

Higher Education and Enterprise Training in Latin America: The Case of the Virtual Campus of Peru's Higher Technological Institute

Laurence Wolff and Norma Garcia

Peru's TECSUP offers high quality courses and over 90 percent of its graduates are able to find a job in a relatively short period of time. It offers both short-term post-secondary technical programs as well as short-term "closed" training courses tailored to meet the specific needs of individual enterprises. In 1999 it became the first institute in the country to set up a virtual campus, called TECSUP Virtu@l. Through the virtual campus programs, students are able to study from TECSUP facilities, their workplace, their house or public Internet kiosks during their own schedules. In addition, this system allows them to perform self-evaluations to monitor their performances, study at their own pace, interact with the teacher and participate in online debates with other classmates.

Meeting Skill Needs

Peru, a country of approximately 26 million people, has a per capita income of only \$2,400 and wide disparities in income. Both local and foreign private investments have grown considerably during the past 10 years, which have resulted in the country's economy becoming more modern and technology intensive. But a shortage of skilled technical workers, especially in the country's core production industries that include mining, energy, oil and communications industries, continues to be a major constraint. Employment in these sectors has grown rapidly in the 1990's, and now accounts for over half a million jobs. The communications sector is currently the fastest growing sector of the Peruvian economy. In 1999 alone, it recorded a 21.6 percent growth and investments are expected to reach US\$ 2.5 billion by 2003.

In response to the shortage of skilled workers, the past 20 years have seen an explosion of Higher Technology Institutes (Institutos Superiores Tecnológicos, or ISTs) throughout the country. These institutes offer short-term (up to three years) post-secondary training programs focusing on practical, not theoretical, learning. Many, but not all, of these institutions suffer from ill-equipped facilities, outdated teaching techniques and weak links with the industrial sector.

The Case of TECSUP

Among the group of technical institutes TECSUP is widely known for delivering high quality training and development courses for technical personnel as well as for using innovative teaching tools and methods. TECSUP has two campuses, one in Lima and the other in Arequipa, the country's second important city. Peruvian enterprises have been the main source of funding, with a total of 175 enterprises donating over US\$18 million for TECSUP's operation. Entrepreneurs actively participate in the institution's technical committees to assist in the process of designing, evaluating, adding or discontinuing courses, appraising teaching tools and methods, etc.

TECSUP currently offers three-year technical programs that confer a technical degree, as well as individual courses in areas ranging from leadership and discipline, to top computer and management skills, and maintenance, installation and operation of modern equipment. More than 90 percent of the students who graduate from these programs are able to find a job in a relatively short period of time. TECSUP also offers short-term technical development courses for those who are already part of the work force and need to sharpen their skills, in the areas of heavy equipment maintenance, plant maintenance, industrial electronic engineering, electronics and industrial automation, chemical and metallurgical processes, data net-

works and communications. TECSUP also delivers “closed” courses that are specifically tailored to meet the needs of particular enterprises, delivered either at TECSUP or at the enterprises’ facilities. So far, over 1,136 short-term training courses have been delivered to more 18,700 students.

Over 55 percent of the students enrolled in TECSUP come from low socioeconomic levels with family monthly incomes of US\$ 500 or less. However, TECSUP is able to deliver courses at relatively low fees, with an average course costing approximately the equivalent of US\$57. Some of the students taking the “open” short-term courses are sponsored by their companies and others cover their own expenses. In addition, students can take advantage of a system of educational loans (*créditos educativos*), which allows students to pay for their education during a set period of time after course completion.

Because of its track record, TECSUP has attracted a total of US\$13.6 million in external funding from sources such as USAID, the Inter-American Development Bank, the Canadian government and the European Union. The German State of Baden Württemberg has helped to fund TECSUP since the beginning, including the initial creation of the curricula, expert advise, teacher training and equipment acquisition.

Going Virtual

Aware of the potential for virtual training, TECSUP, in 1999, became the first IST in the country to set up a virtual campus, *TECSUP Virtu@l*. TECSUP received assistance from the Monterrey Institute of Technology (ITESM), as well as the Open University in Cataluña (Spain) in course design. It has signed a co-operation agreement with the Madrid Polytechnic University to accredit its distance education courses.

Currently over 1,600 technical workers are enrolled in workforce Internet training. The Inter-American Development Bank is supporting expansion of the virtual campus. It is expected that within the next three years, 7,900 technical workers and 840 students pursuing technical degrees will participate in virtual courses in areas such as informatics, business applications, and engineering.

The virtual campus enables students to take courses at their convenience from TECSUP facilities, their workplace, their homes or public Internet kiosks that are rapidly becoming available throughout the country. Approximately 40 percent of TECSUP’s distance continuing education students log into the campus from their workplace, 30 percent from public booths and 20 percent from home. Roughly 40 percent of students enrolled in the campus are from Lima and 60 percent are from over 67 other localities.

TECSUP’s Internet courses generally have a fixed seven-week duration. Once enrolled in a course, the student is able to study the course content, perform self-evaluations to monitor his or her performance, participate in debates with other students, and interact with the teacher through the Internet. Students are required to present themselves to take a final examination at a specified TECSUP testing center at the end of each course, but may log in and study at any given time. The virtual courses are designed, monitored and evaluated by a team of experts, hardware and software are updated on a regular basis, and teachers constantly receive training on virtual campus teaching methodologies in order to better serve the needs of the students online or through e-mail.

TECSUP Virtu@l has been able to take advantage of the development of communication systems and the increased access by the Peruvian population to the Internet to expand its course availability throughout the country. However, it should be pointed out that TECSUP’s programs are still reaching just a small portion of Peru’s needs for in-service training of workers.

The Future of Internet-Based Programs

There is a need and potential for Internet-based programs provided by higher education institutions, like those of TECSUP and ITESM, throughout Latin America as well as other developing countries. Private institutions, with their greater agility and ability to identify new clientele, have, in general, taken the

lead. The key to success appears to be a close and continuing relationship with industry to identify new and evolving training needs, direct industry financing, gain flexibility in designing courses and course content, and establish start-up technical assistance in virtual course design and management. To begin to meet these needs, many higher education institutions, especially public ones, will need to overcome an accumulation of attitudes and conditions which lead them to be suspicious of providing services to private industry. These institutions still have the remnants of the “ivory tower” concept that they should only seek and disseminate theoretical knowledge and be unsullied by associations with industry, commerce and other profit-making institutions. Throughout Latin America, there are efforts to reform public sector higher education institutions, including encouraging them to seek nonpublic funding, and to become more entrepreneurial, without abandoning some of their more traditional functions and objectives. Given the needs, success in this effort is important since it will help to increase the number and quality of institutions offering both virtual and in-person training services to industry and commerce.

Sources

Inter-American Development Bank Interactive Distance-Learning System for Technology Education project; Mario Rivera TECSUP Director, Andrés Astorner, TECSUP Director of Promotion and Development; TECSUP website: <http://www.tecsup.edu>