



# PALO ALTO UNIFIED SCHOOL DISTRICT

NSBA T+L<sup>2</sup> CONFERENCE  
DENVER, COLORADO — OCTOBER 27, 2005

## ROUNDTABLE SESSION

### TECHNOLOGY SUPPORTING TEACHING AND LEARNING IN THE MIDDLE SCHOOL

Presenters: Marie Scigliano and Paula Hundley

#### Articles for reading:

Teens Wired  
The New Students  
The \$100 Laptop Project

#### Websites to review later:

Meridian: A Middle School Technologies Journal (NC State)  
<http://www.ncsu.edu/meridian/>

Promoting Technology Use in Schools – NCREL Critical Issue article  
<http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te200.htm>

The Maine Idea: A Computer for Every Lap  
[http://ali.apple.com/ali\\_sites/glefli/exhibits/1001165/Introduction.html](http://ali.apple.com/ali_sites/glefli/exhibits/1001165/Introduction.html)

MIT Media Lab – News about the \$100 Laptop  
<http://www.media.mit.edu/>

Laptops for Learning Task Force Final Report – State of Florida  
<http://etc.usf.edu/L4L/index.html>

#### Discussion plan:

##### Introductions (5 min)

##### Three Strands for Discussion:

- 1. Critical Issues—Discuss and share out top 3**  
(5 min table discussion / 10 min sharing & discussion)
- 2. Success Stories—What is working well in your school/district?**  
(5 min table discussion / 15 min general discussion)
- 3. Predictions—What's next? What should we be planning for?**  
(5 min table discussion / 15 min general discussion)

## **Boomers, Gen-Xers & Millennials: Understanding the New Students** **By Diana Oblinger (Director of Higher Education, Microsoft), 2003**

“One way to describe these trends is the emergence of an “information-age mindset.” The attitudes – and aptitudes – of students who have grown up with technology (or who have spent significant amounts of time with it) appear to differ from those of students who rarely use technology. Jason Frand has described ten attributes of an information-age mindset:

- *Computers aren't technology.* Students have never known life without computers and the Internet. To them the computer is not a technology – it is an assumed part of life.
- *The Internet is better than TV.* In recent years, the number of hours spent watching TV has declined, being supplanted by time online. Reasons for the change include interactivity and the increased use of the Internet for socializing.
- *Reality is no longer real.* Those things that appear real over the Internet may not be. Digital images may have been altered. E-mail sent from someone's address may not have come from that person. And the content may or may not be accurate.
- *Doing is more important than knowing.* Knowledge is no longer perceived to be the ultimate goal, particularly in light of the fact that the half-life of information is so short. Results and actions are considered more important than the accumulation of facts.
- *Learning more closely resembles Nintendo than logic.* Nintendo symbolizes a trial-and-error approach to solving problems; losing is the fastest way to mastering a game because losing represents learning. This contrasts with previous generations' more logical, rule-based approach to solving problems.
- *Multitasking is a way of life.* Students appear to be quite comfortable when engaged in multiple activities simultaneously, such as listening to music, sending instant messages, doing homework, and chatting on the phone. Multitasking may also be a response to information overload.
- *Typing is preferred to handwriting.* Students prefer typing to handwriting. Many admit their handwriting is atrocious. Penmanship has been superseded by keyboarding skills.
- *Staying connected is essential.* Students stay in touch, via multiple devices, as they move throughout the day. Cell phones, PDAs, and computers ensure that they remain connected anytime and anywhere. As the networks become more ubiquitous, increasing numbers of students participate in real-time dialogues from anywhere using a variety of devices.
- *There is zero tolerance for delays.* Having grown up in a customer-service culture, today's students have a strong demand for immediacy and little tolerance for delays. They expect that services will be available 24x7 in a variety of modes (Web, phone, in person) and that responses will be quick.
- *Consumer and creator are blurring.* In a file-sharing, cut-and-paste world, the distinctions between creator, owner, and consumer of information are fading. The operative assumption is often that if something is digital, it is everyone's property.”

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## Survey: Teens more wired than ever

**CHICAGO, Illinois (AP) -- A new survey says that the Internet has all but saturated the youth market.**

The report compiled for the Pew Internet & American Life Project found that nearly nine out of 10 young people, ages 12 through 17, have online access -- up from about three-quarters of young people in 2000.

By comparison, about 66 percent of American adults now use the Internet.

David Pulliam, a 17-year-old high school senior from Indianapolis, is a typical example of a wired teen.

He first got access to the Internet when he was 13, as did most of those who were surveyed. He has a blog and loves to use instant messaging to stay in touch with friends he's met at camps and sporting events.

He also gets his news online, as do about three-quarters of teen Internet users who were surveyed. That's an increase of about 38 percent, compared with 2000 results.

"It's hard to imagine my life without it," Pulliam says of the Net. "In some ways, life would become a little easier because it would slow down. But it would become a lot more boring and hard because you would always be waiting for letters and responses."

At the same time he says he and his friends also have honed their Internet use -- seeing it more as a tool for communication or research than "a novelty."

Amanda Lenhart, a Pew researcher, says that rings true with the findings of the survey. "Teens are very selective -- they're smart about their technology use," she says. "They use it for the kinds of things they need to do."

As one teen in a focus group told her: "If you're asking for your parents to extend your curfew, you don't send an e-mail."

### Tech-savvy boy and girls

The survey, completed in late 2004, included responses from 1,100 young people who were contacted randomly by phone. It has a margin of error of four percentage points. Its findings included the following:

- Of those surveyed, 87 percent said they use the Internet. About half of the young people who have online access say they go on the Internet every day, up from 42 percent in 2000.
- Three-quarters of wired teens use instant messaging, compared with 42 percent of online adults who do so. Teens most often reserve IMing for friends and e-mail for adults, including parents and teachers.
- About half of families with teens who have an Internet connection have speedier broadband access, while the other half still use phone lines to connect.
- Nearly a third of teens who use IM have used it to send a music or video file.
- While 45 percent of those surveyed have cell phones, those phones aren't necessarily the preferred mode of communication. Given a choice, about half of online teens still use land lines to call friends, while about a quarter prefer IMing, and 12 percent say they'd rather call a friend on a cell phone.
- Older teen girls who were surveyed, ages 15 to 17, are among the most intense users of the Internet and cell phones, including text messaging.

"It debunks the myth of the tech-savvy boy," Lenhart says. As young people get Internet access at younger ages, that trend may only continue.

Back in Indianapolis, for instance, Pulliam's 13-year-old sister, Anna, says she first set up an e-mail account at age 8 -- and started using it regularly at age 10. She's been IMing since she was 11 -- and already has a blog. She also uploads photos from her digital camera to a Web site to share with friends.

She does not have a cell phone yet, though she notes that many people her age do.

That leads technology trackers to predict that text messaging, done by about a third of those surveyed who have cell phones, will grow in popularity.

"The more other kids are doing it, the more kids want to do it," says Susannah Stern, an assistant professor of communications studies at the University of San Diego.

## Internet divide

Still, as wired as many young people are, she says the fact that about 3 million of them remain without Internet access is cause for concern. Many of them are low-income, and a disproportionate number are black, the survey found.

"When so many teenagers have such access, the few that don't are at a significant disadvantage," Stern says.


Daniel Bassill, who heads an organization that helps build the computer skills of low-income youth in Chicago, says it's an even greater challenge to find people to teach teens how to use the Internet.

"Even the kids that have access don't necessarily have people mentoring them to use the information to their greatest advantage," says Bassill, president of Cabrini Connections and the Tutor/Mentor Connection.

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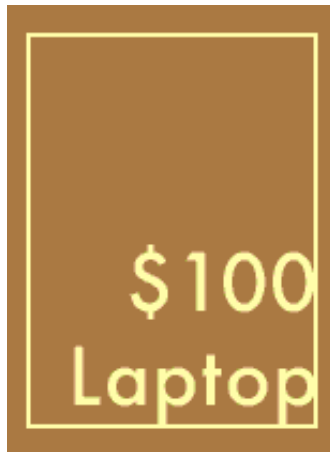
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## FREQUENTLY ASKED QUESTIONS

Nicholas Negroponte, founding chairman of MIT's Media Laboratory, answers questions on the initiative.

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### What is the \$100 Laptop, really?

The proposed \$100 machine will be a Linux-based, full-color, full-screen laptop that will use innovative power (including wind-up) and will be able to do most everything except store huge amounts of data. These rugged laptops will be WiFi- and cell phone-enabled, and have USB ports galore. Its current specifications are: 500MHz, 1GB, 1 Megapixel.

### Why do children in developing nations need laptops?

Laptops are both a window and a tool: a window into the world and a tool with which to think. They are a wonderful way for all children to "learn learning" through independent interaction and exploration.

These laptops are not yet in production and are not for sale.

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### Why not a desktop computer, or—even better—a recycled desktop machine?

Desktops are cheaper, but mobility is important, especially with regard to taking the computer home at night. Kids in the developing world need the newest technology, especially really rugged hardware and innovative software. Recent work with schools in Maine has shown the huge value of using a laptop across all of one's studies, as well as for play. Bringing the laptop home engages the family. In one Cambodian village where we have been working, there is no electricity, thus the laptop is, among other things, the brightest light source in the home.

Finally, regarding recycled machines: if we estimate 100 million available used desktops, and each one requires only one hour of human attention to refurbish, reload, and handle, that is forty-five thousand work years. Thus, while we definitely encourage the recycling of used computers, it is not the solution for One Laptop per Child.

### How is it possible to get the cost so low?

- First, by dramatically lowering the cost of the display. The first-generation machine may use a novel, dual-mode LCD display commonly found in inexpensive DVD players, but that can also be used in black and white, in bright sunlight, and at four times the normal resolution—all at a cost of approximately \$35.
- Second, we will get the fat out of the systems. Today's laptops have become obese. Two-thirds of their software is used to manage the other third, which mostly does the same functions nine different ways.
- Third, we will market the laptops in very large numbers (millions), directly to ministries of education, which can distribute them like textbooks.

### Why is it important for each child to have a computer? What's wrong with community-access centers?

One does not think of community pencils—kids have their own. They are tools to think with, sufficiently inexpensive to be used for work and play, drawing, writing, and mathematics. A computer can be the same, but far more powerful. Furthermore, there are many reasons it is important for a child to "own" something—like a football, doll, or book—not the least of which being that these belongings will be well-maintained through love and care.

### What about connectivity? Aren't telecommunications services expensive in the developing world?

When these machines pop out of the box, they will make a mesh network of their own, peer-to-peer. This is something initially developed at MIT and the Media Lab. We are also exploring ways to connect them to the backbone of the Internet at very low cost.

### What can a \$1000 laptop do that the \$100 version can't?

Not much. The plan is for the \$100 Laptop to do almost everything. What it will not do is store a massive amount of data.

### How will these be marketed?

The idea is to distribute the machines through those ministries of education willing to adopt a policy of "One Laptop per Child." Initial discussions have been held with China, Brazil, Thailand, and Egypt. Additional countries will be selected for beta testing. Initial orders will be limited to a minimum of one million units (with appropriate financing).

### When do you anticipate these laptops reaching the market? What do you see as

**the biggest hurdles?**

Our preliminary schedule is to have units ready for shipment by the end of 2006 or early 2007. Manufacturing will begin when 5 to 10 million machines have been ordered and paid for in advance.

The biggest hurdle will be manufacturing 100 million of anything. This is not just a supply-chain problem, but also a design problem. The scale is daunting, but I find myself amazed at what some companies are proposing to us. It feels as though at least half the problems are being solved by mere resolve.

**How will this initiative be structured?**

The \$100 laptop is being developed by One Laptop per Child (OLPC), an independent, non-profit association based on the "constructionist" theories of learning pioneered by Seymour Papert and later Alan Kay. It is totally separate from MIT, with its own board, executives, location, and staff. Its founding members are AMD, Brightstar, Google, News Corporation, and Red Hat, all of whom have funded both OLPC and the MIT Media Lab.

OLPC is funding research at the Media Lab focused on developing the \$100 Laptop.

The three principals at MIT are faculty members at the Media Lab: [Nicholas Negroponte](#) (a founder of the Lab), [Joe Jacobson](#) (serial entrepreneur, co-founder and director of [E Ink](#)), and [Seymour Papert](#) (one of the world's leading theorists on child learning).

Additional researchers include: [Mike Bove](#), Mary Lou Jepsen, Alan Kay, [Tod Machover](#), [Mitchel Resnick](#), and [Ted Selker](#).

*October 2005*

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MIT Media Lab