Case Study: A District Approach to Universally Designed Learning

Smartpen Takes Old School High Tech

Collier County (FL) Public Schools Pilots Livescribe's Smartpen to Great Reviews

On the Subject of Technology, CCPS Earns Straight "A's"

Collier County Public Schools is at the forefront of technology in education and was a pioneer in ensuring all district classrooms had projectors, electronic white boards, document cameras, surround sound with clip on microphones for teachers, and network software. Approximately 20,000 student accessible networked computers are available, representing a 2.2 to 1 student-to-computer ratio. The district even has its own fiber optics network and a highly sophisticated network operations control room.

Given CCPS's investment in technology, it's not surprising that the district is also steadfastly dedicated to Universally Designed Learning (UDL). UDL encourages the use of various approaches to meet the diverse needs of different types of learners, including multiple ways of:

- **Accessing** content.
- **Expressing** what's been learned.
- **Engaging** students for increased. challenge and motivation.

Given the diversity of the Collier County School District, including 47% non-English speaking students and 87 different languages spoken, the use of Assistive Technology was imperative to achieving these objectives. Collier County itself has largest migrant population east of the Mississippi River and is the only district in the U.S. with K-12 in one building.
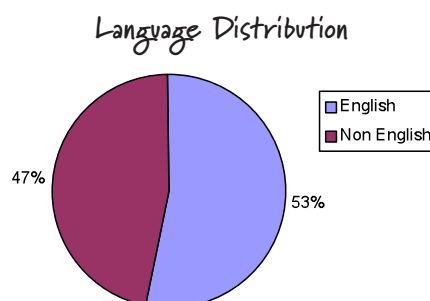
Since March of 2003, William Schulte, CCPS's District Special Education

Instructional Technology Specialist has been on a mission to thoroughly review emerging tools and products that enable student interaction according to their specific need and therefore support the overall goals of UDL.

Schulte's most recent technology initiative is creating quite a stir in the classroom and has the potential to completely revolutionize the teaching and learning process. It's called the Livescribe Echo Smartpen.

The smartpen has a camera and microphone built into it, which allow teachers to capture daily written and verbal instruction and make it easily accessible to students any time, anywhere. Students can revisit instruction as many times as needed to build comprehension and enhance their learning experience. Teachers can record a lesson in an earlier class and then replay those instructions for a later class. The smartpen also connects to computers, enabling teachers to project lessons onto a screen big enough for the entire class to see.

Language Distribution

- English
- Non English

47%

53%

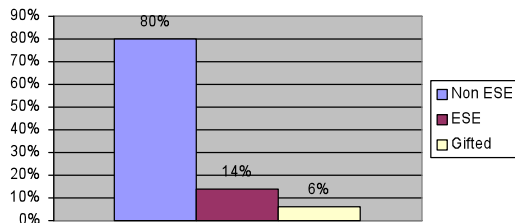# The Role of Assistive Technology in Universally Designed Learning

With the smartpen and other innovative technologies, Collier County schools have embraced what's quickly become the norm in education – that Assistive Technology (AT), though originally designed for students with special needs, can be a universally applied learning tool that serves everyone.

"It's less of a stigma for special education students to use AT if all the kids use it," says Schulte. "If it's 'normal,' it's cool." With 14% of CCPS students falling into the Exceptional Student category, this was imperative to mainstream educational opportunities for everyone.

"The barriers that existed six months ago, we are starting to break down," he adds.

The smartpen combines reading, writing, speaking, and listening all in an affordable, handheld device that's as convenient as pen and paper. While taking notes on Livescribe's special "dot" paper during a lec-

Exceptional Student Education (ESE)

ture or lesson, the smartpen records the conversation and digitizes the handwriting, automatically syncing the ink and audio. By later tapping the ink, the smartpen replays the conversation from the exact moment the note was written. Notes and audio can then be uploaded to a computer, where they can be replayed, saved, searched, and shared - perfect for allowing home-bound students or students who were absent from class to hear and see the lecture at their convenience and as many times as necessary.
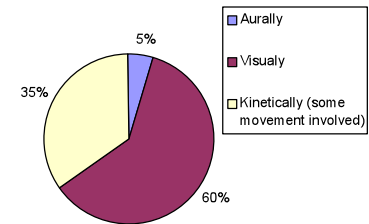
These interactive files are called "pencasts". Each smartpen is capable of storing between 400 and 800 hours of lectures, depending on the model.

Gayle Nance, a smartpen trainer at Gulf Coast High School, explained that the smartpen is so valuable because it combines learning styles. According to Nance,

only 5 percent of people learn best by hearing, another 60 percent learn visually and 35 percent are considered kinetic learners -- those who learn best when some movement occurs. Smartpen augments all three learning types.

Under Schulte's stewardship, Collier County piloted a program a few months ago starting with only 20 smartpens assigned to Math teachers. The reaction was immediately positive, as the instructors quickly mastered the learning curve and began considering its long list of benefits.
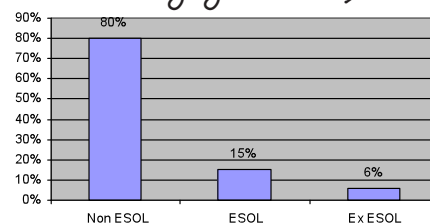
How Students Tend to Learn

"It causes an incredible level of engagement from the students," says Schulte, an educator for 21 years. It also enables 24/7 learning, since lessons can be accessed at any time from any Internet connection.

Teachers can record lessons in advance and replay in class, so that they are able to walk around the class and interact one-on-one with students who may need extra attention. Teachers upload their recorded lessons onto the district-wide website known as Angel where students and parents can watch at their convenience as a refresher or if class is missed due to an absence.
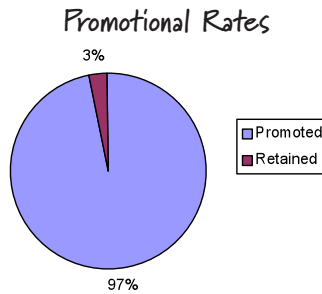
> *"It causes an incredible level of engagement from the students."*

English for Speakers of other Languages (ESOL)

How Smartpens are Changing The Way Students Learn

CCPS started adding more smartpens in groups of 10's and is now up to 80 pens being used at the Middle and High School levels in subjects including Algebra, Biology, Anatomy, and Physical Science. At a cost of approximately $200 each, the Smartpens are paid for under the Individuals with Disabilities Education Act (IDEA) and the American Recovery and Reinvestment Act (ARRA aka the "Federal Stimulus" package).

Promotional Rates

3%

97%

- Promoted
- Retained

As Schulte explains, the smartpen has five basic levels:

Level One: Record lesson notes and voice lecture (creating an interactive Flash™ movie or "pencast")

Level Two: Upload the pencast to a PC or Mac; students can replay at home; notes are searchable via OCR capabilities.

Level Three: Go global by uploading pencasts to PDF image, MP3 audio file or both for instant for sharing through email or embedding into blogs, Facebook, Twitter, or the Livescribe.com community.

Level Four: Go mobile by accessing pencasts via iPhones and iPads.

Level Five: Versatile application downloads allow for expanded Smartpen capabilities.

Although students admit the smartpen takes a little getting used to, most have learned to embrace the technology, especially if they miss a day. "It helps if you don't understand the lesson the first time you can just play it as much as you want," said a Gulf Coast High School freshman. "My mom loves it. She thinks it's a great tool. She can't believe how high-tech Collier County is getting," says another.

About Collier County Public School District

- 52 Facilities
- 30 Elementary Schools
- 11 Middle Schools
- 8 High Schools
- 1 K-12 School
- 2 Technical Centers
- 1 Alternative Center
- 87 native languages
- 43,343 students (PK - 12)
- 3,469 Adult learners
- 7,189 Employees
- 3,000 teachers

For the 2009-2010 school year, Collier County Public Schools received a school district grade of "A" from the Florida Department of Education – its second "A" in a row. Before that, the District had maintained a "B" grade since 2004, when district grades were first given.

CCPS is a recognized leader in education technology in the State of Florida. There are approximately 27,000-networked computers in use district wide, with roughly 20,000 accessible by students – representing a 2.2-to-1 ratio.

The district has schools in four cities throughout the county: Everglades City, Immokalee, Marco Island and Naples.

Student Race Statistics

- 44% Hispanic
- 40% White
- 7% Creole
- 5% Black
- 4% Other