

Reading memos

[First section borrowed almost verbatim from Edwin F. Taylor, 'Guest comment: Only the student knows', *American Journal of Physics* 60(3):201–202 (March 1992).]

Students!

We have a problem with which only you can help. We have been working on these notes too intently to see what is wrong with them. Only you, coming fresh to the subject, can recognize where they fail to help you understand. In this you are a world-class expert! Will you help?

As you read the notes note down, **on the printed notes**, difficulties as they appear and marking the location of the problem *as specifically as possible*. As you are reading, if you cannot figure out what is wrong, note that too! If a later passage clears up a point, note that too in your comments. **Do not erase anything or cross it off**; the original comment on the confusing spot and the later comment along the lines of 'Oh, now I see/know why ...', are both useful – for they tell us that we have explained material in a confusing order. At the end of the chapter, note general difficulties that you have and questions that you would like answered. **Do not revise or recopy your notes**; it is important that they be spontaneous, written down at the very minute you are reading and wondering about a point.

If you do not understand an equation, derivation, or passage, it is **our fault**. Help us pinpoint where the notes fall short. Turn in your marked-up copy in class on the due date. The PDF file of the notes will be on the course website, mit.edu/6.003. From there you can refer to or print a new copy. Meanwhile we will use your comments to improve the notes.

Parable of the blind carpenter. I am like a carpenter who has spent years building a house. During that time the carpenter has gradually gone blind, now cannot see the house at all, and must rely on the occupants of the house to report what is wrong: 'We need more cupboards in the kitchen', or 'Water is leaking into the bedroom.' Even though blind, the carpenter is still a competent worker and can fix most things, even some things that the occupants do not fully understand, such as exactly where the roof leaks. But the blind carpenter cannot fix things without being alerted by the occupants.

Will you help me finish this house? Thank you.

How reading memos help you

The previous section explained how reading memos help us. Here's how they help you. First, you practice reading a technical textbook. Even after you finish taking courses at MIT or other universities, the world is large and there are many lifetimes of fascinating ideas to learn. If you can learn from books, you have mastered a lifelong skill.

Second, and related to the first point, by reading with attention and with a questioning attitude, you participate in your own learning. That skill too will be useful for your whole life.

Third, reading memos reverse the normal teacher–student hierarchy. For a contrast, think about problem sets. If you cannot solve a problem, you might feel incapable and might become unhappy. I felt that way when I was a student. With a reading memo, when you do not understand where an equation came from, or follow an argument, you have found a problem in the notes. One of my teachers, Donald Knuth, was so interested in knowing about any problems that he would write us checks for \$2.56 for every mistake that we found. I’m not as generous; on the other hand, maybe Knuth was not giving away much – who would cash a check from Knuth? (I still have all of mine.) As it says in the preceding section in Edwin Taylor’s words, with reading memos you are a world-class expert.

Use the reading memos as a way to to practice reading technical material, to formulate questions, and to feel like, no to be an expert.