SSN SCHOLARS STRATEGY NETWORK

KEY FINDINGS

WHAT STATE AND LOCAL AGENCIES NEED TO KNOW BEFORE MAKING LARGE-SCALE PURCHASES OF DIGITAL TECHNOLOGIES

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Decisions to purchase computer laptops, tablets or other new technological tools for individual student use in K-12 education involve far more than cutting the best deal with commercial vendors. The cost of the digital tool itself is often just a fraction of the actual outlay in dollars, time, and other resources needed to integrate devices into classrooms. Although students are steadily more media-literate in their use of digital tools, educational technology now encompasses far more than just devices. Schools that plan to implement advances in educational technology may not understand the full capabilities of the tools they purchase. Software can be used for instruction, organization, networking among professionals, and communication with students and parents. Many educational tools can be used in several of these ways, and schools must grapple with all of their complexities and potential, even as they take into account the unintended ways new digital tools may be used by students or staff.

Common Challenges

Our research to date in large urban districts finds that schools charged with implementing new technology programs face a range of predictable challenges.

Capacities for staff and students: Those involved in introducing new digital educational tools need to be skilled in their use and have ongoing and consistent technical support. Teachers and students must understand how the technology functions, because their ability to use new tools determines whether they will support learning in intended and unintended ways. Instructors need professional training and practice time for planning and ongoing uses, and they need to discuss effective strategies for optimal use. To further adaptations for students with disabilities, instructors also need regular access to a special education teacher trained on platforms.

Insufficient resources: State and local educational agencies often underestimate the technical problems (such as slow internet, software crashes, and non-working log-ins) that can impede integration. When readily accessible technical support is not provided, the burden of troubleshooting technical problems falls on the closest adults or student. As our research shows, this can lead to student downtime and classroom delays, with technical problems imposing significant academic costs in terms of student activities completed and course performance.

Devices have trade-offs: What kinds of digital tools should schools deploy? Our research finds that laptops and e-readers provide similar functionality and student access and facilitate engagement between students and instructors in similar ways. However, e-readers are associated with less time lost due to technical problems. These trade-offs may matter for budgetary reasons, given that the average per student cost of e-readers is about 5% of the cost of a laptop. Teachers

noted that tablets are easier for younger students to handle, although they also acknowledged that tablets have lower storage and processing power and a smaller size that makes typing more difficult. Even so, more technical capacity and applications for laptops do not necessarily mean that students using them for coursework will stay on task.

Research-Based Recommendations

State and local educational agencies making technology purchases should require vendors to specify in the contracting process how the platform, device, or vendor will:

- Detail the scope and capabilities of the digital tool for instruction and management and provide continuing updates on these matters;
- Provide equal access and adaptations for all students, including English learners and students with special needs and a range of abilities and disabilities;
- Structure training and ongoing capacity-building to enable school staff to use digital tools effectively to increase student achievement and reduce achievement gaps;
- Provide ongoing training and support services to help staff at each site address common technical problems and resolve issues that regularly arise;
- Promise contractually that vendors will share with school districts data they collect on student use of the education technology and teacher participation in vendor-provided training.

Beyond working out effective contracts with vendors, educational agencies must also install programs and resources to help schools and districts with:

- Effective classroom management in blended learning environments and flipped classrooms;
- Professional development for digital lesson planning, with guides for individual subjects in the curriculum;
- Training for instructional staff in the basic technical support needed to maintain hardware, software, and internet accessibility;
- Policy guidance to protect privacy for teachers and classrooms, while at the same time ensuring that devices are used in transparent ways;
- Policy guidance for mobile devices that students themselves bring to school – including how those personal devices are (or are not) supposed to work in concert with school-based digital technologies and related classroom activities.

Installing effective new digital technologies at school is, in short, not just a dollars and cents matter. A lot of planning and support must go into realizing gains from new technologies meant to boost student learning and enrich interactions among teachers and between teachers and students. Without adequate planning, the new digital technologies may add up to little more than costly distractions.

Read more in this multi-institutional research team based at Vanderbilt University, the Wisconsin Center for Education Research (WCER) at the University of Wisconsin-Madison, and the University of Texas at Austin project, "Improving the Effectiveness of Digital Educational Tools."