

Teaching and Learning Philosophy

Web Version

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In order to become effective learners, students need to be engaged in the learning process. The student and teacher share responsibility for ensuring that the student is motivated to learn. As a teacher, two of my methods for engaging students are: treating them as individuals, and relating class material to their world. In order to encourage learning, I need to develop effective teaching methods. I will never be a perfect teacher because I can learn something from every student. Therefore, the third major point in my teaching philosophy is that as a teacher I am also a learner.

Learners are individuals

One way I can help students become engaged in the learning process is to recognize them as individuals. By doing so I communicate that I am interested in their personal learning process and I can tailor my instruction, as much as possible, to their learning styles. I believe that being recognized as an individual also helps students feel more comfortable with asking questions both in and outside of class. Another benefit is that it may help increase diversity in the class and in the field of computer science. One idea I learned about diversity is that once a group contains a critical mass of people from an underrepresented group, more people from the underrepresented group are likely to join the larger group. The challenge, however, is to build a critical mass in the first place. I hope that by recognizing all of my students as individuals they will each feel like they belong in the class, and I will help my department and the field of Computer Science to gradually gain a critical mass of people from various underrepresented groups. Different strategies are necessary to individualize students based on whether the class is small or large, or when working one-on-one with a student.

An effective method for treating students as individuals in a small class is learning their names. Knowing the students' names gives me the ability to remember details about each student's performance on assignments and exams, and about some of their interests outside of class. When I taught Introduction to Programming at UW-Madison in the summer of 2009, I learned the names of most of the 35 students. My main tool for learning their names was the first class assignment: to come to my office hours during the first week of class. When the students visited my office I took their picture and learned a little bit about them.

While I won't be able to learn the names of many students in a large class, I can use other strategies to show the students that I recognize each of them as an individual. I will learn the names of the students that frequently ask questions and come to office hours. In order to individualize more students in the class, I can help each student feel like they play a role in lecture. One method to accomplish this is to ask the students to submit questions and comments at the end of class. At the beginning of the next class I will address a few of these questions and comments. This is also an effective way to get immediate feedback from the students. Of course, this method of soliciting questions and comments would also be useful in a smaller class.

When working with an individual student, I believe it is very important to understand his learning style. For example, one of my Introduction to Programming students became very frustrated and upset because he was having a lot of difficulty with a large programming assignment. I

recognized that the first thing I needed to do was to help him calm down. Then I showed him how to break the large assignment into smaller tasks and to identify the next few steps that would allow him to make progress on the assignment. By taking this approach, I not only helped the student with this particular assignment, but also demonstrated techniques for handling a difficult problem.

Relating course material to the real world

Students are more likely to become engaged in a class when they see how the course material relates to their life. Computer science can often be a topic that seems very abstract and it is especially important to provide real world examples in classes where many students are not computer science majors. One of the reasons I became interested in computer science is because my first programming course had many examples and assignment topics that were drawn from chemistry, mathematics, and physics. I saw how computers made it easier to solve these problems and became curious about what else could be done using computers.

Because of my interdisciplinary background I am prepared to present a wide range of examples. In an introduction to programming class, mathematics examples such as computing the factorial are useful for illustrating loops. For practice using arrays, I will have the students transform a data file into a format that is easier to use in a program, a problem I faced in my environmental engineering research. In a database systems class I will demonstrate how the proper handling of transactions is very important for banking and reservations systems.

A teacher is also a learner

I believe that an effective teacher constantly learns from her teaching experiences. Because every student is unique, I can learn something from each student I work with. As I stated in my discussion of learners as individuals, my students have taught me how to work with people who have different learning styles. I also learn from constantly evaluating my teaching methods, by observing more experienced teachers, and by discussing teaching methods with my colleagues.

One of my main lessons from teaching Introduction to Programming was that in one semester I do not have the time to develop all of my instructional approaches and materials to the level of quality that I would like. The next time I teach I will focus on increasing the amount of time dedicated to student-driven learning during a class session. I did this in the Introduction to Programming class by giving students time during class to work on short problems in small groups. This method was not as effective as I hoped because after a few class sessions many students worked individually, and some of the groups that survived were composed entirely of students who were doing poorly in the class. In the future I will try assigning students to groups and see if this encourages them to work together and enhances the learning of all students. I would also like to develop more effective methods for creating a learning experience by asking students to present their solutions to the class.

Because teaching is my passion, I am seeking a position at a college that emphasizes the teaching responsibilities of professors. I enjoy the challenge of figuring out how to best teach and assess my students. Teaching Introduction to Programming was the most demanding and most rewarding job that I have ever had. I am excited for the opportunity to continue to improve my teaching and to learn how to more effectively motivate students to participate in the learning process.