

Network, IT Training Is Helping Westchester Narrow the Job Skills Gap

In my years in the classroom, I've seen a lot of change: Blackboards have given way to whiteboards and laptop projections, computers are in every classroom and mobile phones are everywhere.

Technology's progress is reshaping the job market, too. In the last 12 years, employment in manufacturing has dipped 15 percent nationwide, according to the U.S. Bureau of Labor Statistics (BLS). In contrast, employment in professional, scientific and technical services is projected to grow by 28.4 percent and to add 1.9 million new jobs by 2014¹. The BLS estimates that employment in computer systems design and related services will grow by 39.5 percent and account for almost one-fourth of all the new jobs created over the next five years.

Despite this transformation, our educational system is not graduating the numbers of mathematicians, scientists and technologists that we need to fill these jobs and help keep America economically competitive in the global information economy. The unfortunate consequence of this situation is a growing and significant gap between the number of jobs that require extensive networking and information technology (IT) skills and the number of qualified candidates who can fill those positions.

What's even more incongruous about this set of circumstances is that while the skills gap is growing globally, recent college graduates are facing high levels of unemployment, spotlighting the educational inefficiencies in a system largely built on the workforce needs of an industrial society. This disconnect is not only prevalent in curriculum development, but also in the way we think about how students learn — and how we teach and interact in the classroom.

Like many organizations across the country, Westchester Community College, in Valhalla, N.Y., is overcoming these pitfalls by focusing on STEM (science, technology, engineering and math)-related curriculum and working to integrate technology into the lives and learning cycles of our students.

Working with the Cisco Networking Academy — a public-private partnership intent on educating

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the next generation of networking professionals — the college has been successful in bridging the technology-skills gap. By partnering with high schools in our area, Westchester has been able to provide our students with the tools and education they need to be successful in their careers.

At high schools affiliated with our academy, students can register as Westchester Community College students and receive college credit for Networking Academy courses. By the second year of the program, two of our local students who signed up for a night class at Westchester had received WISE (Women in Science and Engineering) scholarships.

Our goal is to make this process as seamless as possible for students who plan to continue their education at Westchester Community College or any other postsecondary institution.

A path to success

Established more than 10 years ago, the Networking Academy offers a curriculum designed to augment traditional technical education with hands-on practical exercises. Today, the program reaches more than 700,000 students a year (19 percent of them women) in more than 160 countries worldwide. The Networking Academy is helping to alleviate the global shortage of IT professionals in a broad range of industries and provide opportunities for career advancement, continuing education and attainment of industry certification.

In New England alone, there are 98 networking academies in high schools, community colleges and four-year universities. Collectively they've educated more than 15,000 professionals in the past decade, with a current enrollment of more than 4,700 students.

Westchester Community College has been working with the Networking Academy for seven



Lisagaye Tomlinson, a senior operations manager for Citrix, switches data from her old PC laptop to her new Mac laptop computer. Technology is reshaping the American job market, putting a premium on math, science and technical skills, but colleges are struggling to keep up with the demand.

years. During that time, we've had great success in integrating the academy's networking, routing and switching curriculum into our state and internal guidelines. The curriculum is also articulated between the community colleges and four-year institutions, so that students can have college credit upon entering postsecondary education.

One of my students, "Paul," had been a printer by trade until new technology forced him onto the unemployment rolls. Tech-savvy as he was, Paul could not find work in his original field and decided to go back to college. He registered at Westchester, signing up for the networking degree we offer. The degree is based on four Networking Academy courses as well as the science, math and standard core courses (English, social sciences and so on) required of all degree students.

Because of a required threaded case study, Paul gained valuable experience designing the specifications for an actual network installation. He also learned presentation skills as he reported back to the class. On graduation, Paul continued his studies at a local four-year college.

When Cisco sponsored a career fair in New York City, we selected Paul to attend. Although he was only part-way through his B.S. course work, he received a job offer after several interviews, thanks to skills learned through the academy and Westchester.

New techniques needed

Many educational institutions are not integrating the latest advances in networking and communications technologies, despite the fact that technology can truly act as a catalyst that transforms the classroom into an interactive learning environment.

Technology has the power to make the instructor a better facilitator or coach, able to bring greater resources to bear in the classroom and to adjust the instruction to the needs of students. Instructors can also take advantage of the networked classroom to collaborate more closely with their peers, enhancing their own expertise and accessing the many resources available online.

Computer networking in general and second-generation (Web 2.0) capabilities in particular give educators the means to implement interactivity, creativity and information-sharing activities to an unprecedented degree. With these tools, instructors can extend the classroom far beyond four walls and reinforce the soft skills and critical thinking that students must obtain to master complex tasks and compete for higher-paying jobs.

E-learning software and hands-on activities also provide effective pedagogical support, but they must be implemented in an integrated, consistent manner that reinforces objective-based instructional criteria and builds on proven techniques.

At Westchester Community College, our pedagogy also stresses

the soft skills required in today's job market.

Knowledge alone is not enough. We have found that many employers are still uncomfortable with IT professionals because they seem to speak their own incomprehensible language.

We teach our students how to talk to "non-techies" in a way that the uninitiated can understand, explaining in clear terms why certain changes need to be made and what needs to be done. With the advent of Web 2.0, it becomes even more important for our students to be able to help their employers see the advantages to investing in newer technologies.

When I look back at my career in the classroom, I'm pleased about the progress that we've been able to make integrating technology into the curriculum and aligning those learning materials with national education technology standards. I know that the work we are doing at Westchester — along with the work done in hundreds of other classrooms across the country — is preparing the next generation to enter a workforce that's vastly different from the one that I entered. I have faith that my students will be able not only to anticipate, but also to propel the next economic revolution. ▲

¹ Bureau of Labor Statistics Occupational Outlook Quarterly Spring 2008. <http://www.bls.gov/opa/ooq/2008/spring/art03.pdf>