

Research and Evaluation of the Maine Learning Technology Initiative (MLTI) Laptop Program

Impacts on Student Achievement



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The Goal of Maine's Laptop Program:

In 2002, Maine embarked on a bold new initiative, an initiative designed to:

...transform Maine into the premier state for utilizing technology in kindergarten to grade 12 education in order to prepare students for a future economy that will rely heavily on technology and innovation.

(Task Force on Maine's Learning Technology Endowment, 2001, p. vi)

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Overview of the Maine Learning Technology Initiative (MLTI)

Beginning in 2002, the State of Maine provided all middle school students and their teachers with laptop computers, and provided schools technical assistance and professional development for integrating laptop technology into their curriculum and instruction.

Beginning in 2007, all high school teachers also received a laptop and are currently being offered professional development to enhance their use of the technology.

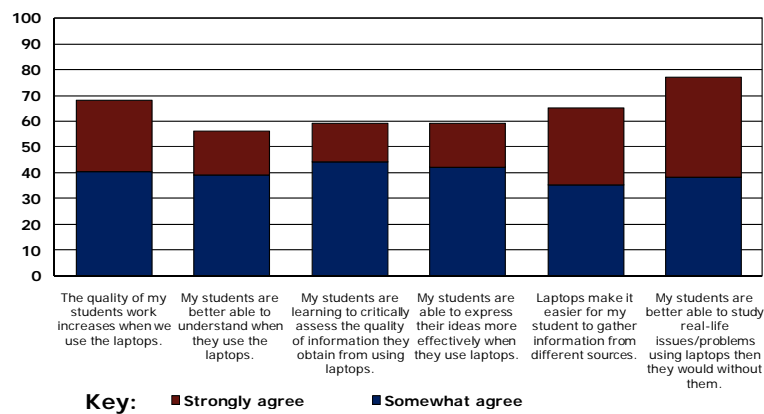
Current plans call for providing all high school students with laptops beginning fall 2009.

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Teacher Assessments of Impacts on Their Students' Learning

(Percentages)



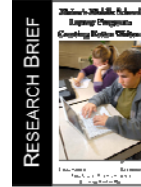
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Impact Study: 1. Maine's Middle Schools Laptop Program: Creating Better Writers

Study Design:

- Causal-comparative study
- Compared writing performance on statewide achievement test **before** and **after** introduction of laptops.



Results:

- Writing scores improved approximately 1/3 of a standard deviation.
- Twice as many students who used the laptops in the writing program met state proficiency standards as those who used laptops only as a "finishing" tool.
- Economically disadvantaged students outperformed economically advantaged students in some situations.
- Overall writing performances significantly improved—both using laptop and paper/pencil.

Impact Study: 2. Improving Mathematics Performance Using Laptop Technology: The Importance of Professional Development to Success

Study Design:

- Random control trial (RCT) study on mathematics
- 2-year professional development program

Results:

- Teacher knowledge significantly improved.
- Teaching practices and uses of technology changed.
- Students in experimental group classrooms scored significantly higher on:

1. Tests specifically designed for the study
2. Statewide mathematics test



Impact Study: 3. Using Laptops to Facilitate Middle School Science Learning: The Results of Hard Fun



Study Design:

- Field-based quasi-experimental study
- Using animation to learn earth science

Results:

- Students using animation scored significantly higher on comprehension tests.
- Students who used animation had significantly **higher retention** scores.
- Students who used animation reported experiencing “hard fun”.

Lesson Learned: What Have We Learned From These Studies?

1. There must be a clear strategic vision and plan.
2. Teachers must receive strong, meaningful and sustained professional developments and support.
3. Technology use must be appropriate to the task and focused.
4. The technology must be used as a learning tool.
5. Assessments must match learning with technology.
6. There needs to be clear evaluation and research plans developed early in the initiative.
7. It is important to articulate and manage expectations.

Copies of MLTI research and evaluation reports available on the following website:

<http://www.usm.maine.edu/cepare>

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