

# One laptop per child

## How Maine schools proved why schools everywhere should provide computers to students

BY BINBIN ZHENG AND MARK WARSCHAUER  
THE CONVERSATION

**A** recent international study by the Organization for Economic Cooperation and Development found no positive evidence of impact of educational technology on student performance.

It did not find any significant improvement in reading, math or science in countries that heavily invested in technology to improve student achievement. In fact, the report found that technology perhaps even widened the achievement gaps.

Does this mean we should abandon attempts to integrate technology in schools?

We are researchers of technology and learning in K-12 environments, and our research suggests this would be short-sighted.

### Impact of one-to-one laptop programs

For the last 10 years, our research team has been investigating what are called “one-to-one” programs, where all the students in a classroom, grade, school or district are provided laptop computers for use

throughout the school day, and often at home, in different school districts across the United States.

The largest one-to-one laptop program in the world is One Laptop per Child, which mainly targets developing countries, with the mission “to create educational opportunities for the world’s poorest children.” In the U.S., the Maine Learning Technology Initiative launched a one-to-one laptop initiative in fall 2002, which made Maine the first state to use technology to transform teaching and learning in classrooms statewide. Later, these programs were extended to other school districts as well.

In addition to our own extensive observations, we conducted a synthesis of the results of 96 published global studies on these programs in K-12 schools during 2001-2015. Among them, 10 rigorously designed studies, mostly from the U.S., were included, to examine the relationship between these programs and academic achievement. We found significant benefits.

We found students’ test scores in science, writing, math and English language arts improved significantly.

And the benefits were not limited to test scores.

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Noah Sixberry (left), 14, and Faith Lindsey (right), 14, check out a “Minecraft” drawing that Jordyn Cowger, 13, made during the 2016 Maine Learning Technology Initiative Student Conference May 26 at the Collins Center in Orono.

## Harmful chemicals are everywhere, but their long-term effect on us is unclear

BY ZHAI YUN TAN  
KAISER HEALTH NEWS

Everything from our plastic water bottles and cosmetics to our non-stick frying pans contains chemicals that accumulate in our bodies. But it is unclear what effects these chemicals might have on human health and well-being.

A report released this week by the Environmental Working Group, a research and advocacy group based in Washington, D.C., attempts to inform part of this discussion by quantifying the extent these chemicals are found in Americans.

“It’s hard to make the connection between being exposed to something and getting the disease because the disease is going to develop five, 10, 20 years later,” said Curt DellaValle, author of the report and a senior scientist with the group. “I hope something like this raises some awareness that these exposures are out there, there are some dangers generally ... and we



PIXABAY STOCK PHOTO

Plastic bottles to be recycled.

should work to try and reduce those exposures.”

The group analyzed biomonitoring data from the Centers for Disease Control and Prevention’s National Health and Nutrition Examination Survey, which provides a representational snapshot of the U.S. population.

According to their findings, as many as 420 natural and man-made chemicals

known to or likely to cause cancer were detected in blood, urine, hair and other human samples that were taken as part of the survey. Arsenic, lead, nitrate, a breakdown product of the insecticide DDT (dichloro-diphenyl-trichloroethane) and chlordane were found in nearly every person participating in the survey. Benzene, which is widely used to

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## If Peter Pan grew up in Portland, he wouldn’t be trusted to buy smokes

**P**eter Pan is having a moment. Kelsea Ballerini has a hit country song named after him, and Ruth B’s debut “Lost Boy” is climbing the Billboard Hot 100. And now it seems a theme of the story and songs — not growing up — has taken root in Portland.

In Maine’s largest city, once you reach 18, you are empowered to effectuate the spending of \$100 million on schools. You are able to vote on which left-of-center legislator speaks for you in Augusta. And, of course, you can decide whether Donald Trump or Hillary Clinton is the lesser of two evils, or raise your right hand and agree to place your life in jeopardy on behalf of your nation.

But purchasing a cigarette or chewing tobacco? That is simply a bridge too far. For “bad” things, such as handguns, cigars, alcohol or marijuana, you will need to wait until you reach the otherwise unremarkable age of 21. And we won’t even begin to discuss age requirements — or the lack thereof — around sex, abortions and birth control.

By requiring individuals to reach age 21 before buying tobacco products, the city acted with the best of intentions. It is

empirically true that cigarettes are bad for you. Nearly a half-million Americans die every year from the effects of smoking. And, if the models used by the National Academy of Sciences are accurate, increasing the minimum age for tobacco use will decrease the number of young people from ever starting smoking — or at least delay them.

Of course, we know lots of other things are bad for you. Obesity is likely the second leading cause of preventable death — it is hard to define — responsible for over 300,000 annually. Requiring people to work out daily and eat only healthy, nutritious food would reduce that number markedly. Passing an ordinance requiring those under age 21 to do so would certainly set them up for healthier lifestyles in the future, delaying or preventing the onset of obesity.

Yet, despite the best of intentions, these laws — real or hypothetical — should raise a question: When should we allow individuals to make bad decisions? Is it never? That is a little authoritarian. Is it when they “grow up” and become an adult? If so, when is that?

At some point, we simply need to place a line in the sand and expect individuals to be grown-ups, holding them accountable if they fall short. Sending mixed messages — you are trusted with the power to

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