

## Self-Explanation: Student Tip Sheet

What do you do when you are reading new material for a course and you don't understand it? In that moment you might reread the information, skip over it, or pause and try to think it through. If you pause and try to think it through, you engage in something that researchers call *self-explanation*.

Self-explanation involves trying to make sense of new information by relating it to what you already know and making inferences to fill in any missing information. You probably engage in some form of self-explanation without realizing it whenever you think about the meaning of information during a lecture, read a text, or look at a diagram or graph.

Self-explanation can be a potent learning strategy, and you can use it to your advantage in studying by explaining new material to yourself or to someone else.

Why and how does self-explaining help you learn?

1. First, self-explanation helps you revise and expand what you know about the topic. You elaborate and establish new connections among ideas. You build a better understanding or a mental model of the topic. Better understanding helps you remember, use and apply knowledge more flexibly to new situations.
2. Second, explaining helps you identify gaps in your understanding so you can fill in missing information. Think of it this way. While explaining an idea to yourself or another person, you may get stuck or realize what you are saying doesn't make sense. That is a clear indication that you don't fully understand the idea; something is missing. You can go back to the material and search for the missing pieces.

As one researcher asserts

*Even if learning materials are inadequate (such as not perfectly sequenced, with much missing information), students can learn, in fact even more effectively, if they try to explain the materials to themselves. Doing so allows them to infer the missing information, synthesize the presented information even if it is out-of-sequence, and so on. This has been coined the self-explanation effect. (Chi, 2017, p.1)*

Initially, you may not have a deep grasp of new material, but trying to explain it pushes your understanding forward. Explaining is a way to develop deeper learning. Explaining also helps you monitor and recognize gaps in your understanding. Being aware of what you don't know is an important step in rethinking, revising, and expanding one's understanding.

For example, research has shown that higher achieving students engage spontaneously in self-explanation as they read and study. They generate inferences about the material, connect the new information to their own prior knowledge, and monitor their comprehension. For instance, a study found that effective readers detected 9 times as many comprehension failures as ineffective readers did. In other words, they noticed when they did not understand what they were reading 9 times as often as ineffective readers. Effective readers tend to self-explain as they read. (Chi, Bassok, Lewis, Reimann, & Glaser, 1989).

## How you can use self-explanation as an effective learning strategy

1. Take advantage of opportunities in class to explain course concepts. For example:
  - Write answers to questions for readings assignments.
  - Answer clicker questions in class.
  - Explain your ideas to a neighboring student in class and listen carefully to how others explain the same ideas.

It doesn't matter if your answers are always "correct." The point is to further develop your understanding of the subject matter.
2. Pause and self-explain when you don't understand what you are reading. Develop a habit of pausing when you don't understand new material. Try to explain your way through the difficulty. Talk it through out loud. If it still does not make sense, plan to get help from a classmate, a tutor or the instructor, or refer to additional sources for help.
3. Prepare to teach the material. When studying for exams, imagine teaching the material to someone. Present your explanations out loud or write out the main points and how you would present them. Research has shown that students improve their learning by preparing to teach material – even if they don't actually have the opportunity to present it.
4. Take turns explaining course material to one another in study groups. Listen to your study partners' explanations and compare them to yours. When you notice important differences, discuss these as a group and try to resolve discrepancies.

## Potential problems with self-explanation

1. Self-explaining slows you down. You may be able to cover more material by rereading and taking notes, but those activities are not as effective as self-explaining. The payoff with self-explaining is in terms of better understanding of the subject matter.
2. Self-explaining will not be very effective if you have very little understanding of the material. You may not know enough to develop an explanation. In these instances, it is best to try to learn the new terminology or procedures, and then gradually start putting ideas together into short explanations. If you continue to have difficulty, it may be best to consult with your instructor, talk to a tutor, or ask a classmate who seems to have a better grasp of the information.
3. Your self-explanation might be incorrect. Your explanation might make sense to you, but it might be incorrect. You may misinterpret or misunderstand some aspects of the material. Try to confirm the accuracy of your explanations. To the extent possible, get feedback and check your ideas for accuracy.

### References

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