Seven Steps to Improving Learning Outcomes with Technology-Enabled 1-to-1 Learning
In this white paper, we examine the positive impact that 1-to-1 computing is having on learning outcomes. We also review seven important areas that can affect the success or failure of your 1-to-1 learning initiative and its ability to improve learning outcomes.

Teaching and operational experts consistently point to 1-to-1 learning as an optimal way to customize education for each student. This approach leverages breakthrough thinking from organizations such as Partnership for 21st Century Skills, New Blooms and the Educational Research Institute to leverage each student’s strengths and build skills on an individual basis. However, 1-to-1 depends on each student having access to technology—not just to create “educational parity,” but to fuel the desire to learn.

Today, millions of students and teachers worldwide are implementing 1-to-1 learning, in states like Maine and North Carolina, as well as in emerging regions of the world such as Peru. K-12 schools are embracing 1-to-1 learning for two primary reasons:

• To improve educational outcomes
• To boost the operational efficiency and cost-effectiveness of teachers, staff and administration.

This approach holds particular appeal for educators in the United States where student populations reflect diversity in culture, language and skills. In addition to the diversity of U.S. students, the need for graduates with critical-thinking skills, shrinking educational budgets, and the proliferation of national and statewide testing programs adds to the pressure to rethink the way students learn.

Through 1-to-1 learning, each student can have a personalized educational experience that leverages his or her strengths and delivers extra help as needed. Because technology enables progress monitoring in real time, teachers can intervene long before a failing grade occurs.

Whether you're launching a comprehensive 1-to-1 initiative or a pilot program, it’s clear that advance planning is pivotal. Leading administrators and teachers who are pioneering 1-to-1 point to seven success factors critical to improving learning outcomes, as discussed below.

1. POLICY

Policy development begins with building consensus and setting clear expectations. Savvy educators intentionally set out prescriptive policies to govern each major aspect of a 1-to-1 program, including the following areas.

Building these policies in advance gives you an opportunity to solicit ideas before finalizing program elements. In addition, collecting these individual policies allows you to construct a 1-to-1 blueprint that will be invaluable as you refine and expand the program.

FUNDING AND SUSTAINABILITY

Rather than focusing on immediate revenue sources only, look for sustainable financial support as well. While you'll need to identify initial funding, it’s even more important that you pinpoint sources of sustainable funding to keep the effort going.
Learning outcomes improve during the initial years of a 1-to-1 program and they continue to grow over time, studies show. This makes the program’s sustainability critical. Include 1-to-1 learning expenses in the fixed cost of your budget and you’ll help ensure that 1-to-1 endures. Include costs in only the variable portion of your budget and you may find yourself in the precarious position of having to fight for budgetary allocation every year.

COMMUNICATIONS

To build support for your 1-to-1 efforts, set out a plan of strategically timed communications to share information, status and progress with decision makers from education, administration and IT. Remember to first focus on the promise of 1-to-1 to improve learning outcomes—a goal shared by all key stakeholders. These communications will need to be crafted to resonate with key internal audiences, such as boards of education, teachers and staff, as well as external stakeholders, including parents and students. Schools seeking financial or “in kind” support from the local business community will need to communicate the 1-to-1 plan with influential civic and business leaders as well.

SITE READINESS

Assuming that your campaign for 1-to-1 learning is gaining momentum with your key supporters, turn your attention to the individual schools slated to participate. Each site will need to be evaluated as to its readiness from a technology standpoint.

ACADEMIC READINESS

Once you’ve evaluated a school’s site readiness, it’s time to focus on teachers, a key pillar in 1 to 1. You’ll need to determine what course materials are available electronically and how much must be converted from paper. After you’ve identified the gaps, you’ll need to create a process for completing the content repository from which teachers will plan their lessons.

An equally important part of academic readiness relates to professional development for teachers, staff and administrators. Teachers’ technology skills need to begin with baseline computer use and expand to address how to use the computer to teach. Knowing how to leverage computers to convey instructional material empowers teachers to rethink their lesson plans and see learning in a new media-rich way.

RESULTS REPORTING

It’s key to establish educational goals in advance of rolling out technology. Educators must measure against these desired learning outcomes to demonstrate the effectiveness of 1-to-1 and to identify opportunities for improvement.

Assistance specific to collaboration, results reporting, and trending and analysis will also be needed as teachers become more comfortable with the technology. You’ll need to collect the data on individual academic results and compare those results to group performance, putting into perspective each student’s progress. You’ll also need to work with teachers, staff and administrators to isolate critical success factors and integrate them into online dashboards, for a graphical representation of academic progress.

You’ll also need policies to govern how this information will be shared, to whom it will be made available and how it will be used to comply with local, state and federal educational mandates, such as The No Child left Behind (NCLB) Act of 2001.

SECURITY AND PRIVACY

Thoughtful policies on students’ computer usage, security and privacy issues ensure that students are safe online. For example:

• Will each student have his or her own laptop to take home, or will laptops be secured at school and distributed only during class sessions?
• Who will be responsible for lost or damaged laptops—students, parents or teachers?
• How will you handle replacement of missing laptops?
• Will you be able to erase laptop contents remotely in the case of theft or loss?
• Will you make “loaner” laptops available?
• How will content filtering software be set to enable educational searches, while protecting students from being exposed to sites with unacceptable content?

SAMPLE LIST OF RECOMMENDED USAGE POLICIES

Prescriptive policies addressing each of these concerns offer an optimal way to keep the various schools “on the same page” when it comes to 1-to-1 learning. While it’s recommended that each school system or district create its own unique checklist, the following baseline policies offer a place to start:

- Set out acceptable use guidelines
- Recommend care for laptops
- Block access to violent games and/or specific websites
- Require originally installed software to remain on the laptop
- Prohibit installation of additional software
- Create a reliable, easy-to-use laptop-tracking system
- Consider random inspections to check condition and software
- Collect insurance fees from students
- Decide if students can take laptops home for the summer
- Secure written permission from parents before distributing laptops

2. PROFESSIONAL DEVELOPMENT

The far-reaching potential of 1-to-1 to transform students’ educational experience requires that everyone involved understand how to leverage technology for their specific purpose—teachers, content creators and suppliers, technical and teaching support staff, and administrators. That understanding hinges on the availability of training tailored to meet the needs of each educational constituency.

Teachers involved in 1-to-1 programs often cite their own lack of training as the most significant barrier to laptop use in the classroom. Expect this frustration to multiply if you distribute laptops to students before teachers know how to use the devices themselves and how to use them to teach.

While baseline training concentrates on building computer literacy, 1 to 1 also requires a full range of technology integration capabilities. For example, teachers who comfortably move from application to application and from the Internet to content creation and distribution software and back again will gain the most from 1 to 1. Their lesson plans and course materials will showcase a full range of rich media to engage students in the learning process.

In its statewide 1-to-1 learning initiative, “Classrooms for the Future,” Pennsylvania allows most of the 1-to-1 implementation and support decision-making to be made at the local level. However, the state focused particular attention on professional development for teachers. The state’s approach included:

- “Hands-on” training provided onsite by technology vendors
- Online courses for groups of teachers and co-teachers to take together
- Ongoing access to a locally based team of instructional coaches

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To recognize the value of ongoing professional development, the state underwrites half the cost of the locally based instructional coaching team.

3. CURRICULUM

Opportunities to fine-tune your 1-to-1 program abound in the curriculum area. It is here that you can tailor your curriculum and electronic courseware to take into account the need to satisfy state standards and academic testing mandates. For example, past testing may have identified particular areas of academic concern. You’ll want to use 1-to-1 as an opportunity to strengthen or even expand time spent in those areas.

You may decide to emphasize certain learning areas to prepare your students for success in specialized local job markets. For example, if your students need English as a second language training or if manufacturing jobs dominate the region, now is the time to build instruction around those specialized requirements. This phase of 1-to-1 preparation provides schools with an opportunity to enlist educational experts, civic leaders and hiring companies in a truly collaborative curriculum-setting process designed to equip students with marketable, in-demand skill sets.

4. CONTENT

In the age of traditional print and production, content waited as much as seven years to make its way into a textbook’s next revision. In the digital age, that interval feels like light years. That’s because electronic books can be updated quickly and easily, via the Internet, compressing the cycle time between revisions from years to days. Today’s e-books cost less than traditionally printed volumes and add virtually no weight to students’ already bulging backpacks. The Internet delivers a wealth of fresh content to teachers and students every day, and most of it is available free of charge.

In addition, teachers can access a host of educational resources on a subscription basis. These grade-specific resources include information, tools and materials appropriate to subjects such as English, history, science, mathematics and Spanish. Each level-specific subject area also features interactive components, such as games, that incorporate and expand students’ critical thinking skills.

Sets of measure outcomes tailored to the subject matter and grade level complete each resource. These rich media experiences can convert even the most passive student into an actively engaged learner.

5. DEVICES

As you think through your school’s approach to 1-to-1, you’ll be evaluating several different types of computing devices to find the ones most appropriate to your learning goals. Because no one device delivers full functionality and complete mobility, you’ll likely find that preferences will vary by application.

Both laptops and tablets enable K-12 students to fully experience 1-to-1 learning. These mobile devices are lightweight, while battery advances deliver all-day computing power. A full-sized, ergonomic keyboard brings familiarity to computing, and durability ensures the devices can take everything a K-12 student dishes out—even when students keep them 24/7. Advanced security settings keep students safe and secure online.

To extend learning “beyond the desk,” consider converting desktop devices to tablets. Using a digitizer pen, students can jot notes and draw diagrams quickly. Students can even flip and erase using a pencil and palm-rejection technology that prevents hands from interfering with writing. An enhanced finger-touch sensitivity on multi-touch...
screens allows students to quickly complete applications and forms.

Regardless of the device combinations you employ in 1-to-1 learning, each should be customized for your school with an advanced operating system, a full set of productivity-enhancing applications, digital media tools and collaborative software. Intel processors reliably deliver the computing power needed to fuel 1-to-1 learning.

6. ASSESSMENT

Teachers in 1-to-1 schools have a wealth of performance data on their PCs. This data becomes an “early warning system” or leading indicator for teachers, identifying the students who require additional attention and even specifying the sections that are proving troublesome.

In addition, the individualized approach to learning enables teachers to fine-tune their course materials as needed based on class comprehension and retention. Having student-specific data online further enables educators to share results with parents easily and at any time during the learning period.

Finally, individualized performance data can be “rolled up” to show trends across classes, departments, schools, districts and even states. This same data also proves invaluable as school systems and districts quantify their results for state regulators and local boards of education.

7. CLASSROOM MANAGEMENT

While it may seem that students are the ones benefitting the most from 1-to-1, this approach to individualized learning helps teachers as well. Teachers who resist the 1-to-1 learning model most often point to losing control over the classroom as the reason they are reluctant to support the concept.

In actuality, the reverse is true. 1-to-1 learning actually gives teachers more control over their classes. For instance, technology enables teachers to control each student’s laptop, assuring that everyone sees the same information and images at the same time. In addition, technology also allows instructors to “black” each student’s laptop at one time, re-focusing student attention up front to the teacher.

When a student produces work that can be useful to the entire class, the instructor can electronically send that work to each laptop at the same time, focusing the class on the excellent result and how it was achieved.

Advanced polling capabilities engage students in educational content, allowing them to express their opinions individually and see what their classmates think as well. Finally, teachers can easily tell where each student is in terms of moving through the content via pacing. This “early warning” system shows teachers which students are moving through the content effortlessly and need to be challenged more, while isolating students who need personalized attention to master troublesome concepts.

CONCLUSION

Technology is the foundation of 1-to-1 learning, offering teachers and students a wealth of rich media and information to stimulate thinking in new ways. Implementing an educational imperative as transformative and visible as this comes with its own set of challenges. Focusing on the seven areas outlined here will help schools and districts create a blueprint that works for them, tailored to their needs.