THE CHRONICLE OF HIGHER EDUCATION
Technology

March 4, 2013

'Bandwidth Divide' Could Bar Some People From Online Learning

By Jeffrey R. Young

Think the digital divide is behind us now that personal computers are ubiquitous? Consider the recent failure of an e-textbook effort in a wealthy school district outside of Washington, D.C.

The e-textbooks used in the project, run by the Fairfax County Public Schools, worked only when students were online—and some features required fast connections. But it turns out that even in such a well-heeled region, many students did not have broadband access at home and were unable to do their homework, sparking complaints from parents that led the school system to approve the purchase of $2-million in printed textbooks for those who preferred a hard copy.

As more colleges rush to offer free online courses in the name of providing educational access to all, it's worth asking who might be left out for lack of high-speed Internet access to watch video lectures.

Only about 66 percent of American adults have broadband access at home, according to a survey last year by the Pew Internet & American Life Project.

And only one-fifth of elementary- and secondary-school teachers in the United States said that all or most of their students have access to the digital tools they need at home, according to survey results released by the group last week. In some developing countries—where leaders of massive open online courses hope they will have an impact as well—broadband Internet access can be far harder to come by.

Call it the Bandwidth Divide. And it's widening, argues Martin

Hilbert, a research fellow at the University of Southern California's Annenberg School for Communication and Journalism. The difference between those who have access to fast connections and those who have only dial-up speeds or access via a cellphone is "bigger than people think," he said.

Even those running MOOCs see the Bandwidth Divide as an obstacle. "I agree this is an issue, a big issue," said Sebastian Thrun, the Stanford University computer-science professor who founded Udacity, a company delivering MOOCs taught by well-known professors.

"Outside the U.S., most data plans have a data limit," he added, meaning that people on such plans who want to watch hours of lecture videos, which require more bandwidth, might face high charges from their Internet provider for doing so.

And many Internet companies are considering moving away from all-you-can-use plans for high-speed Internet at home. Which means that massive open online courses are "free" only as long as you can afford to get to them.

Role for Public Libraries

Public libraries may become the de facto classrooms for MOOC students who lack access to the Internet at home. But many libraries offer an imperfect access solution—with limited hours and long wait times for shared computers.

More than 40 percent of public libraries reported that they do not provide enough Internet access to meet the demands of patrons, and 65 percent said they did not have enough public computers to meet demand, according to a 2012 study by the American Library Association. But technology in libraries is improving, said Larra Clark, a director in the association's Office for Information Technology Policy, thanks in part to grants that were part of the U.S. government's financial-stimulus measures.

One of the institutions that benefited from stimulus money is the Purcell Public Library, in Oklahoma.

A few years ago, the library's network was the slowest in the state,

and the system struggled to load most Web pages, said Peggy Cook, the branch manager. But in 2010 a grant brought a fiber-optic connection to the building, greatly improving service for the library's 5,000 weekly patrons who can use one of 20 desktop computers, five loaner laptops, or their own laptops to connect to the building's wireless network.

Today, several students rely on Purcell's library to take online college courses. The library has even agreed to proctor tests for online classes offered by Cameron University, for students who want to avoid driving the 80 miles to that campus.

Libraries are not the only places offering free Internet these days, of course. Students taking MOOCs from Harvard University or other elite colleges may tune in to lectures from McDonald's or other restaurants that offer their customers Internet access. Whether having fries with that college quiz works for students remains to be seen.

The good news, of course, is that the number of people with Internet access is growing, and, as Mr. Thrun of Udacity points out, Internet access is much cheaper than college tuition.

The Bandwidth Divide is a form of what economists call the Red Queen effect, explains Mr. Hilbert, referring to a scene in Lewis Carroll's *Through the Looking-Glass* when Alice races the Red Queen.
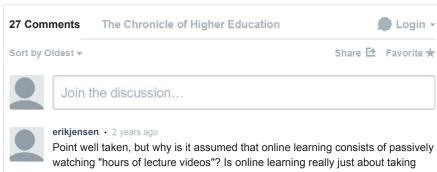
As the Red Queen tells Alice: "It takes all the running *you* can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!"

Mr. Hilbert said that keeping up with digital technology is like that race—it takes a continual investment of money and time just to keep up with the latest, and an exceptional amount of work to get ahead of the pack.

"The question is, What is the new basic?" he said. "There will always be inequality. But 100 years after the introduction of the car, not everybody has a Ferrari, but everyone has access to some form of motorized transportation through buses."

Well, not everyone, but even fewer people have the online equivalent. Colleges considering MOOCs should remember that.

College 2.0 covers how new technologies are changing colleges. Please send ideas to jeff.young@chronicle.com *or* @jryoung *on Twitter.*

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erikjensen · 2 years ago
Point well taken, but why is it assumed that online learning consists of passively watching "hours of lecture videos"? Is online learning really just about taking campus-based lectures (a questionable teaching method at best), and putting them on streaming video? I hope not.

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> **sisgett** → erikjensen · 2 years ago
> But isn't that pretty much the way MOOCs operate?
>
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wmartin46 · 2 years ago
> Only about 66 percent of American adults
> have broadband access at home

This is a meaningless statistic. What is more important to ask is: "how many adults in the US have access to broadband on their street?"
This number will likely include everyone in the major cities, and
probably in the minor cities, too. And given that broadband is also delivered
by satellite, the number of people with accessible-broadband is probably over 90%.

The underlying issue here is that on-line courses need to be
designed for people with computers, not necessarily access to high-speed broadband. There is no reason that any course that is designed for on-line delivery
can not also be configured to be delivered, more-or-less, via DVD/Blu-Ray discs. While not being on-line negates some possible interactivity with other people, there is no reason that most courseware should not be viable when delivered from a disc.

People can download the material from a library, or simply receive a disc in the mail.

This is more of a non-issue, than not.

6 ∧ | ∨ · Reply · Share ›

> **Aidian Holder** → wmartin46 · 2 years ago
> Why is that a meaningless statistic? If you're priced out, it really doesn't matter where the closest fiber drop is. And here in America we pay lots more for lots less when it comes to internet access than most other first world countries.
>
> Oh yeah, and satellite broadband? If you're rich and patient, maybe. But it's not an alternative to a real wired connection.
>
> 26 ∧ | ∨ · Reply · Share ›

> **outreachatesc** → wmartin46 · 2 years ago
> The statistic is actually quite powerful. Once upon a time, the US had an objective of universal telecommunications service. When Ma Bell was broken up, the number was up around 98, not bad. There was a patch work of life line services mandated by state governments to boot. And, facilities passed every location ... Even if a single line from main road to the farm house. With no mandate, fiber is NOT everywhere and cable and phone companies have focused on content NOT connectivity. Looking back, maybe a natural monopoly made some sense. Think about an affordable fiber backbone reaching every home, school