Teaching Statement

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December 10, 2017

For me, teaching is one of the most creative professions. It combines knowledge from a large number of resources, adds liveliness to it and presents it with a practical attitude opening up new contemplation directions for young minds. While knowledge can be acquired through a substantial reading of textbooks and research papers, presenting it with liveliness requires one to incorporate a surplus amount of experimentation and creativity in his[1] pedagogies. I would like to actively engage my students in the process of learning and make them the creator of knowledge instead of being silent spectators. At the end of a class, I would like to see the students walking out with their thinking caps on instead of feeling that their understanding of the topic has hit an end.

Although as a fresh graduate student, I have not offered a full-time course, I have got an ample number of teaching opportunities in my Ph.D. I have always tried keeping my classes interesting by experimenting with various teaching flavors like flipped teaching, peer instruction, group discussions, and engaging fun activities. "Don't just tell them, show them" is my philosophy for an efficient lecture. Telling them that "clapping is contagious" has less far-reaching impact than proving it live on the stage. In one of my seminars, I asked a few of my friends to sit at different positions in the classroom and clap at a random point in the presentation. When these people clapped; in no time, the entire audience started clapping; after which I explained the prank played on them. It was a moment of excitement and fun not just for them but also for me. In 2017, I go the opportunity to assist my advisor in the NPTEL[2] course of Social Networks. I encouraged students to create short scripts in the form of dialogues to demonstrate key concepts like "Triadic Closure" and "Structural Balance" etc. While it was a movie making like experience, it strengthened the concepts of students in an involving way. In a particular script, we portrayed two girls initially arguing becoming friends after discovering a common enemy (Refer to Figure 1 for a snapshot). Although such ideas can be conveyed by words, they leave a never lasting experience when entangled with creative activities. I try starting my lectures with such dynamic activities, e.g., on the spot experiments and surveys, real-world examples, compelling Youtube videos and funny stories. The possibility of using these techniques vary from topic to topic, but designing them is creative and fun both for the instructor and the students.

I am neither a strict follower of the board styled teaching nor of the presentation styled; I believe in

[1] I alternate between the genders to refer a non-specific gender in my statement.

[2] The National Programme on Technology Enhanced Learning (NPTEL), is a project funded by the Ministry of Human Resource Development (MHRD). It provides e-learning through online Web and Video courses in Engineering, Sciences, Technology, Management, and Humanities. This is a joint initiative by seven IITs and IISc Bangalore. (Source: Wikipedia)

achieving a balance between the two based on the topic. Rather, for some topics, I prefer alternating between the board and the slides in the same lecture. In addition to this, I like implementing new techniques entering the market to enhance the learning process in my classes. I created a large number of Docery animations for the NPTEL course of Social Networks. This was different from the traditional NPTEL lectures using the board or a tablet to write on the projector. Using Docery, we could synchronize the explanation of the instructor with beautiful animations running in the background. A screenshot from one such lecture is shown in Figure. The approach was highly appreciated by the NPTEL team as well as the course students.

Figure 1: Snapshot from a play script

Figure 2: Snapshot from a Docery video lecture

A successful course is led by the combined efforts of the instructor and students. Hence both of their efforts need to be assessed from time to time. Hence, I would like to conduct timely surveys questioning students' expectations of the course and suggestions for improvement. Although exams are important tools to analyze the student's learning, sometimes having fun quizzes at the end of the class is of enormous help. Being ungraded, such activities garner interest and participation of the students. In the course "Probability and Computing", we also implemented the idea of collaborative lecture notes preparation which served the dual purpose of engaging as well assessing the students. The students were instructed to create and extensively edit the lecture notes present on a Github repository. The collaborative notes turned out to be the best resource for students while preparing for exams. Moreover, the edit history on Github enabled the instructor to assess the levels of interest and understanding of different students in the class.

In addition to the core subject teaching, I would like to emphasize the importance of research early in my students' careers. A research-oriented course motivates the interested students to take the subject one step further. As an educator, it is my responsibility to sparkle their interest in the subject and motivate them to take up challenging projects. Towards the end of our NPTEL course, I delivered several lectures based on my research work. I sandwiched many programming illustrations in between the theoretical explanations to ensure a better understanding of the empirical results. It was overwhelming to receive emails from the students all over India interested to participate in our research projects. Moreover, during my Ph.D., I got an opportunity to guide 5 interns in our lab (at different points in time) which resulted in 3 publications. The process of guiding young research minds is both fulfilling as well as challenging. .

My teaching statement remains incomplete without the aspect of teaching better communication to my students. A clear and correct expression of knowledge is as equally important as the knowledge

itself. Hence, in addition to imparting subject knowledge to my students, I will help them practice their written and oral communication skills through independent open-ended assignments, group presentations, discussion forums etc.

Although I am interested in teaching the core computer science subjects like discrete mathematics, operating systems, and artificial intelligence; if the curriculum allows, I will be very interested in offering a course in networks science which has a big market in the today's world. As a long-term goal, I would like to float the course to the graduate students as well and take it to an advanced level.