

On improving Science Education

BY JASON MORRISON

Two weeks ago I voiced my dissatisfaction with undergraduate science education and claimed that in many programs, students could graduate without demonstrating competence in reading, writing and thinking. While it's easy to see the problems, it is far more difficult to find viable solutions. I'll mention a few small steps that I think could improve the quality of education considerably.

One of my principle complaints is that science programs emphasize knowing facts rather than having skills. Fortunately, testing knowing and testing doing are NOT mutually exclusive: by changing the methods of evaluation, it would be possible to cover all the important facts and at the same time test higher level skills. What is required is that when administrators design the curriculum and decide on required courses, they scrutinize not only the content of course material, but how mastery of that material is evaluated and what skills are being tested.

Another simple action would be to hire markers to get rid of mass

multiple choice testing. Can you imagine the outrage if English professors told students that because class sizes were too big they would be getting multiple choice tests?! Nevertheless, professors in Biology and Psychology get away with this excuse. By hiring undergraduates to mark tests you have a cascade of pedagogical benefits. First, the students writing the test get a far more fair and useful method of testing. Secondly, marking provides undergrads with a job where they actually use their acquired knowledge, and gain experience in an area of teaching. Lastly, since multiple choice artificially inflates the grades of the unprepared, the difficulty level of the class increases without resorting to semantic trickery.

One might ask where the money will come from to pay for these markers. I would respond that this should be a part of each department's budget, but let's find a more realistic answer. First, how much would this cost? I'll err high and say \$500 dollars a half credit for marking 4 exams in a large second year psychology class. If we divide that cost over the 100 or so students in the class, that equals about \$5 a

student per half credit. I'd say a 1.25% increase on the \$400 we pay per credit is a bargain for reasonable testing.

But I don't think we should have to pay more tuition. Science students are currently paying \$20 a year into a Capital Campaign fund dedicated to improving learning resources on campus. In October, the university administration asked the DSU for one million dollars for a new Arts building and gave them two weeks to decide. The DSU caved to the pressure and hastily agreed to spend almost the entire Capital Campaign fund in one move. Considering that science students comprise 30% of the students on campus, that makes \$300,000 of science student cash will be used to build an Arts building. In comparison, half that amount of money could have paid for markers for 300 half-credit classes over four years. So instead of channelling money back to students and improving the quality of education, the money is used to build even bigger classrooms and diminish the quality of education further.

Moving on to more extreme suggestions, get rid of three year

degrees. Few institutions still offer them and neither should Dal. Three year degrees have minimal required courses and students graduate before taking the most difficult (and high quality) courses. Next, change the requirements for advanced major degrees so that they are more in line with honours programs. Many departments have a two-tiered system where difficult conceptual or writing courses are only required (or open to) honours students. To me, the only difference between an honours and advanced major degree should be the research focus, not difficulty or quality. While professors would have to be sure the level of expectation didn't diminish, I think every student deserves to be challenged by the best courses in their department. I think that most honours graduates have proven an ability to read, write, speak and think at a high level, so this change would ensure that all graduates receive the same challenges.

These are just a few simple

suggestions. Certainly the problems are more complicated than hiring some markers, but it is a start. The more extreme changes would mean either poorer quality for the top students currently in those courses or more money being added to the system. Since I would never accept the former, I guess I'm advocating the latter. With all the talk about federal budget surpluses, I can think of no better place to invest new revenues. Surplus or no surplus, there is money available. If the government has five million dollars to build bigger classrooms, how come there is no money for existing programs?

Billions are already being spent in an effort to produce quality university graduates. Actually achieving this goal will require smarter spending in the short term, and greater investment in the long term. Tough decisions and a real commitment will be necessary to transform the notion of a highly educated society from mere rhetoric to reality.

The Election fever finally broke

BY DANIEL CLARK

It's over. The hands have all been shaken. The babies have all been kissed. The drinks in the Grawood are no longer "on me". In short the much vaunted, but little publicized DSU elections are over.

And I lost. That's right. 1500 people unanimously agreed on one thing: Daniel Clark should not be Vice-President Academic/External of the DSU. 700 people agreed that Kevin Lacey should have the job. That number may represent only 6.5% of the Union, but that does not invalidate the results.

What's really interesting is that an event like this really illustrates for a person who their friends are. When you're a candidate, everybody is your best friend. When you're the losing candidate you get remarks like, "Get out of my way, fatty!"

Your real friends, and you may not realize who they are until the elections (or the sporting event, or the contest, or whatever) are over, are the ones who are inter-

ested in how the events have affected you. They care about your feelings and your pain. They are not just along for the ride.

I had the opportunity to really learn who my friends were through all of this. As painful an experience as it is, and believe me it hurts, you learn so much about yourself and your life.

All my life I have been surrounded by people who did not care, and were only interested in what I could do for them. The world is full of such people, and chances are that you know a few of them yourself.

It gets to the point where you begin to think that everybody is so superficial. I have been gratified to learn that I don't only attract these 'false friends'. In the last few days I've learned just how important real friends can be; especially when you're hurting.

When the realization finally struck that I had lost, there was this tightening in my chest; almost as if someone had grabbed my heart muscle, and was squeezing it. There was also an intense emptiness which accom-

panied this feeling. A feeling which constantly echoed in my ears the words, "What now. What now."

The DSU elections are really nothing more than an elaborate popularity contest. Very few people take the time to find out about the candidates and what they really believe. For those of you who did take the time to find out about me, and then in fact voted for me — I thank you. You made the entire experience worthwhile for me.

In the end I am glad I ran. Aside from the fact that it was an enjoyable experience, I also learned a lot about myself. Things I have never had a reason to discover. Things which I believe will make me a better person.

For those who think there are no good reasons to get involved in the DSU: I'll let you know that this learning makes the pain worthwhile. Almost.

Congratulations to everyone who ran. It was a great campaign, and it was great fun. I hope we can still be friends now that we've returned to our normal lives.

to mark all the papers. From my understanding, in Arts classes they have tutorials. In these tutorials there are only a few people and an instructor. This allows Arts students to have essay questions and other written work. In science where there are at least two hundred people in a second year class, multiple choice is an easy and cost efficient way of testing the facts. That is not all that it does. If you have ever written a Biology multiple choice exam before, you will know that it requires more than luck to succeed. There are many skills needed in order to do well. You have to think, you have to know the facts but more importantly you have understand the information.

So instead of spending your time writing articles about how science is useless you should be writing about how there are too many people in one class, especially in first and second

year. If there were less people in a class, such as in third and fourth year classes where the class size ranges from 12 to 60 people, it would be more possible for essay type questions to be on exams.

A few words to you Mr. Morrison, instead of worrying about how you hate multiple choice exams and wish that they were essay questions so that you can get partial value, you should study more and appreciate what you have learned instead of what mark you received on your last exam.

In conclusion I would like to say that I enjoy being a science student and I, like most people, have goals and plans for the future. I feel that I am receiving a good education which is teaching and providing me with the necessary practical and useful skills which I need to reach these goals.

Brian Wade

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useful and practical experience, science students are given the chance to read, write and communicate but most importantly think. Also in the same class we have weekly lab reports to write. Again we have to read our research material, write it out in a clear and precise manner but most of all to think about what to write. So no matter what us science students do, or for that matter what arts students do, we need to think and be able to communicate our thoughts in a clear and precise manner.

Now, on to the issue of multiple choice. There are multiple choice exams because there are so many people in the class. If every test or exam had essay questions or some other form of written work, it would be rather hard for one or two professors

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