

Learn by Teaching: Student Tip Sheet

As a learning strategy, teaching involves

1. preparing to teach by studying the material with the goal of teaching it to others
2. explaining and elaborating on the material to others
3. interacting with others to answer questions, clarify and discuss the material

How and why it supports learning: Teaching involves cognitive processes that support depth of understanding and memory.

1. When you prepare to teach a topic, you are more likely to think about what information is most relevant, and how to organize and present it to someone who doesn't know the material. This involves organizing and re-organizing the information so that it is coherent and accessible for those who aren't familiar with the topic. This activity improves your own understanding of the material.
2. The act of teaching involves describing and explaining information which extends your own understanding of the topic (see self-explaining).
3. Answering questions and clarifying ideas are opportunities to further explain the information. In responding to questions, one sometimes discovers gaps in one's own understanding of the topic.

Together these three activities, preparing, explaining and clarifying can enhance your own grasp of the topic and help you develop a coherent mental model of the material.

When and why to use it: Teaching helps you develop deeper understanding of subject matter, and can be used in preparing for exams, class projects and presentations. The process of explaining is especially important. By trying to explain the subject matter and clarify concepts for others you expand your understanding of the topic. Equally important is that you may realize that your explanations may be incomplete or even inaccurate. Then you can follow up by restudying or asking questions to get a better grasp of the topic.

In teaching, you have an opportunity to try out your ideas on others and receive feedback. But even if you don't actually teach very often, it can be useful to ask yourself while studying, "Could I teach and explain this to another student?" To answer that question, you will naturally test yourself to determine how well you grasp the material.

Practical suggestions for using teaching to learn new material.

1. A key factor that influences whether teaching is an effective way to learn is whether you teach by "restating the information" or by trying to "build knowledge" (Fiorella & Mayer, 2015). Restating information means that you learn the material well enough to repeat it. But repeating information is not equivalent to understanding the information. In contrast, knowledge building means you focus on trying to make sense of the information. This involves monitoring your understanding (e.g., Do I understand this

idea?), and making inferences to fill in and elaborate on the material. Knowledge building leads to better learning.

2. Monitor your understanding as you study; ask yourself whether the material makes sense to you and whether you could explain it to someone.
3. Record yourself explaining the material. Try to listen to the recording as it was someone unfamiliar with the topic.
4. Ask a friend or another student to listen to you live or a recording and give feedback, e.g., ask questions and give comments.
5. Practice teaching in study groups. Study partners can prepare and take turns presenting short teaching episodes over small segments of the material, e.g., each group member prepares and gives 3-minute explanations of 1-2 key concepts for a forthcoming exam. Follow each presentation with questions and comments.
6. Try to confirm the accuracy of your ideas. Get feedback from other students or look back at the course material to confirm your thinking. Try to get feedback from an expert source such as tutors or your instructor to determine whether your explanations are accurate and on track.
7. Keep in mind that the mental acts of explaining and clarifying help you connect ideas and develop better understanding. When you are unfamiliar with a topic or find it difficult or confusing, your initial explanations may be fragmented and underdeveloped. As you restudy and re-explain, your understanding will develop more fully. This illustrates an important feature of learning. Often, we do not understand new ideas automatically or all at once. Deep understanding develops as a result of long-term effort, adding more information, connecting ideas, making inferences about what is missing, monitoring your understanding, re-thinking and re-explaining. This long-term effort also requires that you tolerate your mistakes and difficulties as you gradually work out better understanding of the subjects you study.