

Innovation Time

New Technologies to Help Produce Future Success

By Charlee Beasor

Visualize This: 3-D Keeps Students, Community Engaged

In a scene right out of the movie *Inception*, students at Mt. Vernon High School in Hancock County are using 3-D visualizations to tell a story ... No. Paint a picture ... No. Well, they're using the technology to put you right smack in the middle of a 3-D model.

Teacher Tom Shaver shares that his students are using computers to create virtual 3-D environments.

"It's called modeling. Once we create environments and all of the things in the environments, we can navigate through them with virtual cameras," he explains.

The equipment the classes use is called VisionDome, which consists of a projector and a screen. He says that while most projectors simply project an image on to a 2-D screen (think back to your high school chemistry class), this equipment projects a 180-degree vision on to a

hemispheric-shaped screen. Shaver says the Children's Museum of Indianapolis used this kind of equipment with its "Dinospheres" exhibit.

"When you're watching a video or an animation, your peripheral vision makes you feel like you're immersed into a computer environment," he adds. Mt. Vernon is the only high school in the nation using this equipment.

The program started in 2003 when the school received part of a grant from the Lilly Endowment, which split \$5 million between the four Hancock County high schools. Mt. Vernon elected to use its share of the money to open a high-tech school.

So far, the students have created projects for a local hospital, a neighboring town and the Indianapolis Metropolitan Planning Organization (IMPO).

"Last year, we worked with the IMPO to do a simulation of a light rail system from Noblesville to Indianapolis. Our students modeled the trains and the city and did computer animations of the

various components of the transportation system, so the people could see what it would actually look like," Shaver describes. "That is the power of this area of technology. We can create things that don't exist and make them look realistic and literally immerse viewers into the scene."

Shaver says his students benefit from these outside class projects by learning more about communication and problem solving than they would from a textbook.

"Being able to interact with architects and engineers and city planners, students get good experience and are learning how to communicate and sometimes get their foot in the door," he remarks.

INFORMATION LINK

Resource: Tom Shaver, Mt. Vernon High School, at www.mvcsc.k12.in.us/mvhs

Combining Ag, Biology Reinforces Skills

Just a few years ago, school officials at Triton Central High School in Shelby County saw an alarming disconnect between the number of students graduating high school and the total finishing college.

"We noticed that we were one of the top academic schools in the state, but only about 20% of the students were completing a college degree in four years," teacher Rich McGown



Students at Mt. Vernon High School work with 3-D models and computers to create 3-D visualizations for class and community projects.

recalls. “We thought, ‘What’s wrong here?’ We got to looking and talking with the kids after college and found they weren’t self-learners; they didn’t have good time management; they didn’t know how to work in groups.”

McGown says the school searched for a program that would teach the students the important skills they were missing. It adopted the New Tech model (see story on Page 43) and created the Tiger New Technology High School. In March 2010, the school was awarded a \$10,000 grant from the Monsanto Fund to support a combined biology and agriculture class for freshmen students. The money paid for equipment and materials for a new classroom.

Jim Stewart, president of Stewart Seeds of Greensburg, assisted with obtaining the grant money. McGown indicates that local employers, like the seed company, know the skills they need their potential employees to have when they enter the workforce.

“They’re (local employers) absolutely thrilled. They know that in their businesses, that’s what they see as teaching. We’re getting both our education in and what the kids are going to need for employment and to graduate from college,” McGown adds.

The new course, Agriscience, blends Introduction to Biology and Fundamentals of Agriculture standards in a problem-based learning environment and frequently works with local farmers and businesses to help solve their bio or ag challenges. One such project was dubbed “River Watch.”

“We had a farmer say he noticed a dark spot right behind his property around 2 p.m. every afternoon. His claim was the city up the stream was dumping sewage. We did chemical and biological tests on that river for him, and we accomplished all our science and ag standards. We had the students present them to a biologist, so they learned a communication part as well,” he recalls.

The students found low levels of E. coli – bacteria commonly found in the lower intestine of warm-blooded organisms – in the stream.

This is only the second year for the course and McGown acknowledges they don’t have a great deal of data yet on its effectiveness, but he notes that feedback from sophomores has been positive thus far.

INFORMATION LINK

Resource: Rich McGown, Triton Central High School, at www.nwshelby.k12.in.us/tchs

Afterschool Programs Increase Chance for Success

Don Kent believes in the power of afterschool programs. Kent, recently named Indiana’s afterschool ambassador by the Afterschool Alliance, points to several reasons the programs are paramount to student success.

“They keep children safe and specifically juvenile crime is greatest between 3 p.m. and 6 p.m., which are the hours after school while parents are at work. Children that participate (in programs) are less likely to use drugs, become teen parents or victims or perpetrators of crime,” he notes.

But, he says, one of the most important reasons to have an afterschool program is because it bolsters student learning.

“Afterschool programs inspire learning and the children participating in afterschool programs are more likely to stay in school, improve academic achievement and graduate; we’ve really seen that time and time again,” Kent affirms.

Kent is chairman of an afterschool program known as NetLiteracy, founded by middle school students in 2003. Helping to reduce the “digital divide,” NetLiteracy is a combination project-based and service-based learning program that works to increase computer access and digital literacy throughout Indiana.



Combining agriculture and biology at Triton Central High School teaches students how to apply educational standards in project-based situations.



Members of NetLiteracy, an afterschool program dedicated to increasing digital literacy, teach senior citizens about computer usage.

Kent's responsibilities as an afterschool ambassador include spending a one-year term organizing public events, and working with policy makers and other afterschool programs around the state. He coordinates with the Indiana Afterschool Network, as well as the Afterschool Coalition of Indianapolis and the Indiana Department of Education.

Initially, Kent says he got involved with afterschool programming after seeing low graduation rates for the country as a whole, which lead to a major impact on workforce quality.

"Here in Indiana, we're going through a transition where we had a much more substantial manufacturing base, which is substituted with high-tech and service jobs in the 21st century. They're going to require well-educated students and if Indiana is going to remain a place where businesses want to relocate and expand, we have to have a trained and qualified and experienced workforce. It is afterschool programs that sometimes fill in the gaps that provide the context to the education process," he states.

Though Kent knows that Indiana is behind the national curve in regard to afterschool programming – the percentage of students in such programs is about 10% in Indiana, compared to the national average of 15% – he's optimistic about the future.

"Our standing is being turned around with the energy and the outstanding Indiana Afterschool Network team ... and the extraordinary collaboration that we have with the Department of Education," he declares.

INFORMATION LINK

Resource: Don Kent, NetLiteracy, at www.DigitalLiteracy.org

Branching Out: Virtual Charter Schools Expand

The digital age provides new opportunities to students. One option, a virtual charter school pilot program, recently expanded – yielding another choice for students and parents.

Choice – according to Dale Chu, assistant superintendent for policy, legal and communications at the Indiana Department of Education (IDOE) – is one key to Indiana's educational success.

"The idea of expanding possibilities falls within one of the three pillars the governor and Dr. (Tony) Bennett (superintendent of public instruction) are pushing for: providing greater options for parents. This is one of many options that we want to empower parents," Chu explains.

Virtual charter schools are charters that provide more than 50% of instruction to students through virtual distance learning, online technologies or computer-based instruction. These schools, just like brick and mortar facilities, have strict standards. All virtual charters have to comply with both state and federal regulations, and rules developed by the state board of education and IDOE. State assessments are also administered to all virtual charter students.

While the virtual charter school pilot program launched by IDOE in 2009 expanded in early 2010, it is still only available to a small margin of Indiana students.

"We have two schools that we piloted. What we're calling for in the proposed legislation (HB 1002) is to allow those schools to become charter schools," Chu explains. "Right now, there's a cap on the number of students. The cap is 500 in the pilot. The proposed legislation would remove that cap on the number of students that charters can serve. It's limited to 500; people forget we have over one million students – that's not even a drop in the bucket."

Chu notes that only 2% to 4% of schools are charter or virtual charter schools, both in Indiana and the United States.

"The misconception is that kids are sitting and playing the Oregon Trail (video game). That's a challenge. In almost any topic where there's opposition, a lot of times it comes from a lack of understanding," Chu states. "This generation is much more technology savvy; it's their medium and their comfort level is much higher. Virtual charter schools ... actually can appeal to certain kids. Why deny them the access if both the student and parent want that as well?"

INFORMATION LINK

Resource: Dale Chu, Indiana Department of Education, at www.doe.in.gov

Students at Indiana Connections Academy work with state-certified teachers online and over the telephone, while an adult "learning coach" in the home oversees progress.

