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Should Schools Adopt One-to-One Laptop Programs?

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Abstract

This paper describes the arguments for and against adopting one-to-one laptop programs in schools. The purpose of this paper is to examine the advantages and disadvantages identified for adopting laptop programs in schools to better inform educators, parents, and other interested individuals of this debate.

Should Schools Adopt One-to-One Laptop Programs?

As schools all over the United States adopt one-to-one laptop programs, educators, the public, parents, and students both question and celebrate the use of this technology in the classroom. The reasons schools adopt laptop programs vary from providing opportunities to promote 21st Century Skills to easing the gap between high and low socio-economic status (SES) students and/or English Language Learners (Warschauer, 2006, p. 32). Maine identifies the purpose for implementing laptop programs in schools across the state: "[W]e must prepare young people to thrive in a world that doesn't exist yet, to grapple with problems and construct new knowledge which is barely visible to us today" (p. 29). California schools studied by Warschauer and colleagues used laptops to promote an engaging reading environment in the hopes of making students better readers, writers, and learners (p. 43).

Opponents of laptop programs cite ongoing expense, technological difficulties, cheating, promotion of student laziness, a decline in critical thinking, and failed programs as reasons why one-to-one laptop schools will not work. The purpose of this paper is to examine the advantages and disadvantages identified for adopting laptop programs in schools to better inform educators, parents, and other interested individuals of this debate.

Yes

Mark Warschauer (2006), a leading researcher of laptop programs, emphasizes that technology—especially in the form of one-to-one laptop programs—can contribute to students learning basic knowledge to pass standardized tests and "master the exciting new ways of communicating that are relevant to twenty-first-century life" in his book *Laptops and Literacy* (p. 2). Warschauer also stated that laptop programs might be the answer to helping schools

"become more relevant by teaching the kinds of literacy, thinking, communication, and productivity skills, as well as academic content, needed in twenty-first-century life." (p. 10). Echoing this call to promote 21st Century skills, Campbell and Woodbridge (2004) feel that this technology can help educators reach diverse learners in preparation for life in the twenty-first century (para. 30).

Teachers and students cite many advantages to laptop classrooms. Jason Roslansky, a high school social studies teacher at Wall School District in South Dakota lists improved communication with students, availability of assignments, constant access to computers, and diverse possibilities for incorporating technology into lessons as advantages of one-to-one laptop programs in his classroom. Roslansky also feels that student learning is positively influenced because of individual access to laptops and says: "It would be tough to go back to teaching without one-to-one laptops" (J. Roslansky, personal communication, June 26, 2008). A report on the Main Learning Technology Initiative (MLTI) found that over 80 percent of teachers involved in laptop classrooms observed an improvement in student work (Maine, 2005, para. 16). Another study of the MLTI found that teachers in laptop classrooms use direct instruction less than they did prior to teaching in laptop classrooms; direct instruction is replaced with more learner-centered and project based instruction (Campbell & Woodbridge, 2004, para. 22). Just-in-time learning, individualized learning, easier research, more empirical investigation, and more in-depth learning are five improvements in instruction that Warschauer identified (2006, p. 86).

Warschauer (2006) found that ninety percent of teachers surveyed in one laptop school agreed that laptops help students "explore topics in more depth" (p. 59). A special education teacher in Maine told Warschauer's research team that typing has offered some of her students an invaluable tool for creative expression and writing that were not possible without individual

access to laptops. This use of laptops directly aligns with goals to give diverse learners opportunities not available in non-laptop classrooms.

Cognitive theory can help educators determine appropriate uses for technology to ensure deep learning is taking place. Technology, such as laptops, can be used as a resource for cognitive growth when students use the technology for creating products, reflecting on learning, and collaborating with peers (Bruning, Schraw, Norby, & Ronning, 2004, p. 232). Laptops should be used by educators and students as tools to promote cognitive growth, not as a replacement of effective teachers.

Teachers, researchers, and students identify many positive aspects to laptop classrooms and schools on student learning, motivation, performance, and achievement. Campbell and Woodbridge (2004) observed that individual access to laptops positively affected student confidence and technical skills. Student access to laptops also allowed students to create meaning and individualize learning because of the almost limitless access to information (para. 29). Many students interviewed by Campbell and Woodbridge listed the laptop program as a positive aspect of school (para. 18). A student surveyed about the laptop program at Piscataquis Community High School in Maine said that laptops make schoolwork more fun and interesting so the student is more motivated (Great Main, 2004, p. 13). Warschauer (2006) also found that laptops increase student engagement and attendance rates (p. 127). Fifty percent of students surveyed by Warschaurer said they worked harder with laptops (p. 129). Note taking is easier for some students (p. 134) and submitting work electronically means students no longer have to worry about physically losing papers.

Although few laptop programs existed ten years ago, research teams have found that many administrators, teachers, students, and parents believe that laptops positively affect

learning, motivation, and even behavior through observations, interviews, and surveys of participants in laptop programs.

No

Opponents of laptop programs cite the lack of empirical evidence, in the form of increased test scores on standardized assessments, that one-to-one laptop programs positively influence student achievement in the argument against laptop programs. The high cost of updating and maintaining laptops is another obstacle against the use of this technology. Others analyze the numerous problems related to failed or struggling laptop programs of schools across the US.

Research on technology in education cannot link technology use to improved student learning. Bruning, et al. believe improved student learning in classrooms that are very technology centered are more likely a result of effective teachers using technology as a tool to promote student learning (2004, p. 213). According to cognitive theory, possible disadvantages of including technology in education are overwhelming students with too much information, choosing low quality information, and not understanding the purposes of technology use (p. 217).

The lack of research fuels the argument against funding laptop programs that cannot be supported by strong evidence of improved student achievement. Staying current with technology can be costly. Many people question whether the funds needed to maintain laptop programs may be better spent elsewhere in our already underfunded schools (Jackson, 2004, para. 14). In most laptop schools, parents have to purchase insurance (J. Roslansky, personal communication, June 26, 2008), which is an added cost. Protection insurance varies: Watertown High School in Watertown, SD has insurance available at a cost of $25 per laptop with a maximum of $50 per

family; the deductible through this plan is $200 per claim. Personal insurance through a family's individual insurer can also be purchased. Irving Independent School District in Irving, TX offers insurance with a $40 premium and $100 deductible. The policy of a third school, Kutztown Area High School in Pennsylvania, has a $50 premium and $67 deductible; Kutztown families taking part in the Free and Reduced Meals program can receive the insurance at no charge to the family. Any laptop that is not insured at Kutztown cannot be taken out of the school building (State of SD, n.d.).

Again, because the use of one-to-one computing in schools is recent and limited across the country, there is a lack of research and proof that access to laptops increases or improves student learning and achievement. Hu points to the lack of funding needed to properly evaluate expensive laptop programs (Hu, 2007, para. 18). Campbell and Woodbridge also admit that there is no empirical data to support the claim that one-to-one classrooms have improved student achievement (2004). The school board president of one New York school that has dropped its laptop program said that there was no evidence of increased student achievement even after seven years of the program: "The teachers were telling us when there's a one-to-one relationship between the student and the laptop, the box gets in the way. It's a distraction to the educational process" (as cited in Hu, 2007, para. 5). One Liverpool High School student said that the laptop improved his typing but he did not feel it made him a better student.

In addition to the large monetary cost and lack of evidence to support the use of laptop programs, this technology often adds to the challenges teachers face every day. Roslansky stated that cheating has moved to a new level because of technology. Students have been known to e-mail answers to assignments and tests, and though cheating is certainly a problem with laptops, it is not a new problem (personal communication, June 26, 2008). Warschauer observed "lazy

plagiarism" where students copied text from sources without paraphrasing the information. Again, this happens in schools without one-to-one computing, but laptops can make this type of cheating easier. Hu reported that students at Liverpool High in New York used laptops to download pornography and posted instructions on the internet explaining how to get around the school's online security (Hu, 2007, para. 1). Less serious misuse of laptops include using the computers to play games (J. Roslansky, personal communication, June 26, 2008), instant messaging, and other non-educational purposes. Students and teachers have also said that laptops are a distraction in the classroom (Great Maine, 2004, p. 4).

Educators said that time spent dealing with training students to use the technology when laptops are first used can take away valuable instructional time (Campbell & Woodbridge, 2004, para. 26). Some students learn how to use software faster than others which can create problems in the class (Great Maine, 2004, p. 16). Time is also a factor when students have to start up and shut down computers during class (J. Roslansky, personal communication, June 26, 2008). Technical difficulties also take away from class time, increase costs to fix problems, and can result in a student being without a laptop if the school does not have enough "backup" machines (Great Maine, 2004, p. 4; Hu, 2007, para. 27). Without sufficient preparation in these areas, student learning will be negatively impacted. Teachers and schools need to be ready to teach without the laptops in case of technical problems or if a student forgets the laptop at home (Hu, 2007, para. 27).

The physical position of an upright laptop screen can make it difficult for the teacher to see the students and can decrease the personal connections among the teacher and students (Jackson, 2004, para. 17). One Maine teacher feels that the reading and writing skills of students have suffered because of the laptops and another teacher claims that the computers have

"repressed students' problem-solving abilities" (Great Maine, 2004, p. 23). In an online blog, an educator questioned the value of laptops and calls them a "crutch" for "lazy" kids to do poor research and writing (Forde, 2008). Another blogger feels that laptop programs are "more of the one size fits all model of education" but believes that computers can be useful tools for some students (District Administration, 2007).

Lack of commitment from teachers can be a disadvantage of the laptop programs as well (J. Roslansky, personal communication, June 26, 2008). Students from Maine suggested that more teacher training was needed to improve the use of laptops in classrooms (Great Maine, 2004, p. 16). If teachers do not use the laptops, the resources invested in the program are not being utilized. Proper training of the staff is essential if laptops are to be used to promote student learning.

Will one-to-one-laptop programs prove to be a short-lived trend? Are these programs here to stay? While policymakers, educators, and taxpayers continue this debate, an increasing number of schools and even states adopt laptop programs every year. As new laptop programs begin and others continue, schools should prepare for ongoing professional development, student training, and updating technology. More research of long-term laptop programs will help determine whether laptops do in fact increase student achievement, motivation, and learning.

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