

Does learning improve when every student gets a laptop?

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Binbin Zheng, assistant professor of education technology at Michigan State University, says schools that provide a laptop to each student as part of a comprehensive program are likely to see measurable benefits. Credit: Michigan State University

Schools that provide each student with a laptop computer, as well as the

appropriate support for both students and teachers, see significant improvement in academic achievement, a new paper indicates.

Michigan State University's Binbin Zheng and colleagues analyzed years of studies on "one-to-one" laptop programs, including Zheng's own research, and found that such programs that take a comprehensive approach were linked to higher test scores in English, math, science and writing, along with other benefits.

"In the past couple decades, one-to-one laptop programs have spread widely, but so has debate about whether they are cost-effective and beneficial to educational outcomes," said Zheng, assistant professor of educational technology and lead author on the paper. "I believe this technology, if implemented correctly, is worth the cost and effort because it lifts student achievement, enhances engagement and enthusiasm among students, improves teacher-student relationships and promotes 21st century skills such as technological proficiency and problem solving."

Some scholars at the turn of the 21st century argued computers were neutral tools that would have no measurable effect on learning and likely would play the "same marginal role in schools that earlier technologies, such as radio, film and television, did," the study says.

"Just putting a laptop before a student doesn't really help them with anything," Zheng said. "Technology should not be implemented for technology's sake."

But one-to-one laptop programs, in which each student in a class, grade level, school or district gets a computer, can improve [educational outcomes](#) when there is teacher buy-in, suitable technical support and professional development for teachers, and appropriate implementation with the curriculum.

In addition to improved scores on standardized tests, the benefits of successful laptop programs include an improved writing process.

"Students received more feedback on their writing, edited and revised their papers more often, drew on a wider range of resources to write and published or shared their work with others more often," Zheng said.

The researchers reviewed nearly 100 academic studies on one-to-one laptop programs dating back to 2001, although only 10 of the studies were scientifically rigorous enough to use in a statistical "meta-analysis" in the paper. Zheng said more in-depth studies are needed to further identify what works and what doesn't with one-to-one laptop programs.

With the price of some laptops now falling below \$200 and schools in the United States and other countries using more computerized assessments, a growing number of schools are considering implementing individualized laptop programs.

"Knowing the general impact of these programs," the study says, "can help school districts better shape their technology policies."

Provided by Michigan State University

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