
I find this last technique of deliberate misspelling to be a bit dishonest, but it's hard to argue with success. In my own classes, I endeavor to create the feeling that we are all creating the lesson together. I do this with a constant line of patter, much like that used by a magician or an illusionist. With this technique, I have the students talking all the time as well. If a mistake is made in class, then it is *our mistake*, and we fix it together. If a problem is solved correctly, then that is our shared triumph.

The key to bringing your class to life is to become involved with the students and to make learning a shared activity. Perhaps this is one of the great lessons of the reform movement. It is not an ideal learning environment to have the teacher as stick-man preaching before an audience of sponges. Learning should be done symbiotically, and it is up to the instructor to structure his class accordingly.

3.13 Teaching with the Internet

The Internet is a marvelous tool for making information available to a large body of people quickly. For example, if a mathematics department subscribes to an electronic journal, then as many people in the department who wish to do so can read the journal at the same time. Those who want to study a paper carefully can download it, compile it, and print it out. When you prove a new theorem, you can post your abstract (or your entire paper) on an electronic bulletin board. Your results are then instantly known around the world.

The Internet is also a useful teaching device. Create a Web page for your class. Put the class syllabus on the Web page. You could have a page about prerequisites for the course, or ancillary reading, or ways to prepare for exams. Post homework assignments and due dates on your class Web page. Put information about upcoming exams there. If you need to write up a correction to something from class, or disseminate a list of errata to the text, or post homework solutions or exam solutions, then the Internet is just the ticket.

I once read a proposal for an "Internet Mathematics Curriculum". The premise was that, at certain universities with a great many part-time and commuter students, absenteeism is a problem. Students have families and jobs and cannot always make it to class. In the electronic age, modes of communication are changing—so why not take advantage? The proposal was that the professor would still give his lecture, and those who could attend would do so. But there would be assigned note-takers who would post official notes on the Internet. The Internet could also be used to cut through the problem that students will not—or are too shy to—participate in class. The math class would have its own electronic bulletin board(s), and students could post their queries there—anonously or not. Other students, or the professor or the TA, could answer the queries as they saw fit. Since many students have the same questions, this use of a bulletin board would allow the professor to use his time more efficiently.

The proposal that I just described was not funded. In fact it didn't even make the first cut. I think there is real merit to some of the ideas just described. But

I also thi
the learni
this: Mar
to come t
have grad
a young j
Film Fest
to ponder
hold clas
in a conti
subject u
and I kno

My po
what is p
for your
casual, a
learn in t
boiling o
why trad
suitable s
class. I'm

You c
informed
homewor
minute r
concept c
one. The
mathema
remembe
time was
the mate
term).

I belie
is yet to
substitut

3.14

Ask your
ucation,

¹The sc
It presents
the studen
a question
convenienc
create a d

I also think that the concept of an Internet University abrogates much of what the learning process is all about. Classes are held for a good *reason*, and it is this: Many things that we do in life have a ceremonial aspect. We hold funerals to come to grips with someone's passing, and to create a sense of closure; we have graduation ceremonies to pause to think about an important moment in a young person's life; we select people for prizes (the Nobel Prize, the Cannes Film Festival Award, etc.) in part to recognize talented individuals and in part to ponder the human condition and what we are trying to achieve. Just so, we hold classes so that the students will take an hour, go to a special place, sit in a controlled environment, and think in a focused manner about a particular subject under the guidance of an expert. If this were not as important as you and I know it to be, we would not do it.

My point is that Internet classes, while they may have their place, eliminate what is powerful about attending a class. Glancing at prepared lecture notes for your calculus class on your computer screen is (for the student) a bit too casual, and too much like turning on the radio. The student attempting to learn in this manner could be interrupted by the telephone, the doorbell, a pot boiling over, a baby crying, or any number of other exigencies (again, this is why traditional classes are a good thing). A mature and disciplined person with suitable scholarly training might be able to learn successfully from an Internet class. I'm not so sure about inexperienced eighteen-year-old students.

You can use the Internet as the nerve center of your class, to keep everyone informed of up-to-the-minute information and last-minute changes, to post new homework assignments, to post grades, to change your office hours, to give last minute room or seating assignments for the upcoming exam, and so forth. The concept of fielding questions over the Internet, or with *e-mail*, is a fascinating one. The one obvious impediment is that most students don't know how to enter mathematics using the keyboard.¹ This certainly is more efficient than trying to remember to photocopy the information and bring it to class, it avoids the class time wasted when you distribute handouts, and it is more permanent (that is, the material can always be found right there on the Web for the duration of the term).

I believe that the full picture of the value of the Internet as a teaching device is yet to be determined. But I caution you against thinking that it can be a substitute for classroom learning.

3.14 The Art of Discourse

Ask yourself this question: If a student has a successful and fulfilling college education, then what does he take away with him? Twenty years after graduation,

¹The software product *NetTutor* by Link-Systems is designed to cut through this problem. It presents the student with a white board on which to write his query by hand. Or else the student can click on icons to pull down mathematical symbols. The student can submit a question anonymously or not. The professor can answer questions in real time or at his convenience—and he can do so publicly or privately. The professor also can, with little effort, create a database of frequently asked questions that he can allow the students to access.