

# LETTER FROM THE EDITOR

## STRATEGIES FOR FIGHTING DECLINING ENROLLMENTS

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For many years now, colleges and universities in the United States have experienced declining enrollments in science, technology, engineering, and mathematics (STEM). As a percentage of all students, enrollments in the STEM disciplines have declined 16 percent since 1994 (Rainey, 2006). Computer science has been particularly hard hit, with enrollments plummeting by 32 to 59 percent (Foster, 2005).

Administrators have responded by freezing faculty hiring, not renewing faculty contracts, and combining or eliminating departments. Faculty have responded by rewriting curricula, modifying admission and retention standards, and teaching more service courses for non-majors.

What are some proactive steps technology faculty can take to stop or reverse declining enrollments? If we view the system for producing technology graduates as an input-process-output system, there are actions we can take during all three of these phases to boost waning enrollments.

### THE INPUT PHASE

Outreach is the name of the game when trying to increase the flow of students into the system. This should begin with the development of high quality recruiting materials. Too often, technology programs rely on two-color tri-fold flyers or one page handouts consisting mainly of text. These materials are not going to appeal to media savvy high school students. Full color glossy brochures featuring photos of vibrant, young technology professionals in attractive high tech settings will attract attention. Put just enough text in the brochure to outline your main selling points and direct potential students to your web site. A dynamic web site is where your detailed message should be located.

Multimedia are also important. Podcasts and video podcasts, or vodcasts, are inexpensive to produce with standard computer software such as

QuickTime, iPhoto, and iMovie. They should be displayed prominently on your web site and distributed on CD to potential students.

Your web site is the hub of your outreach efforts. Get a domain name that is easy to remember. Broadcast your web address at every opportunity. The web site should feature lots of photos as well as your podcasts and vodcasts. Pictures of happy current students, industrious interns, and visiting industry bigwigs should be featured. Make sure your web site includes a form for interested students and parents to fill out to get more information.

Take your message to the high schools. Participate in career fairs and college nights, even if your school is already represented. Your admissions office is not recruiting specifically for your program, and may have little or no knowledge about it. Serve as a guest speaker in technology classes, as a judge in business or technology competitions, on advisory boards for technology and business programs, and as a mentor for business and technology teachers. Try to make sure that every high school guidance counselor is aware of your program and pointing students in your direction. Arrange for classes and student clubs to tour your campus and visit your program. Bring a group of guidance counselors or teachers to campus for lunch.

If you are in a four year institution, do the same thing at the two year colleges. Go to career and college fairs. Visit classes and develop contacts with business and technology faculty. Work with students to make their transition from one campus to the other as smooth as possible.

In addition, don't overlook your own campus. Students currently pursuing other majors might

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find your program to be a better fit for their interests and abilities. Offer students the chance to minor or take a second major in your program. Taking out ads in the student newspaper or hanging posters around campus might pay off in attracting new students.

### **THE PROCESSING PHASE**

Insure that the students you have will want to stay in the program. Staff your introductory classes with excellent teachers. Don't risk alienating potential students by putting them in the hands of a graduate student doing his or her first semester of teaching or the semi-retired professor just going through the motions. Make your classes engaging, with lots of hands-on experience with technology.

Increase the accessibility of your classes. Offer classes at a variety of times during the day and evening so that no student misses a course due to a schedule conflict. Offer your courses online or by video so that students in other locations can take them. Remove as many barriers to participation as you can without compromising the quality of your instruction.

### **THE OUTPUT PHASE**

Students and parents seem to have the perception that there are limited job openings in information technology and that all the good jobs are going overseas. We know better, but it is hard to convince them. Here are some steps you can take to improve the job prospects of your graduates and their perceptions of those prospects.

First, build your industry connections. I have written on this topic in these pages before (Brookshire, 2004), so I won't go into a lot of detail here. Let me just remind you that business partnerships foster better internships for students and faculty, the development of case studies, recruiting guest speakers, arranging field trips, setting up student projects, the development of advisory boards, and financial support for academic programs. Your Chamber of Commerce or professional societies such as AITP, SIM, and the Project Management Institute can

be fertile ground for building business connections.

Have a strong, credible internship program. Good interns can help to establish good relations with businesses, as well as serving as springboards for students' first jobs. Your intern placement process should be rigorous, and interns should be responsible for producing high quality research projects and thoughtful journals or reflections for their portfolios.

Finally, work to improve job placement for your graduates. You may have an energetic career center on campus, but this office is trying to serve everyone, not just your students. Your industry connections can keep you abreast of the latest openings and trends in your area. Create a blog or section of your web site to post job opportunities. Work with your career center to make sure they notify your students of all relevant openings.

Steps such as these will help to reverse the decline in science, technology, engineering, and mathematics enrollments. Faculty and administrators must make it part of their missions to take these steps, not only in the interest of preserving their programs, but also to provide for the technological and scientific future of our country.

### **IN THIS ISSUE**

This issue opens with the article "Mitigating Information Security Risks by Increasing User Security Awareness: A Case Study of an Information Security Awareness System." In it, Charlie C. Chen of Appalachian State University, R. S. Shaw of Tamkang University, Taiwan, and Samuel C. Yang of California State University Fullerton examine the effect of introducing a computer security awareness system in a large company. This system was developed to spread awareness of security breaches and other security events among company personnel. Their pilot study identifies some important features that computer security awareness systems must have in order to be effective.

As levels of computer literacy increase among secondary students, are we getting first year students in colleges and universities who are

already computer literate? Walter Creighton, Margaret Kilcoyne, Rick Tarver, and Sarah Wright, all of Northwestern State University in Natchitoches, Louisiana, have contributed “Computer Literacy Levels of Students Enrolling in a Post-Secondary Computer Applications/ Information Technology Course” to examine this issue. They find that students are generally literate in word processing, e-mail, and Internet usage, but not as literate in general computer technology and spreadsheets. These literacy levels differ, too, among various subgroups of first year students.

Inge Klopping and Earl McKinney of Bowling Green State University, the authors of “Practice Makes a Difference: Experience and E-Commerce,” investigate consumers’ intention to shop online in the context of the technology acceptance model. They find that shoppers with previous exposure to online shopping have different attitudes toward e-commerce than those with less experience.

In our “Making a Difference Section,”  
Richard Kline and Pauline Mosely of Pace

University describe the use of LEGO® robotics kits in a service learning class. University students learned how to construct and program the robots, then took their skills to middle schools to mentor competitive robotics teams. Kline and Mosely discuss the effects of this technology service learning experience.

*The Information Technology, Learning, and Performance Journal* is alive and well. Please recommend it to your colleagues and consider it as a potential outlet for your research.

#### REFERENCE

- Brookshire, R. G. (2004). Business and education partnerships. *Information Technology, Learning, and Performance Journal*, 22(1), i-iii.
- Foster, A. L. (2005, May 27). Student interest in computer science plummets. *The Chronicle of Higher Education*, 51(38), p. A31.
- Rainey, A. (2006, May 12). Share of students in the sciences shrinks. *The Chronicle of Higher Education*, 52(36), p. A35.

#### GUIDELINES FOR AUTHORS

The *Information Technology, Learning, and Performance Journal*, formerly known as the *Office System Research Journal*, publishes articles related to the field of organizational and end-user information systems (OEIS). Submissions may present the results of research in the discipline, deal with research methodologies and data treatment techniques, or describe research or experiences related to instruction in the discipline. For the “Making a Difference” section, manuscripts that discuss our theoretical bases or describe an innovative policy, procedure, method, technique, or practice that has potential benefit for systems professionals and/or educators and technology trainers are encouraged. We also accept reviews of current books—both academic and popular press—related to OEIS. All submissions are submitted to a blind review process.

Authors should follow the style described for manuscripts and bibliographies in the Fifth Edition (2001) of the *Publication Manual of the American Psychological Association*; however, tables should be single-spaced. Tables and figures should be attached at the end of the manuscript, one table or figure per page. Include a cover page with author name, title, organizational affiliation, telephone number, and email address and a 100-150 word abstract with the manuscript.

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Send your manuscript in Microsoft Word format to Robert G. Brookshire, Editor, *Information Technology, Learning, and Performance Journal*, at [brookshire@sc.edu](mailto:brookshire@sc.edu)

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