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*Success Stories for Learning
in the Digital Age*



Foreword by George Lucas

THE GEORGE LUCAS EDUCATIONAL FOUNDATION

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Community Technology Centers

A National Movement to Close the Digital Divide

MARK SARGENT

The movement started small, with a single center. In 1983, Antonia Stone opened "Playing To Win" in New York City's Harlem, creating the first center providing public access to personal computers in a low-income neighborhood. Long before the Internet, Stone, a math and science teacher, foresaw that computers would usher in exciting new opportunities for learning and that those without access risked being left behind. In those days, the center served more than five hundred people each week, including children whose local schools lacked enough computers, adults seeking new technology skills for the labor market, and people of all ages learning to use word processors, spreadsheets, and new ways to communicate.

CTCNET: NETWORKING CENTERS ON THE NET

Today, several technology generations later, the movement that Stone helped create is a central force in countering the continuing Digital Divide, that is, the gulf in access to technology tools and related learning opportunities imposed by socioeconomic status. "Playing To Win" developed into a small network of community access centers initially called "The Playing To Win Network," which later became the Community Technology Centers' Network (<http://www.ctcnet.org>). In 1995, after receiving a five-year grant from the National Science Foundation, CTCNet expanded first into a regional network of fifty-five affiliates and then into a national network of more than six hundred affiliates with more than four thousand locations, including settlement houses, after-school programs, church programs, adult literacy programs, and alternative schools.

The membership includes not only stand-alone technology access centers but large community organizations, including National Urban League affiliates, Boys and Girls Clubs, YMCAs, public libraries, and local cable access stations. CTCs in public libraries have been aided by major funding for hardware, software, and training from the Bill and Melinda Gates Foundation, which has linked more than seven thousand libraries in the United States and Canada to the Internet. In addition to schools, CTCs offer an important community-based environment in which young people, many from low-income and minority backgrounds, can use technology in creative learning experiences.

CTCs operated by these groups are helping to close the Digital Divide. The congressional Web-based Education Commission found that minority and low-income households were less likely to have computers and Internet access. An expanded definition of the "Divide" also highlights the lack of high-quality online content for those in underserved communities. A 2000 report from the Children's Partnership concluded, "It is as impor-

tant to create useful content on the Internet—material and applications that serve the needs and interest of millions of low-income users and underserved Internet users—as it is to provide computers and Internet connections.”

The following examples demonstrate how CTCs are providing young people in underserved communities with both technology access and the skills to become their own content creators.

PLUGGED IN GREENHOUSE

Teenagers come to the “Plugged In Greenhouse” in East Palo Alto, California, a low-income town on the edge of Silicon Valley, to learn about art and technology. But the larger mission of this after-school program is about creativity and innovation. “When you look around Silicon Valley,” says the program’s manager, Angela Booker, “the real technology pioneers are the ones who are innovative, who are creating new tools to solve problems. We use art as a springboard. We want to challenge kids to come up with their own ideas, to create things that come from their imagination, as opposed to consuming what others have created and posted on the Internet.”

On a typical weekday afternoon, about twenty children, mostly African American, arrive at the Greenhouse, one of three programs hosted by Plugged In, one of the earliest community technology centers. The children participate in the program at least three afternoons a week, which helps ensure their projects will be productive. The “curriculum” consists of five units, each approximately ten weeks in duration, on topics such as people and places, business and entrepreneurship, and history and legend. For this latter unit, students in one group first researched the difference between history and legend, then

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decided to create their own legends, writing short stories and creating drawings to represent their characters. They performed their stories for one another and made a list of what they liked best about each story.

Up to this point, little technology was involved. The students then used the Greenhouse's digital video camera to create videos based on their stories, filming against the backdrops

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of sets and costumes they had also created. They also developed Web pages to introduce the characters they had created for their films. The results of their work, including a seven-minute film, are posted to the Plugged In Web site (<http://www.pluggedin.org>).

During another project on digital photography, students took digital cameras to different locations in the San Francisco Bay Area, including a redwood forest north of the Golden Gate Bridge. Students learned different photographic techniques and snapped images displayed at a gallery opening at the Palo Alto Art Center, at which they explained their techniques to visitors. These experiences, says Booker, give the students confidence in their own ability to create.

"When people talk about the Digital Divide, they usually advocate for greater access to technology," she explains. "But giving kids computer access will not on its own connect students to powerful ideas. But give a child the ability to take technology to a new place, then eventually, you'll bridge the gap."

SCIENCEQUEST

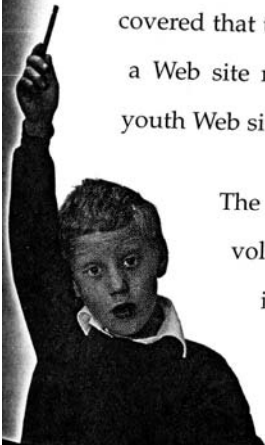
When a group of twelve- and thirteen-year-old students at the Castle Square Learning Center in south Boston began collecting water samples, they expected to find a difference

in bacteria levels between river and pond samples. But they didn't expect to go on a field trip to the New England Aquarium and meet with Dr. Susan Goodridge, the scientist in charge of water quality for the aquarium's tanks. There, they worked behind the scenes in the wet lab and met Myrtle, the six hundred-pound turtle. They also didn't expect to learn that a small increase in ozone levels in water could spell the difference between life and death for Myrtle.

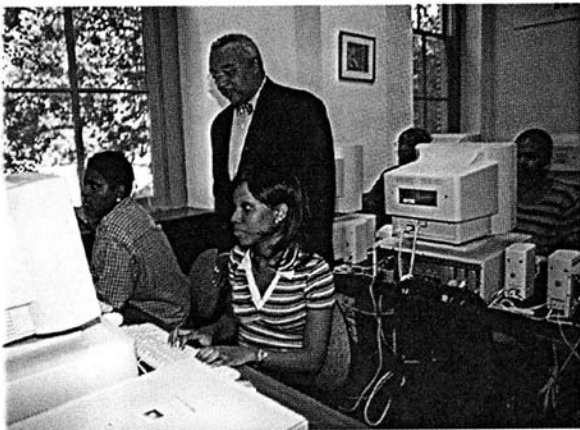
These twists and turns in real-life learning were part of ScienceQuest, an innovative after-school program offered through community technology centers in eastern Massachusetts. Funded by a three-year grant from the National Science Foundation, ScienceQuest organizes small teams of "investigators" at the centers to carry out hands-on investigations of scientific phenomena that interest them: static electricity on balloons, signs of spring outside the center door, or microorganisms in the Charles River. They work with "coaches"—specially trained volunteers from the community—and pursue their questions by getting outdoors—down to the river or off to the zoo.

The group of students collecting water samples from the Charles River, the Swan Pond in Boston Common, and tap water at the Castle Square Community Center compared the relative bacteria content by performing a variety of experiments. Happily, they discovered that their tap water was bacteria-free. They documented their project on a Web site named "Yucky Bacteria" hosted by ThinkQuest, the international youth Web site competition and a project partner (<http://www.thinkquest.org>).

The centerpiece of ScienceQuest's projects is a two-day training for the volunteer coaches covering three strands: working with students, including those with disabilities; working with science; and working



with technology as a curriculum resource and as a tool to build Web sites. Coaches themselves engage in a mini-project of their own. ScienceQuest also provides valuable connections to area science museums, zoos, and aquariums. The program is poised for expansion within Massachusetts and, ultimately, to CTCs around the country. "We've really touched a need," says project director Jennifer Dorsen. "After-school programs are really starved for projects that are low-cost and are straightforward to implement, *and* that engage kids productively in real science."



Students and adults participate in many academic and technology programs offered by the Baltimore Urban League.