A decade ago, only one in 50 Mexicans had access to the Internet. Today that figure is one in four, a staggering cultural transformation that is fueling a boom in online degree programs in the country.

Few universities can rival the private Monterrey Institute of Technology and Higher Education when it comes to e-learning. Over the past two decades, the university, which has 33 campuses scattered across Mexico, has seized on the Internet revolution to boost enrollment and slash costs.

The institution's big push has allowed it to reach more than 35,000 new students and spurred others in the region to explore similar opportunities. But even advocates of online programs caution that technology is not a solution to the growing education needs in Mexico or Latin America.

"We need more universities, not more e-learning," said Jordy Micheli Thirión, director of the virtual-education programs at Autonomous Metropolitan University's Azcapotzalco campus.

Monterrey Tech, as it is commonly known, broadcast its first distance-education class in 1989 via satellite. Today its online system, called Virtual University, enrolls 12,000 students in 22 master's programs and one Ph.D. program, in education innovation. In addition, 26,000 students are pursuing undergraduate and master's degrees at Tech Millennium, the university's lower-cost online affiliate.

Monterrey is also a leader in incorporating virtual technology into the classroom. Starting several years ago, administrators began requiring all 60,000 traditional students, thousands of whom come from other Latin American countries, to take at least one online course before
graduating. Meanwhile, professors and students increasingly communicate via Blackboard, the Web-based course-management system that serves as the technological backbone of the online programs.

"The idea is to break down the walls of the classroom," said Juan Carlos Enríquez, academic dean of Virtual University.

Other efforts include the creation three years ago of an online knowledge hub called Temoa—the Nahuatl Indian word for "to seek or inquire"—at Tech's main campus in Monterrey. Researchers there comb the Internet for free learning resources and classify them according to quality, content, and academic field. They then advise professors on which technology to incorporate into the classroom.

In addition, the university is working to develop online courses that could be accessed via devices such as cellphones and iPads.

"We're pushing our professors to take advantage of the technology that's out there," said Mr. Enríquez, who is also in charge of introducing e-learning into programs on campus. "There's no question that we're enriching the classroom experience."

Monterrey's success has inspired scores of universities throughout the region, both public and private, to develop their own online degree programs and, more recently, to blend e-learning models with traditional classroom methods.

"Monterrey Tech has won prestige in all of Latin America, and that gives distance education more credibility," said José Barbosa Corbacho, president of the Private Technological University of Loja, the oldest provider of online degrees in Ecuador. Distance education, he said, "allows you to offer courses by first-rate professors in the remotest corners of the country and the world."

Other major players in e-learning in Mexico include the giant National Autonomous University of Mexico, or UNAM, whose Open University and Distance Education system offers a combination of online and traditional courses in areas such as law, education, and social work. The National Polytechnic Institute and the University of Guadalajara are also pioneers among public institutions, while most established private universities have developed programs.
Last fall the Public Education Secretariat, Mexico's equivalent of the U.S. Department of Education, created its own virtual university offering 13 undergraduate degree programs.

But developing online programs is costly, and few institutions in the region can match Monterrey's technological capacity or its $30-million annual e-learning budget. And some educators say they do not want to.

"Monterrey Tech is very focused on business and its own financial success," said Celso Garrido, an expert on distance learning at the public Autonomous Metropolitan University at Azcapotzalco. He noted that the university, which was founded in 1943 by a consortium of wealthy businessmen in Monterrey, seeks to develop future leaders of industry.

In contrast, he said, universities like his own are primarily interested in expanding access to higher education, while using new technologies to improve the quality of their programs. To cut costs, most rely on free, open-source systems such as Moodle, rather than the pricy Blackboard, to manage their course content.

Mr. Garrido's institution, meanwhile, began its own online degree programs in 2007, following a three-year grant from the European Union to support distance learning at five public universities in Latin America.

He argued that American universities—and America's image abroad—could benefit from supporting such collaborations in online learning.

"The U.S. should pay attention to this and invest in this, because these are very successful programs," he said. "It's a way for the United States to improve relations with Latin America."

Monterrey's own forays into e-learning were rooted in its relationship with the American higher-education system. In 1987, the university was debating how to fulfill faculty degree requirements required by the Southern Association of Colleges and Schools, in the United States. (Monterrey Tech was the first university in Mexico to earn accreditation from the association, in 1950, and since then only four others have followed suit.)

At the time, only 27 percent of Tech professors held master's degrees, said Mr. Enríquez, the Virtual University dean. So Tech decided to design its own online degree program, which eventually evolved into its current programs.
The e-learning efforts are not without their downsides. Tech's online programs have attracted mixed reviews from students, some of whom complain of a lack of quality control and faculty supervision.

"Nobody studies. Instead they just try to get their degree by whatever means," said María del Carmen Borda, who earned a master's degree in finance at Monterrey Tech in 2006.

She said the university relied on scholarship students from its high-school system to supervise exams and take attendance, a practice she said led to widespread cheating and absenteeism among students. "It was a disaster, a total waste of time," said Ms. Borda of her online program.

After a cheating episode in one of her classes she decided to switch to the traditional system, where she earned her degree.

Candy Nava Guerra, dean of distance education at Tech Millennium, acknowledged that the Monterrey system had faced problems with plagiarism in its online programs. But she said that was a risk with virtual education in general, and that her university had recently adopted safeguards against cheating, such as scanning students' papers electronically and then searching for matches on the Internet.

While such steps will improve the quality of distance education at Monterrey Tech, others worry more broadly that its success with technology will spur others to put too much emphasis on e-learning to meet the rising demands for university degrees in the region.

"E-learning forms a very rich part of higher education," said Mr. Micheli of Autonomous Metropolitan University, "but it can't be the driving force behind massification, nor the panacea to our needs."