

Affordable One-to-One Computing

By John W. Rice

[Column 4 for Converge Online; Fall, 2005]

The [idea](#) of one-to-one computing in the classroom is a resilient one, and doesn't look to diminish anytime soon. This is the notion that every child should have their own computing device for school purposes. It's sometimes confused with [ubiquitous computing](#), and the terms are occasionally used interchangeably. But the idea of giving every student a computing device continues to surface in multiple areas. [Proponents](#) praise it. [Critics](#) decry it. [States](#) try it out.

The biggest problem with one-to-one computing is that it remains expensive. A good laptop can cost several hundred dollars. Buying or leasing one for every student in a school or district or state can quickly add up to serious [money](#). To get around this issue, some folks suggest ultra [cheap](#) laptops are the way to go. Others say handheld [PDAs](#) are feasible alternatives to full-blown computers. Cheap laptops are still under development, though, and PDAs, while beneficial for some uses, are not fully functioning computers with large keyboards and screens.

What can we do? How can the idea of one-to-one computing, with each student using their own personal computing device for academic purposes, ever be effectively realized? I think it can be realized, on a budget, too, if we just use a little out of the box thinking.

First, we have to do away with the notion of buying every student their own expensive device. Laptops are too fragile, and carry hefty purchase and repair tags. PDAs, even at the \$150 price point, are still too expensive. Instead, every classroom should have a handful of student computers. This is the same thing we've been doing in schools with textbooks for years: offering a classroom set.

In an ideal world, each classroom would have enough computers for every student. However, that's probably unreasonable for most school budgets. Instead, the classrooms should have a handful of computers the students can access. In a class of 20 students, perhaps five computers would do the trick.

On campus there should also be computer labs, laptop carts, and computers in the school library that students can access as well. The computer-to-student ratio in the school should remain high. This is not revolutionary, per se, as many teachers already use computer labs for assignments and school work. The revolution lies in tapping into the personal nature of computing, one of the areas one-to-one proponents tout as highly beneficial for learning purposes.

When students have their own machines, they can access the data they need and the materials they create at any time. They can take their computers home and work on them after school. But giving students their own machines remains expensive. Conversely, with plenty of classroom computers available to students, the cost and support of the machines becomes bearable for the school, but the personal nature and portable data characteristics of individual machines are missing. Thankfully, a company has come up with a brilliant solution to bridge the gap between personal data and classroom machines. Take a look at the [Migo](#).

The Migo Smart USB Drive is a keychain flash drive with special software built in that allows it to take over whatever computer it is plugged into. A student plugs in the drive to a computer's USB port and the computer becomes the student's computer, complete with their own backgrounds, screensavers, Internet favorites, documents, spreadsheets, e-mail, and anything else they've been working on.

While the computer is temporarily given over to the student, they can modify or create new documents, send and receive e-mail, browse the Web and create new Internet favorites. After they are finished working, they remove the Migo. All new docs are saved to it. Any changes the student made are saved to the drive, while the computer they used goes back to its previous state. In short, the Migo USB drive is a virtual computer students can take anywhere. It automatically creates a clone of the student's computer. Plug it into the computer at home: all their work comes up. Plug it into a computer at the library: all their work comes up. Changes are made and carried forward to the next computer they plug it into.

The personal nature of their virtual computer through the Migo belongs to the students ... and therein lies the revolution of one-to-one computing on a budget. Students get all the benefits of their own personal machine, without the district purchasing an expensive laptop for them to carry around. USB drives like the Migo's can be worn on a lanyard around the neck. Keychain drives can break, although they are certainly durable. They have fewer parts than a PDA, and are considerably more resilient than laptops. And if students lose their Migo drives, the price is very nice, starting under \$40.

Imagine a classroom with a handful of computers students can plug their Migo drives into and access their documents. During trips to the computer lab or the library, students simply bring along their virtual computers on a lanyard, plugging in the drive at whatever computer they happen to use at the moment. This is a vision of true one-to-one computing. Even better, it's a vision of highly affordable one-to-one computing. And for that, it's a vision worth pursuing.

John W. Rice is a program/project coordinator for the Texas Center for Educational Technology and an adjunct professor in the Dept. of Teacher Education and Administration at the University of North Texas.