Computer Science Takes A Closer Look

Taking a closer look at what you are doing in the classroom requires courage. Zena Ariola, Computer and Information Science, started by asking me to observe her class. During our first consultation, I told her about several other ways of getting feedback on her teaching and the idea of a student interview intrigued her. I came in during the last 15-20 minutes of one of her classes and Zena left. Then her students and I had a discussion about how the class was going. Putting them into small groups, I asked them to come to agreement on answers to these three questions: What’s working well for you in this class? What isn’t working well? What suggestions do you have for improvement?

Zena and I discussed the feedback later and she found it very helpful. Since then, small group instructional diagnosis has become a regular part of her professional development. She also requested a videotaping this year during winter term and made TEP history by being the first faculty member to invite a colleague to her view. Ginnie Lo joined Zena and the three of us watched and discussed the video together.

What follows are comments from both Zena and Ginnie as well as the student feedback Zena received from her last SGID. My comments on the student feedback are in parentheses.

Georgeanne

Zena Ariola:

I always put effort into teaching, and yet my course evaluations were not that great. It was clear to me that something was wrong.

During fall term 1995, I decided to ask Georgeanne Cooper for help. She came to my class and interviewed students for 15 minutes. Then I met with Georgeanne to discuss the results. I was surprised to hear that students were actually quite positive about the class. This was not the impression I had from the evaluations done at the end of the term!

Since then, Georgeanne has become a regular visitor in my classes. The students always thank me for the opportunity to comment. I have tried the Midterm Evaluation of Teaching (MAT) in the past in order to get student feedback, however, I find the interview method more useful. First of all, the questions in the MAT are formulated according to what we (the instructors) perceive to be the problems about the class. However, we might not foresee all possible problems that students might have in understanding the material. In the interview, students are not merely answering predetermined questions. They are free to express what they like, dislike or feel needs improvement about the class. In this way, I not only find out that students are unhappy— I also know why.

The interview gives students the chance to express positive comments about the class. I have found positive feedback as valuable as the negative comments! The interview helps in establishing a good relationship with the students. They feel their needs are taken into consideration.
My teaching has improved significantly since fall 1995. Part of this is due to experience, but another important part is due to the feedback from the student interviews. For example, now I understand how important it is to present an overview of what each lecture is about before going into the details. It has helped me to reorganize the material, as well.

Each term is very short. I usually have more material I would like to cover, but there's never enough time. In spite of this, I believe that the 15 minutes a student interview takes is valuable in establishing a more trusting relationship between me and my students.

SGID Feedback for Zena, Winter Term 1997

Strengths:
- Your students appreciate the notes you give before class.
- You are very open to their questions.
- They like the solutions for the homework/exams.
- You check in with your students to be sure they understand.
- They appreciate the quick feedback they get on homework and tests.
- They really appreciated the quick turnaround on the midterms.
- They can see that you genuinely want to improve the course for their benefit.
- “She knows the subject. You can’t stump her.”
- You have a loud, clear voice.

Improvements
- Sometimes your voice is too loud for someone on the front row with a headache early in the morning...
- Questions asked are sometimes ambiguous - Students are not sure what you mean or what you want from them. (I told them to give you examples of this.)
- Writing on overheads is unclear, hard to read.
- Text for the course is worthless (nearly total agreement).

Suggestions for change
- Please hold more problem-solving sessions/tutorials/opportunities to apply what they’ve learned to material outside the textbook.
- It would be good to have a weekly discussion section with this class run by the instructor.
- The website for the course could be more useful to students if it were improved. (Ask them what specific improvements they would like to see.)
- Some students feel that you misinterpret their questions and they don’t know how to tell you this. (You could ask - Did I understand your question correctly? If not, let me try again.)
- Some students need more step by step help in going through problems.
- Many students have conflicts with your present office hours. (When I asked how many had tried to see you during office hours or outside appointments, very few raised their hands. You could address this issue, but I think they also need to be responsible for taking the initiative to seek help.)
- Some students wanted you to slow down (about 20).
- It would be helpful to have an outline of what each class will be about. This could be on a website.
- One student asked that class start on time.

Ginnie Lo:
I have been interested in the services offered by TEP for quite awhile and wanted to get a first hand look at what is involved in a videotaping session and the type of feedback it can provide about one’s teaching. Frankly, the idea of being videotaped makes me nervous, so having Zena go first was a way to approach this gradually!

I learned several useful things from the joint consultation with Georgeanne and from observing Zena’s videotape. These included details for effective lecturing (Zena spoke clearly and slowly, moved around the room effectively, and had very well-prepared lecture slides with copies for the students prepared in advance). Georgeanne had some excellent suggestions for checking on student comprehension of the material that can be done in a few minutes or outside of class time. One I am particularly interested in pursuing is Ron Mitchell’s web page quizzes. I also liked several suggestions she had for eliciting student questions and increasing class participation.

The consultation session was very positive and informative. I plan to utilize several of TEP’s services when I teach CIS 429 (Computer Architecture) next term. I am especially interested in the small group interviews with students. I will probably also make use of a videotaping session and consultation as long as TEP promises not to sell the tape to MTV!
At its annual faculty retreat of Fall 1995-96, the CIS department made teaching improvement one of its highest priorities for the next few years. The Undergraduate Education Committee, headed by Ginnie Lo, is working towards this goal as part of its responsibilities.

The UEC meets monthly and consists of five research faculty, four instructional faculty, two graduate students, two undergraduates, and the departmental undergrad secretary. Activities include teaching improvement workshops, improving student and peer evaluation of teaching, promoting curriculum innovation, and curriculum stabilization.

CIS is instituting a two-credit Teaching Methodologies course fall term 1997 for the GTFs, to be taught by Kathy Freeman. In February, Ginnie Lo attended a national conference on computer science education and recommended that the department send an annual representative to this conference to serve as a conduit for information about the rich resources available in the field of computer science education.

Linda Haas, Sociology/Women’s Studies

It can be difficult to generate student discussion in the classroom, because many students are accustomed to a lecture format. So, I spend time the first day breaking down student-teacher barriers, and giving students a chance to talk. When I enter the classroom, 20 - 40 bored stares greet me. I begin by introducing myself and the course, and handing out the syllabus. I ask for questions and usually there are none. At this point, most teachers would adjourn the class. Instead, I divide the students into groups of 5-7. These groups can become permanent collaborative learning groups. I have them count off so they will be in a group with all strangers. Each group selects a spokesperson (someone whose name is nearest the end of the alphabet—this keeps the bossy ones from running the show). The groups are asked to critique the syllabus—to raise questions and concerns, to say what they like and dislike about it. I tell them that I have been known to change the syllabus based on student concerns. Individuals can feel safe sharing their concerns through the group. Then I give them one or two other tasks, depending on the course. For example, in the family course, they are asked to generate a list of TV shows which could be analyzed for the media assignment described on the syllabus. There is a set amount of time given for this work, usually 20 minutes. I circulate through the room and eavesdrop a little. If a group falls off the topic, I gently steer them back on track. After time is up, I have the students form a circle with their chairs. The spokesperson introduces the group members to the class and conveys their concerns about the syllabus. Others are encouraged to chime in, and frequently do.

The classroom becomes lively as soon as students move into their groups. The discussion which follows is relaxed and enjoyable. Students are smiling and attentive. They have become familiar with the syllabus at this point, and know exactly what is expected of them in the course. I fill in additional information, e.g., what I look for in an essay answer. I get a chance to defend topic choices, and grading formats. At the end, the class has become a cohesive group. They are reluctant to leave. The next class will begin with an air of pleasant expectation. We will again sit in a circle, and I will lead a structured discussion in which most students participate.

Generating Discussion from the First Day

from Quick Hits-Successful Strategies by Award Winning Teachers

"Quick Hits- Successful Strategies by Award Winning Teachers" is a collection of "tips" submitted by the members of FACET (The Faculty Colloquium on Excellence in Teaching at Indiana University) many of whom are Distinguished Teaching award winners. These tips are strategies that have proven successful for FACET members in their own classrooms. An example of a Quick Hit selected from this book follows.

If you would like more information concerning "Quick Hits," please contact the FACET office at facet@iusb.edu, or keverdon@iusb.edu.
InFlux: Reflections on Educational Technology

Michael Sweet

This year’s annual AAHE conference focused on “Learning, Technology and the Way We Work.” In George Gilder’s keynote speech, he outlined the relationship between technology and higher education by introducing a word that has been sweeping the corporate world these days. The word is “dis-intermediation.” It means “taking out the middle man.” Specifically, it refers to technology’s ability to remove steps in a system or levels in an organization. Of course, the corporate world is crazy about this idea. It sees dis-intermediation as a fountain of savings.

To keep himself from tripping over the long and clumsy word, Gilder shortened it to “dis” as he reported some watershed statistics:

1. In the U.S., e-mail has massively surpassed postal mail in total messages, and that’s excluding corporate intranet traffic. So, the U.S. Postal Service is being “dissed” by the Internet.
2. In 1994-95, personal computers outsold televisions in the United States in total units, and people with computers spent twice as much time with them than they did with their TVs. So, the television broadcast industry is being “dissed” by personal computing technology.
3. At the same time, data bits have exceeded voice bits on the national telephone networks for the first time. So now the great telecoms are getting “dissed” by personal computing technology.

This is all interesting and amusing, except that Peter Drucker, a well-known management consultant, has predicted that the next group to be “dissed” is us. Higher education is the next group for whom dis-intermediation will drop costs for the customer and therefore create greater access. Now, what might this do to your classroom (or your job)? These are potentially unsettling questions.

But Gilder thinks that Drucker’s prediction need not come to pass, and he bases his argument on the distinction between the “culture of the lowest common denominator” provided by television and the “culture of first choice” provided by bookstores.

He says that after every debate with the television industry, his opponents pull him aside and say “George, what you don’t understand is that people really are boobs. That’s why we have to make it a ‘boob-tube’ because that’s what they want. We’ve done market tests—we know.”

But Gilder maintains that the very same people who sit on the couch and absorb these lowest common denominator programs also have a wide variety of personal interests, intellectual pursuits, career interests and so on. For evidence, he points to the surprising boom among super-bookstores in the last few years. These are the Borders or Barnes and Noble bookstores that commonly offer 150,000 titles or more. In these bookstores, with this huge selection, you do not settle for the lowest common denominator—you can usually get your first choice.

So bookstore culture is a “first-choice culture” with a bias towards excellence, not the lowest common denominator. Half of the books in most bookstores are educational or trade books. There’s a religious book market as large as the normal trade book market. People are increasingly buying into this first-choice culture: book sales have risen 40% in the last four to five years.

Gilder believes this is the kind of choice that the Internet can afford, and if we—as educators—can embrace this new medium, we can be the ones who help shape what choices are available to the public. In so doing, we can not only avoid being “dissed” by technology, but also reshape the methods by which popular culture is generated—displacing the lowest common denominator culture offered by television with a first-choice culture and a bias towards excellence.
Working With International Students

By Janice Jenkins
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International students who have been in the US for one or two semesters are still getting accustomed to the requirements of our system of education. Like many students, they need to hear information more than once. Here are some points to emphasize with international students.

Reading the syllabus: The syllabus provides the most comprehensive information about the class and the academic expectations of the course. International students should be reminded to read this document carefully and to hold on to it for reference.

Office hours: International students may be unfamiliar with talking to an instructor during office hours. They probably think an appropriate time to discuss questions, grades, or problems is before or after class. It is useful to remind them that private discussions can be handled more successfully during office hours.

Attendance: Remind students that attendance at each class is essential. If attendance is part of the final grade, another reminder may be appropriate in order to avoid problems at grading time. A strong reminder about tardiness may be necessary since international students may have a different concept of “on time” than you do.

Encourage international students to visit you during office hours to go over some of the above suggestions. You may need to take the initiative and schedule an appointment for them. This initial meeting will give you an opportunity to establish a positive relationship. This is a good time to go over class expectations and to allow the student to ask questions.

Course help: Have international students tape your lectures, provided the student does not consider the tape recorder a substitute for attendance.

Peer assistance: Pairing an international student with a domestic student in a classroom often benefits both students.

Janice Jenkins works with international students in the Academic Support Services at the Pennsylvania College of Technology.

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Students Do Better Online

A sociology professor at California State University at Northridge conducted his own experiment to test online learning, randomly dividing his statistics class in half, and teaching one half by lecture and the other half by Web assignments, online discussion groups and e-mail. The students who'd been banned from the physical classroom scored an average of 20% higher than those who'd attended in-person. “The motivation for doing this was to provide some hard, experimental evidence that didn’t seem to exist anywhere,” says the prof, who plans to expand his research to determine whether the online students performed better because they spent more time collaborating with their classmates, or because of the online format of the class. (Chronicle of Higher Education 21 Feb 97)

“Universities Won’t Survive!”

Renowned management consultant and author Peter Drucker says: “Thirty years from now the big university campuses will be relics. Universities won’t survive. It’s as large a change as when we first got the printed book. Do you realize that the cost of higher education has risen as fast as the cost of health care? ... Such totally uncontrollable expenditures, without any visible improvement in either the content or the quality of education, means that the system is rapidly becoming untenable. Higher education is in deep crisis... Already we are beginning to deliver more lectures and classes off campus via satellite or two-way video at a fraction of the cost. The college won’t survive as a residential institution.” (Forbes 10 Mar 97)
College and university faculty increasingly are dedicating more time and energy to teaching students and less to research despite a common public perception otherwise. A new UCLA survey of the nation’s faculty also indicates a growing interest in the issues of diversity and multiculturalism in all aspects of faculty work.

Embracing these topics could reflect the burgeoning commitment to students at a time of increasing student body diversity, explained UCLA Professor Alexander Astin, co-author of the study and director of the Higher Education Research Institute, which conducts the survey.

The survey found that 23 % of all faculty polled choose topics related to racial or ethnic minorities when they write or conduct research. That compares with 18 percent in 1989-90, when the survey officially became a triennial study. Thirty-nine percent reported attending racial/cultural awareness workshops in the past two years, compared with 27 % in 1989.

These results are especially remarkable, given that most faculty teach in fields where diversity and multiculturalism would not be topics of central interest, Astin said.

According to the study, more of those polled are adopting a student-centered teaching style than in past years. The use of collaborative methods, such as group projects, is up, as is cooperative learning. Lecturing, perhaps the most traditional form of instruction, is declining, with the number of faculty who lecture dropping from 56 % in 1989 to 49 % in 1995.

Today’s faculty are adopting teaching styles that encourage students to be more active participants in the learning process, Sax said. The use of student-centered teaching methods is most common among women and younger faculty, but has increased among all faculty in recent years.

Unfortunately, the increased commitment to students is not without its price. The survey showed that the number of faculty reporting stress resulting from students has increased by 22 % over the study’s six years.

Other findings indicate that today’s faculty believe their institutions are committed to diversity and multiculturalism, with 50 % believing creating a multicultural environment is a priority of their college, compared with 40 % in 1989. However, more faculty perceive low levels of trust between minority student groups and campus administrations than six years ago (37 %, up from 28 %).

Looking at gender differences, women were significantly more stressed than men by nearly all measures, including lack of personal time, household responsibilities, teaching loads and subtle discrimination. Subtle discrimination as a source of stress showed the greatest decline since 1989 — down 14 percent. However, the fact still remains that 34 % of women — compared with...
18% of men — experience stress from subtle discrimination. Salaries remain an issue for women, with female faculty earning an average of 80 cents for every dollar earned by their male colleagues. The same differential was reported six years ago. A gender gap in salaries remains, even when salaries are adjusted to take women's typically lower academic rankings into account.

The survey documents the aging of American college and university faculty, with 27% of all faculty reporting being 55 or older, compared with 24% in 1989, and 64% being 45 or older, compared with 59% in 1989. Only 9% of all respondents are younger than 35.

The 1995-96 HERI faculty survey involved questionnaires completed by 59,933 faculty and administrators at 446 colleges and universities nationwide. Of those, 33,986 questionnaires from full-time undergraduate teaching faculty at 384 institutions were used to compute the national norms.

The numbers were adjusted statistically to represent the nation's total population of approximately 400,000 college and university faculty.

For more information about the survey, call Kit Mahoney at (310) 825-1925.

Student Web Publishing in Psychology
by Jennifer Freyd

Introductory Note: The material below is based on email sent to all faculty and GTFs in the Psychology Department on March 11, 1997. It models ways to increase collegial communication about teaching. I believe email and WWW afford some possibilities. Specific issues involve course structure combining cooperative learning and ed tech features to achieve teaching goals.

Dear Teaching Colleagues,

I often wish we had efficient ways of learning more about what each of us is doing in the classroom. Some of you have asked me individually about how I manage final project presentations and student web publishing, so I thought I would provide some more information about structure and pedagogical goals to the department in case it is of interest to others.

The Copsy Convention Web Page
http://dynamic.uoregon.edu/~jfreyd/copsy/copsycon/
presents the abstracts for the final group projects in Psychology 435/535, Cognition. The web page contains links to the full student-published text for most of the students' projects. In addition, in the psychology department mailroom, a poster is on display showing photographs of the students in each group with their names, project titles, and project abstracts.
The final-project structure: Students in this course (70-75 students) were required to work in small groups throughout the quarter for both weekly 20-minute in-class problem-solving activities and discussion, and outside class for their final projects. Final projects (worth about 1/3 of the course grade) consist of both a written project and an in-class presentation during the final week of the quarter. For more on other course requirements, you can visit the course home page at: [http://dynamic.uoregon.edu/~jfreyd/copsy/](http://dynamic.uoregon.edu/~jfreyd/copsy/)

From there select the syllabus. Final projects involve library research and the design of an experiment. Some groups collect data, but that is not required. In-class presentations may be live, video, or mixed media. Each presentation is followed by a question period. Web publication of the final project is an extra-credit option.

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The pedagogical goals for this final project include:

**Core Content & Academic Skill Acquisition**

Students learn more in depth about a selected topic in cognition and translate that knowledge and interest into an experimental design, an APA-style final written product, and clear presentation.

**Small Learning Community**

A group cooperative learning experience allows both the creation of a small learning community and experience creating a high quality group product. Students are often initially resistant to working in groups. However, after the course is over, they tell me how valuable the experience was for them, even when the groups were high in conflict, and certainly when the groups bonded well.

Students are graded for group work based on a shared grade for group products and an individual component based on peer and self-evaluation for group contribution.

**Internet Literacy**

Students are exposed to the benefits and limits of using the WWW for the final dissemination of projects (an extra credit option) and reading classmates’ projects. (Earlier in the quarter each student had to complete an exercise requiring finding and then critically evaluating a WWW resource.)

**Respecting Peers & Professional Conduct**

Students experience learning from peers, attending a “convention,” asking appropriate questions after presentations, and treating fellow students with respect for their specialized expertise in a particular topic area.

**Students as Experts and Personal Growth**

They accomplish something significant, personally relevant, and empowering. They come to appreciate cognition as a topic and gain experience presenting quality material to peers. Students complete the course with themselves as the knowledge holders and knowledge makers, playing the role of teachers (with the professor and teaching aids sitting in the audience).

First day student surveys consistently indicate that most students take 435 because it satisfies a major requirement, not because they are eager to learn about cognition. Students are not necessarily eager to work in groups or to learn to use the Internet. Past experience indicates that the structure described above does not decrease enthusiasm for cognition, groups, or the Internet, and in some cases significantly increases enthusiasm. I believe significant learning occurs. Managing initial resistance to the topic area, small groups, web publication, and organizing a final convention are labor intensive for the teacher, and I am indebted to the assistance of JQ Johnson, and the three volunteer teaching aids for this course: Kevin Cadman, Spark Campbell, and Cindy Veldhuis.

I hope this information is valuable to others. Additional course home pages are indexed at: [http://dynamic.uoregon.edu/~jfreyd/](http://dynamic.uoregon.edu/~jfreyd/)
The following questions have been used by various instructors to help groups evaluate the success of their work together. These questions can be used for in-class debriefing, and on a pre-class questionnaire.

- What went well in your group work?
- What problems or frustrations did you have?
- What would you do differently the next time to improve your team’s satisfaction or effectiveness?
- Is there anything the instructor can do to help your group work together more effectively?

Small Group Tutorial Evaluation
This could be completed by individual group members and/or as a group response.

Circle the point on the scale that most nearly represents your opinion:

1 = poor 2 = fair 3 = satisfactory
4 = good 5 = excellent

1. How well did the group do today in accomplishing its task?
2. How well did the group work in building positive relationships?
3. How helpful did you find this assignment?
4. What were the major strengths of the assignment?
5. What were the major weaknesses of the assignment?
6. What do you think should be done in the future to improve the assignment?
7. To what extent did this assignment effectively facilitate your learning?

Here’s another approach. At the end of the term, one faculty member uses this 10-question list, which gets at a range of specific teamwork issues, “with room for brief responses and a specific request for explanations of any ‘NO’ answers.”

1. Did each member understand the team’s goals?
2. Did individual behavior contribute productively in achieving the group’s goals?
3. Did each member clearly understand his/her role within the team?
4. Was an effective communication process established?
5. Was effective leadership exhibited within the team? By whom?
6. Were you able to positively influence the behavior of the other team members?
7. Did your team develop an effective problem-solving process?
8. Was the group able to capitalize on the divergent attributes of each member?
9. Was there a sense of clarity of purpose and a sense of unity?
10. Were conflicts, if any, within the team resolved in a positive manner?

Lee Warren has worked with Ronald Heifetz (Leadership Without Easy Answers, Harvard University Press, 1994) on teaching leadership through small group interaction and questions which get at individual roles within groups.

**In class debriefing questions:**
1. How well did the group stick to the task?
2. What distracted you? How might you have resolved the distractions?
3. What roles did individuals play? What issues did they represent or champion?
4. How well were individuals used?
5. What methods did the group use to resolve differences? to get the work done?

**Questions for thinking ahead**
1. What was your role in the group? How well were you used?
2. What were others’ roles and issues?
3. How well did the group stick to the task?
4. What might you have done differently to further the work of the group?

**Students Write Final Exam**
by Lisen C. Roberts, Ph.D. candidate
The University of Tennessee

I use the method of student-generated questions for the final exam in my Intro to Marriage and Family class. On the
first day of class, I ask each student to write one “burning question” they have about marriage and family. I collect them and address a random handful as an introduction to the course. I then tell them that they’ve just written their final exam. That final exam is a list of the questions which cover the content of the semester. They select a specified number of questions and write essay responses to them. I supplement first-day questions from previous semester’s if all course topics aren’t raised in the questions written for a particular semester.

Last semester’s final exam included:
- Why are so many marriages failing these days?
- Is spanking kids bad?
- What are healthy ways for couples to resolve conflicts?
- Why do battered women stay with abusing mates?
- What is the best way to tell children about divorce?
- Does having children help or hurt marriage?
- How does two working parents affect children?
- How does the U.S. compare to other countries in terms of things like divorce, single parenthood, and teen pregnancy?

I like the system and have received positive feedback from students on it.

Like many teachers in the Business School, Helen Guernon, Accounting, uses a three-question feedback process with her classes at different points in the term. She asks them what they want her to stop doing, start doing and continue doing. But Helen adds an interesting twist. She tells her students the same thing—what she wants them to stop doing, start doing and continue doing. The two-way process provides valuable feedback for everyone.

"Human progress is neither automatic nor inevitable. Even a superficial look at history reveals that no social advance rolls in on the wheels of inevitability. Every step toward the goal of justice requires sacrifice, suffering, and struggle, the tireless exertions and passionate concern of dedicated individuals. Without persistent effort, time itself becomes an ally of the insurgent and primitive forces of irrational emotionalism and social destruction. This is no time for apathy or complacency. This is a time for vigorous and positive action."
- Martin Luther King, Jr.