students had answered that particular question.

Many of the answers were not only good answers, but were also characterized by a certain enthusiasm - triggered, perhaps, by the challenge of trying to tell something useful to an actual or imagined younger sibling. One student commented, for example, that "first of all, I would explain to my sister that people are not, in general, good judges of what's best for them in studying and learning. So, she should listen to me very carefully, since some recommendations may seem counterintuitive."

One student wrote the following preamble to her answer: "I have learned a variety of techniques that I would share with a younger sibling, but since I don't actually have a younger sibling, I plan to use the techniques myself."

Following are samples of the advice my students said they would provide to a younger sibling on taking notes, studying, and preparing for exams.

### ON TAKING NOTES

- "In taking notes in class and from readings, to the extent possible, try to listen or read the entire idea, then write down notes based on what you've heard or read. Often we are tempted to write quickly to get down as much as possible while the professor is speaking or while we are reading paragraph by paragraph. Waiting to write down notes until the entire 'idea' has been presented can be a method of creating meaning for

yourself. You won't be distracted between trying to write and trying to listen. And you can use the notetaking part of your activity as a way to organize what you've learned. Summarize it and make it meaningful for yourself rather than blind verbatim notetaking."

- "Find out what types of tests you will need to take in a given course and consider taking notes consistent with such tests. For instance, rather than only following the outline in class, you might try, when studying, to reorganize your notes around some central concepts if it will be an essay test. Try to make the processes you study with similar to those you will need at test; this is transfer-appropriate processing."
- "Avoid studying as passive reading of text and notes. Summarize readings and notes, generate new examples of material, and group/chunk information into meaningful categories. Doing so will maximize the encoding/associations to memories already in place and will also incorporate the benefits of generation - better memory for examples and structures that you yourself generate."

### ON STUDYING

- "Don't study everything at once; rather, space out your study sessions. This will allow for some forgetting, which is necessary for effective relearning. It will also increase how strongly the info is stored in your long-term memory, because the info will be encoded multiple times across multiple conditions."
- "You should space your study of different topics rather than going through them one at a time until finished. Spaced study sessions work better than massed study sessions, but if you socialize too much and have to do it all the night before, mass your study because massing produces better recall on the short term (try to avoid this, however)."
- "Don't always study at your desk in your room. Why? Contextual variation results in higher recall and lower retroactive interference. Introduce variety: Study in the library, alone, with friends, with and w/out background noise, in your room, indoors/outdoors. This will maximize the # of retrieval cues available for recall of any piece of info. (& so ^ recall) and result in less cue overload (fewer items of info associated per cue). (Don't even sit in the same seat every lecture, if you don't have to.)"
- "Elaborate on what you study. Connect it to what you already know. Incorporate it into your general knowledge. Make it rich and semantic (you won't have a fragment-completion test)."
- "Go to lecture. Even if the same material is covered in the lecture and book, the instructor - if he or she is good - will provide a different organization of the material. Different organizations lead to better performance on inference tasks (which are heavily tested in college, hopefully) than does providing the same organization. And study with other people. The argument is much the same: You'll benefit from the different organizations imposed by the other students."
- "Always read the material in advance - thus, the lecture serves as study and, to some extent, retrieval practice. And you will be able to learn more information from the lectures by association to cognitive structures that the readings put in place."

### ON PREPARING FOR AND PERFORMING ON AN EXAM

- "Educate your subjective experience. Make real assessments of what you know and don't know. That means when you're studying for math and statistics, do the problems without looking at the answers. With the answer in front of you, you'll feel as though you could answer the problem, but that may not be true."
- "Be wary of professors who make you feel as though you know all there is to know about a subject. Your impression may be based on the crutch of his or her understanding rather than on your own."
- "At the end of each study session, generate recall questions that could potentially be

tested on an exam and then begin the next study session by answering them. This - number one - has the tremendous benefit of creating organization of information, fostering elaborate and complex encoding, and - number two - constitutes transfer-appropriate retrieval processes for the exam. Answering questions at each study interval will also potentiate subsequent learning by showing you what you don't know (educating your subjective experience)."

- "Use retrieval practice when studying. That is, test yourself on the material rather than just reading it over and over, because retrieval practice is more potent than reading, and it is more like the actual test."
- "When you take the test, mentally reinstate your study conditions. Remember where you were, what you did, and so forth."

It might be a relatively rare event when an issue of the *Observer* falls into the hands of a college-bound high school senior (although APS increasingly has been reaching out to high school teachers and students, so it's not as rare as you might think). Nonetheless, I thought it might be useful to make some of my students' answers available in this column. After all, readers of the *Observer* tend to be keenly interested in learning and teaching, and many of us are parents, grandparents, aunts, uncles, siblings, and friends of college-bound students. And aside from any concern we may have for a real or hypothetical younger sibling, it is in our self-interest to learn how to learn.

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