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Even Tech Needs A Helping Hand In Classrooms

By Nicholas Wyman

The shiny new toy always catches the eye. In schools, technology and STEM equipment can be a bit like that. A school might do a lot of sweating to fundraise or secure a grant to invest in tech to skill up their students for the 21st century.

But after the unboxing, chances are teaching practices won't change much and I'm not having a "go" at educators. It's simply because flow-on investments must be made. That is, sending teachers to professional development on how to use the tech, then harness their professional judgment about where and when to use it. Backward map from the learning outcomes pAlus keep updating their knowledge. Troubleshoot when problems arise. That's a lot for a school to try to manage on their own.

If the tech can hook students into a version of citizen science, all the better. This is real-world learning. Educators, schools and districts that are outward-looking in their work can do amazing things. I love hearing about tech being used in schools to help students see a range of career options and maybe even see their schools strike up partnerships with business and industry to help nudge those kids on their way.

Partnering with Schools to Fight Cancer

One such private-public partnership has been on my radar in Kentucky. The idea was to put more technology in classrooms while supporting cancer research efforts and build a knowledge-based workforce in the throes of the state's declining coal industry. A not-for-profit, Dataseam, was ripe for a partnership.

"Like most small states, we struggle to address priorities in education, economic development and attracting advanced research. With Dataseam we get big wins in multiple areas for the citizens of Kentucky," said Rocky Adkins (D) then Majority Floor Leader in 2005 when the program originally received an economic development grant.

The program's twist was having computers sitting in K-12 classrooms statewide as the processors doing the cancer research. This virtual supercomputer, the DataseamGrid, supplies multiple times the horsepower available to researchers. As a bonus, Kentucky children benefit from the latest technology boosting education opportunities. And, the grid leverages existing state networks, facilities, and staff, shrinking the cost of supporting traditional supercomputing efforts.

"Executing the technology was the easy part," according to Dataseam CEO Brian Gupton. "Getting school districts, universities, state, government at all levels, other companies and stakeholders to execute in concert for the common good was the hard part."

Opening Doors to New Ways of Working

The program was initially open to rural school districts in Kentucky's coal producing areas. With these resources, Dataseam placed thousands of classroom computers across the region where schools could only afford one or two labs with 20-30 computers each. This gave students access to current technology powerful enough to support engineering, design, media and robust research projects.

Dataseam quickly introduced technical and teacher training and industry-standard certification.

"The industry certifications, professional networking and support, along with opportunities on a national level have helped this country boy from Clay County do things I could not imagine," said Parker Smith, CIO of Williamsburg Independent Schools.

This project also challenged school technicians responsible for maintaining equipment and networks now getting more innovative and different uses.

Dataseam also launched a Department of Labor-approved paid apprentice program for students to take advantage of industry training and work alongside the school's certified IT staff. Students work and complete online projects across technology disciplines. This helps them determine if they want to continue on this fast track to employment after graduating high school or choose a college major. Students can also compete for college scholarships from the University of Louisville and Morehead State University.

A World of Benefits

So, what's the data-crunching about cancer those computers do? They're doing the grunt work for the James Graham Brown Cancer Center at the University of Louisville. Dr. John Trent and his team are using computational modeling to better identify compounds that could be transformed into potential cancer drugs. The program fits well with Kentucky, a state with some of the highest cancer rates in our country.

Using dedicated academic computing, Dr. Trent and his team investigated two-to-four cancer targets a year against a library of 100,000 small molecule compounds. Under the Dataseam plan, the university could investigate more than 30 targets a year against 37 million compounds with far more precision.

"When the DataseamGrid went online it truly changed the way we approached our research,"

Tech being used in schools to help students see a range of 21st-century career options. Getty Tech being used in schools to help students see a range of 21st-century career options. Getty

said Dr. John Trent, "We went from working to the limitations of our computing resources to thinking about how to attack hundreds more possibilities for potential life-saving therapies. It also enabled us to go after more challenging targets."

This helped the university build one of the world's largest potential cancer drug pipelines. The university also successfully competes for tens of millions of federal research dollars and leads clinical trials for innovative new treatments.

The Proof is in the Numbers

Over the last 15 years, Dataseam has given 26,000+ workstations to participating schools. Students have benefited from more than $2.2 million in college scholarships. Nearly 8,000 technicians and educators have been trained to use the tech. The state has the largest cohort of Apple systems engineers in the U.S.

The DataseamGrid continues to produce millions of dollars of processing power helping the cancer center create a pipeline of 20 potential cancer drugs in various stages of development with two reaching clinical trials. The university has attracted more than $57 million federally around this research.

"This partnership is tremendously beneficial for our region of Eastern Kentucky, offering practical instruction, mentoring and hands-on experience to students who would not otherwise have access. As well, these computer labs allow our universities to maximize research efforts into areas like cancer and drug discovery," says Kentucky Senate President Robert Stivers.

The partnership has many different stakeholders pulling in the same direction solving several problems. It seems a perfect match between consistent public policy and private innovation to maximize public assets.