Teaching Statement

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My teaching philosophy is to not immediately reach a solution but to develop a thinking process (problem solving mindset) that leads to the solution. I believe every student is different and has a unique style of learning, and my role is to help them find and hone their style. When I started teaching as an assistant professor at the International Institute of Information Technology (IIIT), Bhubanesware, India[1], my single biggest challenge was keeping the students engaged in my class, especially the first year students in C programming course. At the IIIT, I taught C programming to first year students, Compiler Design and Java programming to third year students, and Cryptography to final year (4th year) students. In each course, every single problem, more or less, boiled down to keeping the students engaged in a topic. In order to keep them engaged in a class, I took a Coursera course on learning[2] and read many academic articles and non-academic articles about effective learning. I tried some of the techniques suggested in the Coursera course and academic and non-academic articles in my classes. Below I describe my experiences with teaching and efforts to engage my students.

In every course, I started with the end goal of the course. For example, in C programming course, I told my students that by the end of this course they should be able to write simple C programs, e.g., calculator, time tracking system, etc. The rationale was to show a vision to excite them for learning and instill the feeling of empowerment, by a narrative from being a consumer to being a developer of software programs.

To promote active participation, at the beginning of every class I would announce that on a few occasions I would make deliberate mistakes in solving a problem, and the goal of the class was to catch me on the spot. If the class succeeded, they received class participation marks, otherwise I told them my mistake and no one received any marks. In every single feedback that I got during my 3 years of teaching, almost everyone appreciated this idea of making deliberate mistakes.

For every course I taught, I designed projects related to the concepts and ideas present in the course. It was a part of my teaching philosophy to impart critical thinking. Furthermore, I asked my students to come up with their own ideas to promote idea-exploration, a key step to develop a critical thinking and problem solving mindset.

I feel qualified to teach most of the computer science courses because of my background in computer science, but my natural preference is the courses close to my research area, e.g., theorem proving, cryptography, logic and its applications in computer science, discrete mathematics, algorithms and data structures, introductory programming course (C/C++/Java/Python/Haskell/OCaml), foundation of computing, etc. In addition, I would also like to design a course to teach various voting methods used around the world and their pros and cons from a social choice theory perspective. Apart from these topics, I will be more than happy to teach other courses, given enough preparation time, at introductory and intermediate levels, e.g., type theory, theory of programming languages, networking, operating systems, databases, etc.

[1] It is a small technical school

[2] `https://www.coursera.org/learn/learning-how-to-learn`