



## Adopt Your Local Professor: The Need for Industry and Academia to Work Together

*By Patricia A. McQuaid, Ph.D.*

All too often while speaking at conferences, I hear people from industry saying that “the students coming out of college these days do not have the skills we need...”. While that often is true, I propose a partial solution to this problem that is actually quite straightforward. Simply stated, why not help out and adopt your local professor?

One element that universities and businesses have in common is budget constraints, especially in today’s economy. Just like many businesses have cut back drastically with discretionary spending, so have many universities, perhaps even more so. As we know, professional conferences are very expensive; so are specialized training courses in whatever your field of expertise may be.

Now, in computer science and other information technology-related fields, the body of knowledge we need to know is extremely dynamic and very quickly becomes outdated. The technology used now, both hardware and software, was not even invented when many of us professors were in graduate school. So, much of what we teach in our current curricula is mostly self-taught. If we are lucky, we have been able to attend a training course on the topic we are teaching, but more likely, we had to learn it on our own.

So how can dedicated faculty get the training they need to properly educate the future software testing/ software engineering professionals? By having industry establish more partnerships with universities, both informally and formally.

### Informal Alliance

Industry spends a great deal of money on training their personnel, from paying for a formal college education, to sending employees to conferences and to professional development seminars. Many of the seminars are held on-site, in which case either consultants are brought in to provide the training classes or they are held by the company’s own staff. Very often consultants charge on a per-person basis, but they also may charge based on a range of people, for example a fixed fee for between 20 and 25 attendees.

It is this last case that I would like to address here. How about the next time you have an on-site training class, you invite your local professor to attend at no charge? What better way to help ensure that the college you recruit from teaches the material that you want your future employees to know? What would it cost you? Another set of training materials and a lunch? Or if they do charge by the person, is it worth it to you to pay this incremental cost of educating a professor? Probably so.

### Formal Alliance

Establishing a more formal alliance is another option that may be even more worthwhile for everyone involved. This type of an alliance can take numerous forms, including funding a trip for a professor to a conference or for a course, to having corporate personnel

guest-lecture at the university, to providing tours of their company to faculty and students, to having the faculty work at their company for a period of time. Providing material and examples that professors can use in their courses is also extremely valuable. One of my challenges is developing real-world examples and exercises that are both meaningful and challenging to the students. You could remove anything confidential, but provide information that we can incorporate into our classes.

Many companies have formal programs that involve professors, from establishing visiting positions ranging from a several month appointment to lasting several years. I was fortunate to be involved in such an alliance several years ago, when I spent five weeks during the summer as part of a major organization’s faculty partnership program, working in one of their major software testing labs. This experience was invaluable.

### Benefits to the Faculty and to Industry

At the time, I was considering offering a new class for the university, a class in software testing. As part of the preparation for the class, I wanted to learn current practices and to become familiar with some of the automated testing tools that were being used in industry. I wanted to know what it was like being a full-time tester – what challenges do testers face, which automated tools are being used, what are the benefits and limitations of these tools, what is it like being a project manager of a testing team? I wanted to learn

how the organization integrates the tools into their software testing business processes. I also wanted to strengthen the relationship between my university and the organization. I could read the books, but wanted to know more, to improve my understanding and to bring this knowledge into the classroom.

The broad goal for the organization was to have a long-term positive impact on recruiting. More specifically, they wanted to

strengthen ties with my university, as well as to show me how they test software – for their own internal needs and for their clients. They, along with many other companies, were having a difficult time not only locating students that had a formal background in testing, but that even thought of software testing as a career option.

### I Was Adopted...

As part of their faculty partnership program, I was able to interview and observe the testers in their daily work. I was also able to discuss issues with software testing project managers. One of the highlights was that I spent several hours learning about usability testing from their usability specialist. An unexpected benefit was that he taped me in their usability lab performing a usability test on a web site, and I use the tape in my classes to illustrate the process of a formal usability test. I also attended several training classes to learn to use two vendors' testing software.

As a result of the alliance, I was able to obtain the training I needed to prepare to offer the new course. In addition to the technical training I received, I obtained a better understanding of current business testing challenges. I offered the new class the following term, with the class comprised of students both from information systems in the college of business and from computer science in the college of engineering. They worked in teams and I made sure that two students were from information systems (business) and the other two students were from computer science (engineering). The students from both colleges had to work together as a team.

The organization benefited by strengthening their alliance with my university and increasing their recruiting success through better student awareness of testing-related careers. Students then considered software testing as a career choice. Potential hires became more suited to the organization's needs, with students obtaining offers for summer internships and for full-time positions upon graduation.

### I Now Have New Relatives...

During my stay in industry, one of the managers contacted the chief operating officer at one of the leading providers of automated software testing tools, to ask them to donate software to my university. By doing so, everyone involved would benefit: the university would receive top-of-the-line testing tools to use in my course, the organization would be able to hire recruits that have experience with automated testing tools, and the provider of the automated testing tools would be getting their software in the hands of future software testing decision makers. Meanwhile, independently, the software company began to establish a formal program with additional universities, using my work as a model.

After working with this organization for about a year, they announced their new program, a program designed to provide software and training materials to assist academic institutions to develop their technical curricula. My university was the first institution to become part of the program and the first to receive their donation. In my class, I

used their web applications testing software, their web load testing software, and their product that manages requirements, holds test plans, and tracks defects.

Other companies have donated software (and hardware) to my university for us to use in our classes. The point is that many companies are kind enough to donate their products to colleges and universities for classroom use, but may not do so unless we ask.

### Challenges

It was an enormous task, and it was just me doing all this. So, if software companies would like to donate software to a university, they must be prepared to provide extensive training and support. Otherwise, the program will probably fail. In universities where there are multiple faculty involved, it would improve the chances of success, but this will not always be possible. It might also be attractive to have faculty from other disciplines, for example business information systems and computer science.



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To successfully build a course and incorporate the software into the curriculum, it takes a great deal of time. At least in my case, I did this in addition to my normal teaching load. Needless to say, I was very busy. So, what would also greatly help the probability of success, is for those organizations interested in working with their local professors, to provide funding to the university for release time. What this means, is that if the professor is teaching two classes per term, funding could be provided to the university to pay the professor's salary for one course, so that they will be teaching one less course. What I need most, is time. At a number of universities, if the economy is in a downturn, teaching loads (the number of courses a professor teaches per term) increase. So we may be teaching even more than usual, not less. Will this cost industry money? Absolutely. But, what is it worth to you to be able to locate qualified college graduates? Think of all the money industry spends on training, once employees are hired.

Another option is for industry to provide money for faculty positions. This would effectively pay a salary (or salaries) for a year. But this type of situation is not permanent, so if you are trying to attract new faculty, you may not be as successful as if you had permanent funding. Having said that, some faculty like to work in "visiting positions" for a year or two, perhaps taking leave from their university. A permanent option is to establish an Endowed Chair position. This position would be funded by a company, and is one of the more expensive options, but perhaps more successful. In such a case, an organization would donate an enormous amount of money, and the interest on that amount funds the position, on an annual basis.

If your university has a Master's Degree or Ph.D. program, then graduate students might be able to work with the faculty members on projects. These projects could, in turn, become a masters or doctoral thesis.

## Conclusion

Clearly, both industry and academia can benefit by working together more closely.

What better way is there to get to know the faculty at your local colleges and universities? What better way is there to forge alliances between industry and academia? What better way is there to help ensure that you can recruit students that may meet your needs? There are probably a lot of professors that would like to be "up for adoption"!



### Biography

**Patricia A. McQuaid, Ph.D.**, is a Professor of Information Systems at California Polytechnic State University, USA. She has taught in both the Colleges of Business and Engineering throughout her career and has worked in industry in the banking and manufacturing industries. Her research interests include software testing, software project management, software quality, and software process improvement.

She is the co-founder and President of the American Software Testing Qualifications Board (ASTQB). She has been the person in charge for the Americas, for the Second and Third World Congresses for Software Quality, held in Japan in 2000 and Germany in 2005. She is the Associate Director for the upcoming Fourth World Congress for Software Quality, to be held in the Washington, D.C. area in September, 2008.

She has a doctorate in Computer Science and Engineering, a masters degree in Business, an undergraduate degree in Accounting, and is a Certified Information Systems Auditor (CISA). She is a Certified Tester – Foundation Level (CTFL), through the ISTQB, the International Software Testing Qualifications Board.

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