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'Mobile' Schools Use Technology to Break Free of the Classroom

Portable Devices, Wireless Networks Let Schools Push Boundaries of Where, When and How Students Learn

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Summer vacation is over for students at Houston's A+ Unlimited Potential school, but they won't be stuck in a traditional brick-and-mortar classroom all day.

Instead, the middle school's students will have class in places such as coffee shops, tapping into free wireless networks to collaboratively edit texts, or visit city parks to photograph wildflowers before researching them online. They will spend roughly half their time out and about, and the rest at a rented space in the heart of Houston's Museum District.



Students at Houston's A+ Unlimited Potential school had class at the Museum of Fine Arts last week with educational-program director Jason Moodie. *Thomas B. Shea for The Wall Street Journal*

The private school of about 40 students, in its second year, is part of a range of experiments around the country that have students spending less time in classrooms, or even dismiss traditional classroom instruction altogether—pushing the boundaries of where, when and how students learn.

Proponents of the approach contend that portable devices and wireless networks have the potential to redefine K-12 education, lifting student performance by making learning more fun while lowering administrative and facility costs.

Education experts and school officials, however, say there are limits to the model, noting that not all students have consistent access to mobile devices, and that gadgets can be useless as a learning tool without a good teacher who knows how to use them effectively. "Technology is awesome," said Cicely Benoit, an instructor at A+ UP. "But you still can't replace the human and physical connection."

While schools like A+ UP are extremely rare, experts say, efforts to incorporate mobile devices into traditional classroom instruction are quickly gaining ground. A poll of about 2,600 school administrators nationwide found 10% had policies allowing students to use their own electronic devices to learn in school in 2013, up from 3% in 2010, according to Project Tomorrow, an Irvine, Calif., nonprofit education group that conducted the survey.

"Learning is always mobile," said Richard Culatta, who heads the Office of Education Technology at the U.S. Department of Education.

"But what we're talking about here is technology catching up with that."

While studies show that technology can boost students' interest in learning, its impact on achievement is less clear, said Darrell West, director of the Center for Technology Innovation at the Brookings Institution. "The research is inconclusive," he said.

At Harvard University's Graduate School of Education, researchers are studying how mobile devices can help students learn through a project called Ecomobile. Some 1,500 fifth- to eighth-graders in Massachusetts, Georgia and New York have participated, venturing into pond or stream ecosystems guided by smartphones that use GPS coordinates to point out elements of interest that aren't visible.

The phone might direct a student to an area that is frequented by nocturnal animals, and then offer information about raccoons, including night-vision video footage of them rummaging about.

"It helps them take what they're learning at school and making it very useful on a personal level," said Amy Kamarainen, a senior research manager involved in the project, which is funded by the National Science Foundation

Digital Divide

More principals are letting students use their own laptops, cellphones and tablets to learn in school...

...but many students still don't have access to such technology in the classroom.

Percentage of school administrators who:

Said they allow students to use their own devices in school



Said they were likely to allow students to use own devices within the school year



Said they weren't likely to allow students to use their own devices



No opinion or unsure



Notes: Some figures don't add to 100 due to rounding. Mobile devices include tablets, laptops, netbooks, digital readers or smartphones.

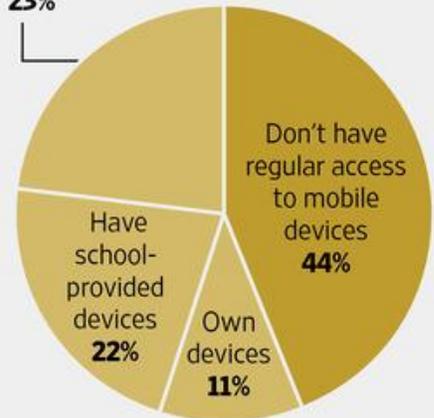
Source: Surveys by Project Tomorrow, most recent of 2,599 school administrators (mobile use) and 34,362 teachers (mobile access)

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Student access to mobile devices in the classroom:

Occasionally use devices checked out for specific activities

23%



At Nexus Academy of Royal Oak in Beverly Hills, Mich., one of seven charter high schools operated by a unit of [Pearson](#), [PSO -1.66%](#) an education company, students only are on campus four hours a day, four days a week. Charters receive public funding but operate independently.

Alexis Baker, a 16-year-old sophomore there, says the flexible schedule gives her more time to spend on dance practice. Some courses are taught by remote teachers via teleconference, with students spread out in a lounge area on campus. To engage pupils who seem shy or need extra help, instructors can deploy a robot that transmits their faces and voices on a screen. "A lot of people think that if you're doing an online class you don't get to talk to the teacher," Ms. Baker said.

At Houston's A+ UP, students ride public transit to go beyond the classroom. "You get to experience more stuff than at our old school," said Laysha Chapa, a 12-year-old starting seventh grade.

School administrators say the approach is improving academic performance. On the Stanford Achievement Test, which is used nationally, more than half the school's students scored in the top half in math by the end of last school year, up from 29% at the beginning. The gains in reading were bigger, with 66% of the students scoring in the upper half at year's end, up from 35%.



Laysha Chapa, a seventh-grader at Houston's A+ Unlimited Potential school, sketches at the Museum of Fine Arts last week. *Thomas B. Shea for The Wall Street Journal*

Per-student costs at A+ UP, which doesn't charge tuition, are expected to be about \$9,000 this school year, more than the \$8,000 or so spent by neighboring districts. But officials believe per-capita costs will decline as more students join. The nonprofit behind the school, Houston A+ Challenge, is funded by donors such as the Brown Foundation Inc., a Houston-based group, and grocery chain H-E-B. Now, A+ UP is applying to become a charter.

The school might have to work on changing attitudes about technology in some places. Ms. Benoit, the instructor, resorted to pen and paper after officials at the Museum of Natural Science balked when her students tried to use laptops to take notes at an exhibit on ancient Egypt.

"The docents went berserk," she said. "You would have thought that we were trying to steal the mummies."

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