Teaching Statement

I have met many great teachers with different perspectives on learning and different teaching practices. As a two-time course instructor for intermediate microeconomics and a teaching assistant for thirteen different courses, I am able to successfully imitate their styles from time to time, but one of my biggest and most persistent challenges is that the effectiveness of a method of instruction varies significantly across individuals. Some students are visual learners; others are oral learners. Some students are able to learn through mathematical expressions; others need stories that match their experiences. My philosophy is that a student learns best when the teaching style matches the student's learning style. I try to reach all students by offering a variety of teaching materials that target multiple learning styles across students.

I begin with my experience as both as a course instructor and a teaching assistant. I provide some ways in which the materials I created in each of these roles tried to target the various learning styles of students. My experience led me to vary my teaching style so as to target as many learnings styles as possible.

- *Course instructor.* I taught intermediate microeconomics in the summers of 2014 and 2016, in classes of more than 150 students. I created lecture slides that include many animated diagrams. In fact, due to the large quantity of diagrams, I programmed my own editor to quickly generate Latex code for typical plots in economics. The animated diagrams are helpful visual aids to students who are visual learners. I also used precise mathematical equations to target the learning style of the mathematical learners. In addition, I wrote a complete set of questions for my class examples and problem sets, in which I inserted references to recent movies, TV shows, games, and news events. In my teaching evaluations, many students pointed out that it was exciting to see economic theories applied to recent events or economics questions containing their favourite superhero stories. Lastly, I also assigned textbook questions as additional practice to target students who preferred to learn using a textbook as their guide.
- *Teaching assistant.* I worked as a teaching assistant for a game theory course for course on twelve occasions for a total of six professors in aggregate. Before each tutorial, I recorded videos of myself practicing going through the problem-set questions. After the tutorial, I posted my notes[1] and uploaded the videos[2] on YouTube. Many students said my notes were very useful, but others found my videos to be more helpful. These videos have received almost 40,000 views since I started the YouTube channel in 2011. I also enjoyed grading the exams for these courses. I always classified the students' mistakes into one of five to ten categories and then assigned a grade to each category to ensure consistency in grading. I was then able to learn from the students' numerous ways of making mistakes, and to adjust the focus of my future tutorials accordingly.

Below I highlight three separate categories of learning styles along with my teaching approach that targets varying styles within that category.

- *Diversity in learning preferences*. When I taught intermediate microeconomics, I presented most of the major concepts by stating them in multiple ways to accommodate the multiple learning styles across students.
  - *Words*. I usually start by explaining an idea in English using words and stories so that oral learners can develop an understanding of the idea. Learners with other learning styles may glean only a partial understanding (due to language barriers or ambiguity and imprecision inherent in such descriptions) from this verbal description but they may eventually learn to equate the verbal description to the visual or mathematical descriptions with repeated exposure.
  - *Diagrams*. I then target visual learners. I demonstrate the idea using diagrams and animations since these methods speak intuitively and directly to visual learners. Other learners may gain an

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2. YouTube videos I created can be found on: https://www.youtube.com/user/yiyangwu

incomplete picture of the idea (due to the lack of precise details which may be misleading to the mathematical learners) but they still gain an inkling and eventually learn to appreciate visual descriptions.
    - *Mathematics*. Lastly, I target the mathematical learners by providing precise statements and proofs. While students with strong mathematical instincts prefer this method and other students may find it difficult to appreciate at first, my belief is that, with enough repetition, students with other learning styles may begin to link the descriptions and enhance their ability to learn via other methods.
- *Diversity in interests*. I worked as teaching assistant for game theory courses that are aimed at four groups of students: economic majors, economic specialists, first-year Ph.D. economic students, and computer science students. I vary the examples across classes to suit the students' interests.
    - *Popular culture*. I target students who are fans of popular culture by creating examples using characters and storylines from movies and TV shows. Such students tend to enjoy seeing alternative interpretations of the roles and plots with which they are familiar. I change the characters and storylines each year to reflect current films.
    - *News*. I target students who keep abreast of trending news and viral videos by providing links to a news article or YouTube video which lead into examples that I use in class. Most of the news articles are relevant to interactions among people and firms and therefore to game theory. I believe that relating the economic models to strategic behaviors in real life is an effective teaching strategy.
    - *Field of study*. I target students from diverse academic backgrounds by presenting canonical examples across fields. These students understand the relevance of a topic when they understand that the theory can be applied to their field. I am less familiar with natural sciences, so I often ask students with those specializations to help me set up these examples.
- *Diversity in attention span*. I held lectures and tutorials ranging from one to three hours. Students lose attention at different rates, so it is important to control the pacing and order of presentation.
    - *First hour*. I usually begin with brief summaries of previous lectures to familiarize students with the environment and to accommodate students who are a few minutes late but do not want to miss new materials. I then introduce new material using the techniques described above.
    - *Second hour*. After introducing students to new material, I then often engage them in simulations and games. I use mobile apps such as Socrative and TopHat to facilitate interaction among students. I also use these apps to conduct surveys and collect anonymous feedback. The students can learn more effectively by participating in an experiment than they can by hearing about someone else's results without the benefit of an experiment.
    - *Third hour*. Finally, after presenting new material and engaging the students in simulations, I present multiple examples that illustrate the ideas. By changing the tempo and styles, I try to keep the students engaged in the learning process. In addition, for all the examples I present, I also upload detailed notes to my personal website[1] and video recordings to my YouTube channel[2]. These online materials enable students (whose attention may wane) to catch up before the next lecture.

In summary, my teaching experience exposed me to the diversity of learning styles among students. This experience shaped my teaching philosophy and informed my teaching style. It is my responsibility to convey knowledge to students in a manner that every student can comprehend. My teaching style has evolved. I now offer multiple teaching styles so that every student can learn something from being in my class.

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