

At Kent he was curious about computer science but in just the introductory course Math 10 061 in Merrill Hall the math got to be too much for him. *John Updike* in *Rabbit is Rich*.

I come from a family of academics and I have been brought up to believe that there is nothing more rewarding than sharing knowledge. I am as keenly interested in education as I am in research, and my teaching objective is to give room to bright students to excel but not leave anyone behind.

Over a period of time, I have been struck by opportunities for deriving greater value from the college education system, namely, making the evaluation less rigid, increasing interaction and making the material less intimidating. The current state of education is driven by grades and grades are obtained via exams. Though this brings out the best of the students who survive this experience, there are many downsides to this process, one of which is that students become excellent test-takers but graduate without an understanding of the material. My long term plans are to work within the system and create a flexible scheme to evaluate students. Traditionally, education involves the teacher presenting the material and the student receiving the knowledge, often passively. When I lecture, I encourage and facilitate interaction with the purpose of furthering understanding. This style is inspired by the following truism that a professor of an undergraduate class of mine shared with a class: *If you ask a naive question you might appear naive for a moment, but if you don't you will remain so forever*. A part of the reason for the passiveness of the students is that they are often intimidated by the material — which is sometimes amplified by the teaching style of the professor — and frequently this drives the students away from the subject. The challenge of teaching becomes harder because of the natural resistance to absorbing hard material, and I will consciously meet this challenge by finding ways to motivate the students.

Whenever possible, classes I teach will have a computational component, to encourage students to learn by exploration and experimentation. Here I am drawing on the experiential theory of learning [1], where the student “learns by doing.” I believe that teaching and learning go beyond classrooms, books and exams. Students who are interested and motivated should be exposed to advanced research problems as soon as they begin life as an undergraduate. In this regard, I have initiated plans with Ming-Deh Huang and Sheldon Kamienny to start an undergraduate mentoring project funded by the USC College of Letters, Arts and Sciences. Students will participate in this program to conduct research in number theory and cryptography using SAGE [2].

We are in the midst of a paradigm shift in the way information is generated — the web-savvy do not just consume content, they also frequently *create* it. Inspired by the success of user-generated content, I would like to bring this creative, participatory mode of technology use into the classroom. I am keen to immerse my students in an environment where they collaboratively *create* content — class notes, discussions and feedback. If these are created in a style which captures the illustrative tone of the lecture, they will elegantly complement the expository rigor of the textbook.

The hope is that these two proposals — turning students into knowledge-seekers and into willing creators of class material — will go a long way toward changing the mindset of the student and the teacher.

My experience as a Teaching Assistant for over a dozen Math and Computer Science classes and the compliments that I have received have made me realize my potential as an academic. In conclusion, I would like to provide my students opportunities which were not available when I was one, keeping in mind that they are the future of society.

References

- [1] Kolb, D. *Experiential Learning Circle* <http://www.infed.org/biblio/b-explrn.htm>.
- [2] Stein, W., Joyner, D. *Sage: System for algebra and geometry experimentation*, Communications in Computer Algebra (SIGSAM Bulletin) 39 (June 2005), no. 2. <http://sage.math.washington.edu/sage>.