

## TEACHING STATEMENT: SETTING THE MIND FREE

AMITABH TREHAN  
HIGH PERFORMANCE AND DISTRIBUTED COMPUTING  
SCHOOL OF ELECTRONICS, ELECTRICAL ENGINEERING AND COMPUTER SCIENCE  
QUEEN'S UNIVERSITY BELFAST  
UNITED KINGDOM  
AMITABH.TREHAAN@GMAIL.COM

A good education should give us wings, set our minds free and allow our ideas to soar. As a young student, I have been to 'good' schools and 'bad' schools; those where learning was a pleasure and those where it was a drag. Overall, learning has been the greatest pleasure of my life, and as an educationist, I want to impart the same pleasure to my students. At the same time, I want an exchange of ideas so that I can continue my own learning and research.

The main tenet of my teaching philosophy is captured by the phrase: *engage and inspire*. Though easy to state, it is not an easy philosophy to execute. However, I believe, I have the qualities, skills, and experience to be a good teacher. During my early student days, I acquired skills of public speaking and public performance. I was awarded the college colour for public speaking at my undergraduate college, where I participated in theatre, debate, poetry writing and reading. I have been part of and headed various student organizations, and organized many academic and non-academic events. I have even hosted a weekly live show on Technion student radio featuring music and interviews, including that of Nobel prize winner Prof. Dan Shechtman. All this has held me in good stead as a teacher and an educator in my last couple of years at Queen's University Belfast (QUB) and earlier.

In my present position as a lecturer (assistant professor ) I have been actively involved in teaching, supervision, examinations, student and staff recruitment, and other University administration complimented with my role as a researcher. I have been responsible for the M.Sc. module on Databases for Fall 2013 and 2014. My classes have an average size of around 80 students and the instruction includes lectures, tutorials and practical lab sessions. In the upcoming semester (Spring 2016), I will be teaching a year 2 UG course on 'Data Structures and Algorithms' (to a cohort of 200+ students). Teaching has been an enriching experience. I have used various techniques and methodologies consistent with my teaching philosophy which I expound upon later in this statement. I am also pursuing the course *Postgraduate Certificate in Higher Education and Training (PGCHET)*. This course leads to a postgraduate qualification in teaching and learning in higher education and is accredited by UK's Higher Education Academy. The course consists of two modules; I have completed the first module and have had the opportunity to apply what I have learnt in my teaching already. In particular, I am looking towards applying educational technology especially given the large class sizes (moving towards a Massive Open Online Course (MOOC) setting).

I have been involved with academia in many roles since my first job was as a faculty at *NIIT*, a global Information Technology education company. I designed courses and exams and served as an examiner for *IGNOU*, India's premier Open University. I was a visiting lecturer for *Indian Institute of Technology, Roorkee* and other institutes. I was closely involved with University administration for a long period as one of the earliest employees of a central University of the government of India called *Mahatma Gandhi International Hindi University*.

The first class that I taught at NIIT was to a group of very notorious students. However, using understanding and patience, by the end of the course, they were among the best performing classes at the center. Later, through the years, I have taught to a broad sections of students with very diverse backgrounds, using many different methodologies. I have taught an algorithms course to a class having more than 100 undergraduate students. I have taught graduate level courses (Databases) at department of management, IIT, Roorkee, and now at EEECS in my present position. I have taught courses to university staff with no computer background on using GNU/Linux and multilingual software, and conducted professional workshops for academicians and researchers on using  $\LaTeX$  and mathematical software. I have given guest lectures at the University of New Mexico (Algorithms and Complexity) and at the Technion (Self-healing algorithms). I had a good response, enthusiastic participation and good feedback from every group I taught.

Following are some of the key methods and qualities I consistently try to incorporate in my teaching. Their application, of course, depends on various factors such as class size and quality of students.

- *Understanding the students*: Students may come with different skill sets and from different backgrounds. Moreover, they may have different learning styles [1]. Often, restlessness in students demonstrates intelligence, so a teacher should give them space and at the same time challenge them. A teacher also has to find ways to engage the class as a group and, at the same time, give special attention to the weaker students.
- *Patience*: This, I think, is an important quality for a teacher to have and inculcate. Many times, a teacher finds herself close to frustration with unenthusiastic or difficult students, but that is the time to be patient and find a solution.
- *Good oratory and body language*: Using public performance skills, a teacher can keep the students attentive. I try not to ignore any student while speaking by constantly changing my position and direction of delivery. I also observe their body language for subtle clues about their mood and my performance.
- *Constant in-class interaction and exercises*: I encourage my students to participate in class discussions, and to interrupt if things are not clear. I ask questions periodically to keep them attentive. I also gave them more formally prepared in-class exercises which count towards their grade.
- *Lecture notes and multiple teaching tools*: Wherever possible, I use the blackboard/whiteboard, prepared slides, and practical demonstrations. I generally prepare notes for the lecture beforehand, and use the whiteboard or slides depending on various factors. I try to make the lecture intriguing and informative and to constantly invoke the student's curiosity. If possible, I have the students solve and code small examples on their computers.

- *Soliciting feedback:* I am eager to understand from the students what I can do to improve their learning experience. After a class, I have often asked for such information from the participants.
- *Providing feedback:* Whenever I taught, I constantly kept the students apprised of their performance. After each test and exam, I have posted their scores and cumulative performance. This is especially helpful for the borderline students and for the teacher to give them special attention.
- *Projects:* As a student, I found that often the best learning occurs during a hands-on project. I have assigned individual/group projects to students counting towards a substantial part of their evaluation. My database course students have consistently reported this is as the most interesting and informative part of their course. For this course, students have gone out and discovered real world problems to apply their newly learned skills to and presented a comprehensively designed group product.

Following are excerpts from student feedback on my teaching:

- “Amitabh has an easy, relaxed lecturing style that makes his lectures enjoyable & accessible.
- “Very detailed. Careful about explaining background. Very aware of students understanding or lack of it”
- “Clarity [Strengths of teaching]”
- “Just a good teaching; everything is clear what you’ve explained to us.”
- “You are confident”
- “Solid grasp of the material and clear presentation”
- “examples were given in the class were really good”
- “Very personable, conversational style. Makes for an enjoyable class.”

Here’s one terse comment I treasure (as this shows what I need to improve):

- “Write bigger on board.”

Teaching is and has been one of the most important and fulfilling activities human beings have engaged in, whether it is done at a formal level in a classroom or by the side of a bonfire in a forest. It is a tool of human evolution allowing us to pass our knowledge from generation to generation and watch as the next generation increases that knowledge many fold. I can only hope I can make my own small but significant contribution towards educating the next generation.

#### REFERENCES

- [1] Overview of Learning Styles. <http://www.learning-styles-online.com/overview/>.