The Imperative of Anytime, Anywhere Learning

By Diana G. Oblinger, Ph.D.
Executive Director of Higher Education,
Microsoft® Corporation

While worldwide demand for higher education is rising at an unprecedented rate, nowhere is demand greater – or more crucial – than in developing countries. In a global, knowledge-age economy, a strong system of postsecondary education is a prerequisite for success. As a result, higher education has been placed at the center of national development both in the United States and abroad.

Few would deny that learning is an opportunity that should be available to all people. Unfortunately, the ideal is sometimes far from the reality. According to Richard Larson, director of the MIT Center for Advanced Educational Services, the number of young people in developing nations who receive some form of tertiary education is often less than 4 percent, compared with more than 40 percent in developed countries. In a global economy that increasingly rewards those with knowledge skills, developing countries will be left farther behind unless their youth receive high-quality postsecondary education.[1]

Both in the United States and abroad, educational institutions are facing unprecedented numbers of students. It is estimated that an additional 1 million to 2 million students – many of them from low-income or minority families – will seek access to U.S. colleges and universities by 2015.[2] Demand for higher education in developing countries is exploding. In 2001 more than 90 million students were enrolled in higher education worldwide. Estimates are that by 2025, the number will reach 150 million. Before 2035, more people will be ready for postsecondary education than have attended college in all of human history.[3]

It is estimated that an *additional 1 million to 2 million students* will seek access to U.S. colleges and universities by 2015.

The model for educational expansion has largely been one of bricks and mortar. However, few countries can afford the expense of creating the campuses, classrooms, laboratories, and libraries that would be required to meet educational demand, not to mention their lack of resources to hire the necessary faculty.

While technology cannot replace public policy or a commitment to change, it does offer solutions to the problems of educational capacity in both developed and developing countries. Online learning, for example, holds the promise of expanding people's access to education without the cost or delay of creating physical campuses. Radio, television, and the Internet enable the world's mega-universities to serve huge numbers of students. Examples are Turkey's Anadolu University, which serves 600,000 students, and China Central Radio and TV University, which has more than 3 million students.

The rich array of digital resources made available on the Web enables students *anywhere* to experience first-person learning.

Technology makes partnerships and collaboration possible, such as in the case of the Singapore-MIT Alliance, a peer-to-peer partnership through which the institutions work together to provide and deliver education. The University of the Highlands and Islands project uses information technology to increase access to postsecondary courses, to reduce costs, and to share resources among 14 rural Scottish universities.[4] And information technology has helped faculty at Monterrey Tech in Mexico to gain advanced degrees through its Virtual University.

For many, technology has helped increase access to course material – a critical component of any successful educational enterprise. MIT's OpenCourseWare Initiative makes course material available around the world. And a growing number of learning object repositories are making material available broadly.

Even laboratories are becoming more available as technology advances. At the University of Virginia, Charles Grisham's Lab3D project enables students to conduct virtual chemistry and biochemistry experiments. Data are generated as students manipulate the laboratory equipment: increasing the temperature on the hot plate, slowing down the stirring rod, or adding more acid produces a unique set of results. Another student using a different temperature or a different acid concentration will generate different data.

Jesús del Alamo took a different approach for his microelectronics lab. Since the equipment was across the river from his classroom at MIT, he created a Web interface that enabled students to conduct lab experiments from anywhere and at any time. Tracking usage, del Alamo found that while lab activity spiked immediately before experiments were due, there was tremendous excess capacity, even after sharing the WebLab with students in Sweden and Singapore. Del Alamo is now exploring sharing that capacity with students connected to African Virtual University.

The rich array of digital resources made available on the Web enables students anywhere to experience first-person learning. For instance, the Valley of the Shadow project at the University of Virginia enables students worldwide to explore the information historians use to reconstruct history. Through personal letters, newspaper articles, photographs, census data, and military records, individuals can explore the story of two different counties during the Civil War. The counties are essentially the same, with the exception that one is Confederate and the other is Union. Ed Ayers and his colleagues have used information technology to create a resource that advances scholarship as well as individual learning.

The National Science Foundation has envisioned the CLEANER (Collaborative Large-Scale Engineering Analysis Network for Environmental Research) program that will enable students to participate in national – and international – networks and enable them to monitor real-time enviornmental data and make decisions. Rensselaer Polytechnic Institute, in collaboration with the state of New York and Columbia University, has established the Upper Hudson Satellite Center, affiliated with the CLEANER initiative. Those at the center are studying environmental contaminants such as PCBs (polychlorinated biphenyls) in the upper Hudson River. They've developed advanced monitoring and sensing techniques that allow for continuous, real-time monitoring of the river. The data will be used for research, but it will also be made available to students. Similar networks will monitor tropical rain forests and other habitats.

While these and countless other projects give hope for making our intentions into realities, more can – and should – be done by developed nations to advance education in the rest of the world. As John S. Daniel writes in his book *Mega-Universities and Knowledge Media*, "Providing education and training for the burgeoning population of the developing world is not only a challenge for the countries concerned. The security of humankind may well depend on it."[5]

It may not be possible for all students to have a rich campus experience, but that doesn't mean they shouldn't have access to high-quality education. Technology is increasing our capacity to extend robust educational experiences to learners who might otherwise be shut out of education. With limited numbers of faculty, and the impracticality of building enough classrooms, labs, and libraries, technology offers a mechanism for the extension of educational resources. *Making anytime, anywhere learning a reality is a social imperative.*

1) MIT Center for Advanced Education Services. http://ken.mit.edu/DevShell/DesktopDefault.aspx?tabindex=1&tabid=533
2) Association of American Colleges and Universities. 2002. *Greater Expectations: A New Vision for Learning As a Nation Goes to College*. http://www.greaterexpectations.org/pdf/GEX.FINAL.pdf
3) Allen E. Goodman. 2001. *The Closing of the American Mind: A Progress Report*.
http://www.iie.org/Content/NavigationMenu/News_Announcements/Speeches/02-13-2001,_The_Closing_of_the_American_Mind__A_Progress_Report.htm
4) The Futures Project. October 2000. *The Universal Impact of Competition and Globalization in Higher Education*. http://www.futuresproject.org/publications/universal_impact.pdf, page 8.
5) John S. Daniel. 1996. *Mega-Universities and Knowledge Media: Technology Strategies for Higher Education*. Kogan Page, London.

©2004 Microsoft Corporation. All rights reserved. Microsoft is a registered trademark of Microsoft Corporation in the United States and/or other countries.

Microsoft®