

Remarks about Teaching to Committee of Departments. November 2007

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My presentation was based on a document I wrote last spring which is still on my website at: <http://www.mast.queensu.ca/~peter/teaching.htm> together with a commentary from others. I have edited the account of the COD presentation considerably following the discussion at the meeting. For example the cautions raised by Marta Straznicki made me significantly alter my “1st and 2nd string” dichotomy of the student body.

If it ain't broke don't fix it, but I think it's broke. In spite of the glowing reviews we apparently get from our “consumers.” A recent book tends to agree. [*Ivory Tower Blues*: a university system in crisis, Cote and Allahar, 2007, UofT Press.] I will refer to this book from time to time.

There seem to be two problems.

1. We are all stretched too thin and a big reason for that is underfunding. We cannot teach so many students properly and be world class researchers and spend time preparing applications for the few opportunities that exist for extra money. My colleagues are increasingly frustrated by this situation and are more careful about agreeing to take on the steady flow of small “extra tasks.”

2. Many of our undergraduate students should arguably not be at university in the first place, either because they are not intellectually ready or their true objective is job preparation, or most likely some of each. The book makes it clear that these students view the university as an extension of high school, that they quite simply come to university if their marks are good enough as it is a de facto prerequisite for the good job and the good life.

My view is that a solution to the second problem can contribute to a solution to the first.

Number 2 is a strong assertion of *Ivory Tower Blues*, but before I proceed I should say that the discussion following these remarks, and some further reflection, persuaded me that at Queen's we have less of this problem than at other places, and that with the right changes almost all of our students might find they are in the right place. Indeed, rather than think about two groups of students, it is perhaps more accurate to say that while a number of our students are here simply to learn through expanding their intellectual and imaginative horizons, and while a few of our students are here simply to get the good career, the great majority of our students have within themselves some (greatly variable) mixture of these two motivations. So rather than refer to “two groups” of students, I will talk about “two motivations.” The reason I want to be able to do this is that I believe that the conflict (more precisely the *tension*) between these two motivations is responsible for a deep flaw in the design of our curriculum.

The big challenge according to *Ivory Tower Blues* is this: given the current funding envelope, find a way to offer a curriculum which satisfies both groups, which offers all our students a significant and creative experience without compromising the excellent and specialized education that many of our students expect and deserve. I assert that in the past we have met this challenge by offering a curriculum that is a *compromise* between the two needs: intellectual growth and job preparation, and as a result we serve neither particularly well. Rather, I believe that if we consider carefully the two particular needs and capacities, intellectual growth and preparation for the job (and the good life), we will be led to a teaching strategy (and a curriculum structure) that works well for both and at the same time, reduces stress and anxiety for student and professor.

Briefly what we have to do is *to teach differently and less and to examine differently and less*. Of course we have been exhorted again and again to teach less, but it never seems to work. My view is that the way to get it off the ground is to combine it with the right innovative examining strategy.

We teach too much. On the face of it this is crazy because why on earth would we give ourselves unnecessary work when we are stretched so thin? I can think of three reasons.

- We have such a great story to tell we can't bear to leave anything out.
- We buckle to pressure to cover ground from other levels. This is especially noticeable in the response of the highly technical high school curriculum to the perceived needs (demands!) of the university, especially in science.
- We don't trust our students (though often with good reason). We feel that if we don't teach it they won't learn it.

Let's look at what needs to be learned.

The first observation is that most of our students don't need most of the stuff we teach them. In fact, whether they are destined to be CEO's or high school teachers, they hardly need any of it. That's no big deal, because as things stand they hardly learn any of it anyway. [Seriously—when I take the trouble to look carefully, I am dismayed by what little many of our 3rd and 4th year science and engineering majors can actually do.] But this simple fact already suggests that there is much wasted time and effort in the system and surely that should be of great significance for those who wish to solve problem 1.

What *do* our students need? Those who are destined to become key players in the socio-economic machine of the future, community and industrial leaders, teachers, and parents of our future students, have quite simple needs, and we've heard them recited many times: to think and read and write clearly and imaginatively, to learn how to construct a "hands-on" relationship with the material, how to "muck around" with a few concrete examples to get a sense of what's really going on. Our real task is not to prepare them for any particular job, but to set them free, to awaken them to a new way to tackle the world, to initiate them to the power of ideas, beauty, sophistication, all that good stuff. It needs to be said that for this type of learning to work, *one should not be under undue pressure, either of time or of marks.*

Some of our students do need a lot of what we teach them; they are the ones for whom the university was created and their goals are essentially intellectual. But the key point here is these students tend to get that precious knowledge for themselves, indeed, this is the only way for them to gain mastery of it. What they need from us are good problems, and good resources, and the encouragement to keep going. They need to see how we tackle such problems and how we take risks, and then they in turn will do most of their real learning struggling in the same way with their peers. They do need lectures, the more beautiful the better, at the beginning to set them on fire, and at the end to tie things artistically together. [These are Whitehead's two stages of Romance and Generalization.]

Recently (Nov. 18) Michael Enright did a charming piece on William Blake and one of the speakers reminded us of the power of the grain of sand (or if you like of the wildflower). The key point is that a set of lectures, problems and experiences modeled on this Blakean (and Whiteheadian) principle can perfectly serve both motivations, and will be a far cry from the compromise curriculum we offer today.

[Note added: I have just returned from an education session at CMS meetings and came away with a huge of the bewildering and chaotic pressures and relentless sense stimuli that bombard our students, from early middle school and beyond. Maybe what our students need from us more than anything is the encouragement or even the *permission* to sit in a quiet space and reflect upon a simple problem or configuration.]

We examine too much. Our tests and exams serve two purposes: *feedback*, for the eyes of the student and teacher only, and *certification*, used by third party to make decision affecting the student's life. Here I will talk about certification and briefly, I assert that we do far too much of it, and most of what we do fails to properly assess most of our students. [Indeed I am appalled at the amount of time I spend marking papers that are nowhere near the students' best work.]

I put forward two principles.

- Certification examinations should never be imposed unless conditions are such that the student is able to submit his or her best work.
- Certification examinations should be restricted to the third and fourth year.

If you think a bit about these two principles, as I have done, you might begin to see the manifold and somewhat subtle effects they can have on the behaviour and attitude of both students and professors. I believe that it can force them both to come to grips with what learning is really all about, and thereby free both parties, the professor to really teach and the student to really learn. For the student, this significant "eye-opening" experience will come in the critical first two years of study. I believe that in the first two years it will also change the character of our interactions with them, most of which at present are about marks more than they are about learning.

Of course such a drastic change would have a considerable impact on our current system and there's lots to discuss here. One point that has been raised (by Kim Nossal and others) is the need of some programs to "certify" those first-year students who can proceed to a major in that discipline. At present we accomplish this essentially by using "exit" exams as "entrance" exams. There might be some merit in constructing simpler, more direct entrance exams for such programs. These exams can be based, not on particular courses taken in one year, but on 13 years of general schooling, and for the most part (except at the borderline) would be easy to mark as they are essentially pass-fail. Such exams might even do a better job of selecting the right students.

Expectations. Don't underestimate expectations. They are of huge importance. We have to make it clear from the beginning that this place is critically different from high school, that we expect quite different behaviours and outcomes. At present we do not do that at all well. And we need to encourage our students to make equally clear their expectations of us. [Interestingly enough, the book points out that many students come to university expecting more than they find, and after they arrive they lower their expectations and decide that university is just a larger and more intimidating version of high school.]

Engagement. This is a big word these days. Part of the reason is that most of our students are only half engaged at best in lectures, and that implies a huge resource waste. Let's be clear what counts as engagement—it is not about giving every student a chance to talk in class either to the prof or to a neighbour. Nor is it about clickers or any such stratagems, though these used appropriately can certainly contribute. It's ultimately about what is going on inside the student. It's about having a problem that captures them, or a scenario that turns their universe upside down and gets them scrambling to put things together in a new way. It's about the fire inside.

I believe that if we take these changes seriously, our teaching can become simpler, more effective, more enriching. We want an international university?—students from other countries will find such a system attractive. We want to attract alumni support, especially financial?—alumni will find such a system intriguing and compelling.

Next steps. I am away this winter but my intention is to start from here and talk about these ideas with a group of, I hope, diverse colleagues. Feel free to pass this along to a colleague who might be interested.