

I discovered my fondness for teaching relatively late (my junior year of college), but what I lacked in experience I made up for in passion and innovation. Even in my short time teaching, I have developed a number of strong opinions about what makes teaching effective, all based on my experiences as a student. I believe effective teaching should actively deemphasize rote memorization, and that steps should be taken to ensure that such a low level treatment of the material is not rewarded. I believe that effective teaching emphasizes the process of learning and the skills used to learn the material just as much as the material itself. Accordingly, my goals in teaching go beyond simply seeing the students perform well on exams. I want to help students become comfortable talking about the subject, both in explaining aspects to others and in asking insightful questions. I want to give students the ability to logically and efficiently index their knowledge, grouping items under logical headings to reduce the effective volume. Finally, I want to give students pattern recognition ability so that they can effectively tackle new problems based on their old knowledge.

My dedication to these beliefs and goals is best exemplified by the strategies I used as a teaching assistant for organic chemistry. In order to help students understand the relative importance of various factors, I would use “what if” questions, teasing out relationships by asking about the effects of small, incremental changes on structures or reactions. To encourage the students to talk about the material, I would frequently use the “I forgot...” strategy: while answering a question, I would pretend to have forgotten some element (a structure, a mechanism class, etc.) and would make the students fill in the missing knowledge. A somewhat related strategy that I sometimes used was to pose a question, offer a plausible but intentionally wrong answer, and then ask the students if they agreed and why. This strategy was especially effective in small groups or with the honors section of the class, as the students would jump for the chance to be the first one to prove me wrong. I also actively encouraged pattern recognition by pointing out similarities between the current topic and an earlier one, or by drawing structures of “interchangeable parts” (different functional groups with the same reactivity) in a different color beside the main structure. I also incorporated kinesthetic techniques for topics that required visualization in three dimensions, a skill that is very difficult for some. I would teach stereochemistry concepts by pretending that my hands and feet were different atoms on an asymmetric carbon, or that my head and feet were the top and bottom of a Fischer projection.

The best metric of my success in teaching was always student feedback. Students would regularly approach me after exams to tell me that they had been able to perform a reaction with a compound they had never seen because they recognized a certain pattern that I had taught. I had many students tell me that they never understood stereochemistry until I told them to “picture me as a carbon atom...”. Most humbling of all was when one of my top students became the teaching assistant for the same professor and told me that I was the one who had inspired her to do so. The joy that comes from knowing I have helped another person love what I love is what draws me to teaching.