Teaching Statement

Alan Turing wrote that a teacher is able to teach his pupil a desired behavior without actually knowing the inner working of the pupil’s mind (Unbeknown to many, Turing was first in introducing connectionist ideas in learning and even “genetic algorithm” [1]). This statement may be true for machines but my teaching experience has convinced me that it is false for people.

During my last year as a teaching assistant at the department of mathematics, I taught a basic probability course. Being an instructor rather than an assistant for the first time, I was responsible solely for my class. I paid closer attention to the way students learn. Some learned the way I did; they grasped the general picture and did not, at first, pay much attention to details. Others would refuse to go forth without understanding each step. The art of learning and teaching, in my opinion, is to fuse the two approaches. Those grasping the “big picture” without paying ardent attention to details will not internalize the methods of computation. Soon the “big picture” itself will evaporate. For those who follow “the mechanics” well without imagining the larger context, the details accumulate to the point of boredom. One must strike a perfect balance between “semantics” and “syntax”.

My best teachers were those who carried both groups forward. I fondly recall S. Goldberg who taught me functional analysis. The students learned the subject in class; he put down every detail on the board, never made any one feel bad for forgetting the obvious. On occasions he would just stop and talk about functional analysis and its connection to other branches of mathematics. He did not allow the class discussions to be prolonged but was always ready to talk after the class. He encouraged us to work together on the homework problems but give credit when our solution was heavily aided by others. His exams were hard but fair; he gave some take home exams for the sake of those who could not think well on their “feet”. To me, and all his students, he was the model teacher. I will follow his example.

I also believe any engineering department would benefit from my experience as a field and design engineer (See my resume). Engineers must learn to be flexible and understand models are only starting points and that solving most problems in the world requires communication with people who do not share their background and knowledge.

References


1Dep. of mathematics, University of Maryland at College Park.