

Teaching Philosophy

Bo Ning

Department of Statistics and Data Science, Yale University

My teaching philosophy consists of three parts: 1) developing course plans, 2) motivating student learning, and 3) fostering effective communication. Each part is essential and interrelated with the others.

Course plans are essential, not only for instructors to track teaching progress but also for students to keep up with learning. Hence, making course plans needs to be a priority. My own course planning regimen consists of three objectives: 1) choosing appropriate course materials (e.g., datasets), 2) devising a teaching schedule that accommodates the varying difficulty and importance of the lessons, and 3) designing appropriate homework sets to promote learning and retention. In light of these objectives, I incorporate teaching tools that consistently emphasize the content of the course. For example, I might use R Shiny to make interactive figures that show how an MLE changes with the sample size or create an online quiz that reinforces the difference between the confidence interval and the credible interval.

Of course, different students have different learning styles that require the use of different teaching tools. There are many methods of classifying learning styles (Felder and Brent, 2013). One method categorizes learning styles into four pairings: active and reflective, sensing and intuitive, visual and verbal, and sequential and global (Felder and Silverman, 1988). In my classes, I sort students into learning styles by means of a survey. The survey contains questions about student preferences, such as whether they prefer working homework as a group or as individuals, whether they prefer to visualize or verbalize abstract ideas, etc. Teaching tools are developed accordingly. If the majority of students prefer learning in groups, then I assign group homework more often. If students prefer to have animations, then I create interactive figures.

However, even the best laid course plans will go awry if a teacher fails to pay attention to student motivation. Student motivation is directly connected to attention, which is itself related to learning types. There are three types of learners: deep learners, who are intrinsically motivated; surface learners, who only complete the required tasks; and strategic learners, who vary their strategies depending on their individual interests (Vajoczki et al., 2011). Again, using a survey is helpful for identifying the learning type of the majority of each class. In my intake survey, I ask questions about student backgrounds, their purposes in taking the class, and their expectations about learning outcomes.

It is easy to motivate a class full of deep or strategic learners—they are self-motivated. Motivating surface learners, however, is difficult. I use multiple strategies and teaching tools to engage (and re-engage) surface learners. At the beginning of my classes, I like to give online quizzes: The element of competition increases class focus, and the immediate feedback loop causes students to recognize content issues that need to be addressed with the teacher. When attention begins to fade in the middle of class, I divide students into groups for discussion and problem solving. In every class, I try to integrate the newest programming tools (e.g., R Markdown and IPython Notebook) and platforms (e.g., GitHub) because students are always interested in new technology—and anything that better prepares them for the job market.

While course plans and building student motivation are both essential, the core of teaching is communication. No teaching happens without words. Without expressing class content in clear and well-structured lectures, students are easily confused and demotivated. Clear feedback channels are necessary to avoid miscommunication. As has been seen, surveys are incredibly helpful, but I also heavily rely on what I learn in office hours. Office hours allow me to explore how I can create a better learning environment for each student—as well as respond to their individual needs and interests.

References

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