Advising the Unsuccessful Student

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Abstract

How do you successfully advise the unsuccessful/withdrawing/flunking student? This is an area about which a teaching faculty member rarely finds articles. But it is truly an important area for the teaching faculty member to be able to interact with students. The first suggestion to make is to not totally abandon the Computer Science field; the worst thing to do is quit college. If a student has managed to complete more than two classes in the computer science major then they have some ability that they should not ignore in their effort to pursue a university education and a career. This paper covers the general topics that should be discussed with an unsuccessful student.

Introduction

There are a large number of challenges in attempting to salvage the unsuccessful student since these students are rarely a happy lot. I end up speaking with them one-on-one usually when they stop by during office hours to talk about a difficult assignment or upcoming examination that is causing stress. Warning signs usually tell me which students will be coming by my office; missed assignments without a health issue involved, excessive grouping with other students (especially on non-group assignments), or poor performance on tests.

Advising is THE major non-discussed area within the university environment. I have taught at three universities and only one of them had a 'How to Advise' meeting for new faculty and it was just a discussion of transcripts, transfer credits and common courses in which to enroll high, moderate and low-achieving high school students.

There was NO discussion of students leaving the major, advising was all oriented towards students entering the major, not attempting to prevent or recover from an unhappy student experience. In many universities with large numbers of adjunct faculty teaching students, this area of advising is so often ignored, but yet so very critical. Just teaching the classes and turning in final grades only handles 50-60 percent of students. The advising of students who transfer in and out of the Computer Science major is complex but faculty members need to help solve these issues in order to increase student retention.

Discussion

When opening the discussion with the students there are three areas of major importance: the variety of Computer Science subfields, the direction of student unhappiness and the depth of student unhappiness.

More Business

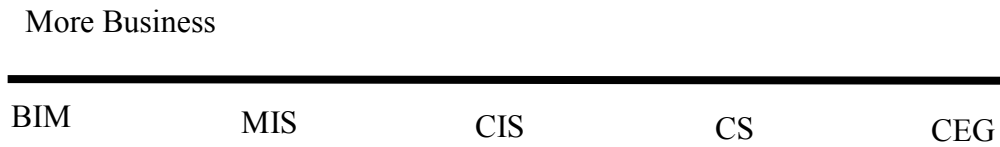BIM   MIS   CIS   CS   CEG

Figure 1: Traditional Computer Science Spectrum

In the traditional spectrum of the computing world, business applications dominate one end and the Computer Science and Engineering dominate the other. The definitions commonly used include:

- BIM – business information management, usually a business degree with a couple of very lightweight programming courses, concentration is mostly on management issues involving computers.
- MIS – management information systems, usually a business degree with a couple of programming courses in Visual Basic or COBOL. Programming extends into database access.
- CIS – computer information systems, usually involves 4-5 programming courses, sometimes straying off into Java or C++. Can take some CS courses with actual CS majors and may even take a computability/symbolic logic type of course.
- CS – true computer science, 10-12 programming courses usually with 2-3 courses in computability/symbolic logic, theoretical computer science courses that leave even the best students a little lost.
- CEG – computer engineering, this degree is generally offered in engineering schools, often for the engineering student who happens to like programming computers more than concrete.

This traditional spectrum has changed in recent years, BIM and MIS have combined under the term IS (information systems), generally applying the same principles of the fields of computing and business to computers and libraries, computers and biology, computers and medicine, etc. This expansion allows for more student education in Computer Science and another field. In general, educational programs of this type usually take the theoretical Computer Science courses out of the curriculum (Discrete Mathematics, Theory of Programming Languages, etc.) to have room for increased education in another field.

Direction
This part of the conversation covers the student's direction of unhappiness, hopefully identifying the source:
- Off-campus problems
- Difficulty within the major
- Difficulty within the course
- Just this class
- Just the instructor (heaven forbid!)

With off-campus problems, students are referred to the appropriate on or off-campus support office (if at all possible).

If the student indicates unhappiness is with the entire major then its time to start some in-depth discussion. If the student has completed 9 of the 10 courses, are they unhappy enough to change majors now or should they just finish the degree and look for a job in an area of computing that is of more interest?

If the student indicates their dissatisfaction is within the course, then I usually discuss that this particular course (1) is meant to be a difficult course and (2) relatively few professional programmers work in the Operating Systems area. There are many more IT people working in non-OS areas than within it. If their interests are in WWW software or graphics or algorithms or whatever, then the student might not be interested in the course content and unhappiness with this course does not necessarily carryover to the rest of the Computer Science major.

If the student is early in the degree, are they running from this degree or are they running to a more interesting major? It is good if they are running towards a more interesting area but when running away from computing, students are apt to take any port in a storm and they can make another error in changing to a major with attractiveness that is only temporary.

If the student is close to a goal (1-year certificate or CS minor), are they willing to take one more course to finish or is it time to bail out?

Since most students are young and might be encountering major failure on their part for the first time, I inform them that I changed majors after the A.S. degree and the reason I am not in physics is I was not happy in the physics lab and I could not complete the lab assignments very well. Nobody is good at everything, the trick is to find something you can do that not everyone can do and someone will pay you for.

Depth
A rather raw question to ask the student is "How do you feel about Computer Science?"
- Hateful
- Take it or leave it
- Still like it even though I am flunking

If a student is getting ulcers then they need to get out. Some students with outside pressures do continue to take classes even though they are no good at it and they hate it as well.

If the student likes using computers but is finding the upper-level courses more difficult, then that is OK. The upper-level courses are supposed to be harder. The question is "Can you accept the lower grades in some of the upper-levels to finish your degree and get a job, making sure it is a job in applicative Computer Science and not theoretical Computer

Science?"

If the student likes using computers but is finding the theoretical courses impossible, then they should consider moving toward using computers as applied to another field. The traditional move has always been towards business on the computing spectrum. But more recently there are more options in leaving Computer Science. Generally, students have to complete a few science courses outside of computing, either in chemistry, biology, geology or physics. So the question for the student is "Is computing off towards one of these areas more interesting (as in bioinformatics, chemical informatics, medical informatics, etc.)?"

Most students departing Computer Science tend to move towards the business end of the CS spectrum with some exceptions. A small number of students have indicated (after substantial discussions) that they very much liked their writing courses in the English department. For these students the recommendation would be changing into technical writing. I wave to all the books on the shelves in my office and tell the student that for the author of each book there is an entire team of editors/assistant editors who assist with the writing. I also indicate that it would be a good thing that some of these editors have had classes in the sciences and not just in writing.

Now, it happens that Indiana University Southeast does not have a degree in technical writing. However, the university does have a baccalaureate in General Studies and also a baccalaureate in Individualized Major. A small number of students have used these open-topic type degrees to craft a baccalaureate degree, following the model of a real degree in technical communication from another accredited university.

Conclusion
Advising a student who is failing in their studies is not a short conversation. The student needs to be advised of reasonable directions out of Computer Science that do not totally discard their efforts in the degree thus far accomplished. Information about the underlying pressures driving the student from the field need to be identified and the student needs to be familiarized with the spectrum of computing-related fields.

In total, student advising is an extremely important portion of the educational environment in a university setting. Too many departments with high number of adjunct instructors don't have the full-time faculty around for office hours to do this in-depth advising. All faculty members can improve their efforts in the area of advising and substantial numbers of students could benefit from these efforts.