

How Should Students Study? Tips, Advice, and Pitfalls

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It has happened to all of us in some form or another. A student comes to our office (or emails, calls, or texts) and says “I studied so hard for your exam and I still only got a ___ (insert low grade here). What should I do?”

How should you respond? Is this the time to reveal all those secret, super-successful study techniques that you have kept carefully hidden from your students all these years? Well, most of us have no collection of such hidden gems, so we recite the litany of things we have heard work well. Even textbooks provide general prescriptions on how to study, and there are also a number of student study guides (e.g., Fry, 2004; Tamblin & Ward, 2006). But what really works best and, as important, what does not work well (even though you think it should)? We will try to answer these questions and more, providing a brief review of resources on studying techniques with recommendations you can pass on to students.

A large body of research has attempted to classify study techniques and to identify the techniques that are optimal (e.g., see Crede & Kuncel, 2008; Entwistle & McCune, 2004; Gurung & Schwartz, 2009; Hattie, 2009, for reviews). The good news is the reviews cited all show that study attitudes/habits/behaviors are related to academic performance. The bad news is that it is hard to

pinpoint which specific strategy is the best. The short answer is “It depends.”

Study Behaviors: An Overview and Brief Measurement History

Measures of study behaviors, also called study skills, strategies, or techniques, can serve as diagnostic tools to help instructors identify students in need of additional help and can also provide a better awareness of a student’s strengths and weaknesses and, correspondingly, ways to optimize his or her learning. Study behaviors can be broadly defined as behaviors functioning to acquire, organize, synthesize, evaluate, remember, and use information (Crede & Kuncel, 2008; Gettinger & Seibert, 2002). Such behaviors include time management; goal setting; selecting what, how, and where to study; taking good notes; reading; and self-testing. Researchers have divided the many specific study behaviors into four main categories: repetition-based (e.g., flashcards), cognitive-based (e.g., studying with a friend), procedural (e.g., time management), and metacognitive (e.g., taking quizzes to test self-knowledge; for more details see Gettinger & Seibert, 2002; Tamblin & Ward, 2006).

Given the obvious link between studying and learning (as established by high exam scores and course grades), a large “self-help” market caters to students looking for tips. The style and empirical basis of the available material varies greatly. Many of the guides include discussions of topics such as multiple intelligences, learning styles, and time management, while providing step-by-step strategies on how to read better, take good notes, and remember and test better. Whereas some guides include some empirical evidence to support recommendations (e.g., Pauk & Owens, 2007; Tamblin & Ward, 2006), most do not. For example, Newport (2007) features tips based on interviews with students who achieved high grades in college. Many guides are targeted at the high school or first year college student (Fry, 2004).

In contrast to non-empirical, “self-help” style student guides to studying, a wealth of empirical research suggests that good study behaviors predict academic success (Crede & Kuncel, 2008; Hattie, 2009; Prevatt, Petscher, Proctor, Hurst, & Adams, 2006). But what exactly are “good study behaviors”? Early attempts to assess “good” study behaviors go back to Wrenn’s (1933) Study-Habits Inventory, the Student Skills Inventory (Locke, 1940), and the Survey of Study Habits and Attitudes (Brown & Holtzman, 1955). More recently, researchers have commonly used the Learning and Study Strategies Inventory (Weinstein & Palmer, 2002), the Approaches and Study Skills Inventory for Students (ASSIST, <http://www.etl.tla.ed.ac.uk/questionnaires/ASSIST.pdf>), or created their own scales (Gurung, Weidert, & Jeske, 2010). Unfortunately, many of these scales are long, extremely general, and furthermore do not afford clear prescriptions on how to advise students to study. Similarly, although large meta-analytical studies (Crede & Kuncel, 2008; Hattie, 2009) clearly establish the link between study behaviors and performance, they do not provide specific prescriptions of how exactly students should study. That said, the breadth of research provides some key suggestions that faculty can use to help students improve their study techniques.

Teaching Tips

1. Find Out How the Student Has Been Studying. Possible questions include:

Did you read the assigned chapters before the test? Did you read them before you came to class, after, or just before the exam? How much time did you devote to studying for the test? Did you read these chapters once, or more than once? (This question provides a chance to review the old Law of Frequency,

and to describe how repetition influences memory formation and recall.)

2. Check Attendance and Note Taking Practices. Assuming that the student attends class regularly, you might ask the following: Do you take good notes? Do you review your notes after class to correct obvious errors? Do you compare your notes with those of other students? Where do you sit in the classroom? You may also want to look at the quality of the student's notes and suggest changes (e.g., leaving more space, use of topic headings, writing down of examples used by the instructor).

3. Suggest Healthy Behaviors. Ask how much sleep the student gets, how much they got the night before the exam, and if they are getting any exercise and eating properly. (This might provide an opportunity to review the effects of sleep on memory formation.)

4. Recommend Tutoring. If tutors are available, encourage their use. If not, ask if the student has tried studying with other students.

5. Discuss Recognition Versus Knowing. Describe the difference between going over material enough that one can "recognize" the material as very familiar and prematurely conclude that it is known and understood, and really knowing and understanding it. (You might even mention Ebbinghaus and the benefits of overlearning, or work on the "curse of knowledge" showing that students often think they know the material if the material is right there in front of them.)

6. Urge Self-Assessment. One easy strategy is to give your students access to an established and free study behavior measure (e.g., ASSIST) and have them use it to get a sense of what they are not doing (Entwistle, 2009). The ASSIST provides a profile of scores on strategies and alerts students to possible problems in their existing ways of studying (available at <http://www.etl.tla.ed.ac.uk/publications.html>).

7. Discuss Winning Strategies. Hattie (2009) synthesized research from over 800 meta-analyses relating to educational achievement. He then derived the effect sizes for different interventions. Intervening to improve study behaviors was a significant factor with an effect size of .59. This meta-analysis and other works on study techniques (Gurung, 2004, 2005) show that the following specific strategies are empirically proven to work and hence useful to pass on to students:

- Schedule daily studying and homework time
- Make lists of things to accomplish during studying
- Put off pleasurable events until work is completed
- Read the textbook (!!)
- Review the class textbook/assignments before going to class
- Create mnemonics and vivid mental images to aid learning
- Memorize the material through repetition

- Generate examples to apply the material
- Record information relating to study tasks (e.g., keeping a study log)
- Self-verbalize the steps to complete a given task
- Use chapter review questions to self test
- Use a study partner
- Review the items missed on the exam, including items guessed at
- Make an outline before writing a paper
- Check work before handing in an assignment

8. Advise Students on what NOT to do. Previous research suggests that students take some “dangerous detours”: study techniques that may not be beneficial involving more study time at the expense of other techniques (Gurung, 2004, p. 164). Sadly, such detours could represent behaviors used by academically weaker students. Whereas the academically stronger students may not take time on behaviors such as going over chapters right after a lecture in lieu of doing so right before an exam, the weaker students may go over the chapters at both times. In support of this point, Landrum, Turrisi, and Brandel (2006) found that A and B students tended to increase their frequency of studying as the semester progressed, but they decreased the actual time spent studying per study event (p. 681). (Another testimony to the benefits of distributed vs. massed practice.) Students who are doing poorly may try to improve by doing more of the unsuccessful types of studying they have been doing, rather than trying other techniques. Key behaviors students should avoid are:

- Spending too much time on key terms or summaries to the extent of paying less attention to other pedagogical aids (e.g., review questions)
- Highlighting too much text (i.e., not knowing what the important information really is), thus increasing study load
- Using chapter review questions (and their answers) as more content to study versus using them to test their own knowledge
- “Studying with a friend” where this *does not* involve testing each other, taking review questions, creating examples, or reviewing notes
- Listening to music, watching television, text messaging, or surfing the Internet while studying

9. Assess Your Own Students’ Study Behaviors. Correlate the behaviors with exam scores and identify what behaviors are associated with better scores. Share this with the students to help them modify their study behavior. For example the first author created a 35-item Study Behavior Checklist based on previous research and student interviews (Gurung et al., in press). The items assessed students’

organizational behaviors (e.g., writing down when exams, assignments, and quizzes are due, setting up a study schedule), *application behaviors* (e.g., creating questions about the material), *elaboration behaviors* (e.g., paraphrasing the material, explaining it to another person), *metacognitive behaviors* (e.g., using the book and/or Web site for quizzes), and *resource use behaviors* (e.g., asking a fellow classmate to explain the material) on a scale ranging from 1 (*Not at all like me*) to 5 (*Exactly like me*). Higher exam scores were associated with:

- Attending class, $r(114) = .23, p < .05$
- Answering all questions on the study guide, $r(114) = .23, p < .05$.
- Using practice exams to study, $r(114) = .24, p < .05$.
- Ability to explain problems using the material, $r(114) = .28, p < .01$.

10. Do not expect a silver bullet. It is important to bear in mind that there are no strategies that work all of the time, for all students, in all classes. Different exams call for different strategies. It is possible that introductory psychology multiple choice exams require only basic study behaviors, whereas an upper-level essay exam will need different behaviors.

In general, instructors need to be cognizant of how much of the advice they give to students is empirically proven to work in an actual classroom rather than a controlled cognitive psychology laboratory study. Asking students to complete a study skill inventory after the first exam may provide instructors with a starting point to discussing study behaviors with students. Taking some class time to discuss the variety of study techniques, *and then detailing what exactly is involved in each method*, may be critical to helping students do better. We hope these suggestions prove helpful when the next student asks you how to study for your exams and that their performance improves as a result of your advice.

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