By Shari L. Camhi

Extreme Makeover:

How the 2009 Sylvia Charp Award winner used technology to transform a once struggling school district

From left to right: (top) High school math/science/technology students build robots; Internet Radio Club members broadcast live over the district website; high school science students use clickers; (bottom) fourth graders collaborate on essays using mini-PCs; students learn about robotics.

School Edition

When new leadership assumed responsibility for the Glen Cove School District back in 2005, it was in dire need of a makeover. State test scores were dismal, and its high school had fallen onto the New York Schools in Need of Regents Review list. Failed budgets had forced the district to operate under contingency restrictions, including a moratorium on the purchase of any new equipment. As a result, the district's infrastructure fell into utter disrepair, the newest computer equipment dated back to 1997, and the teachers and students had given up on working with any technology, including the Internet and e-mail, in the classroom.

It was time for a complete—and collaborative—overhaul for this Long Island school district. Here's how we turned it into a model of success in three short years, using technology as the foundation for a whole new instructional program.

The Blueprints

As the new assistant superintendent, I headed up a district technology committee charged with investigating the technical, administrative, and instructional components of technology in the district. Our first order of business was to articulate our instructional philosophy so we knew where we were headed.

Based on well-researched pillars of instruction (Wiggins and McTighe's Teaching for Understanding, Harvard's Project Zero's Teaching for Understanding, differentiation, constructivism/inquiry, and social and emotional learning), we determined that our goals for learning are to develop deep understanding and foster kids' natural curiosity. To get there, we needed to start differentiating instruction based on interest and ability and make our plans with the end in mind.

It was a tall order. And the best way to accomplish it, we decided, was to use technology to drive learning and teaching by inspiring creativity, passion, and innovation.

Of course, that meant we had to start from scratch. We had to make technology widely available in many different, loosely structured forms, and we had to put it in the hands of the students.

From the Ground Up

Given our limited budget, our allocation of resources had to be strategic. Although technology can serve many purposes, we decided that its purpose at Glen Cove is to inspire students, feed curiosity, stimulate critical thinking and problem solving, and facilitate communication. We also have found that technology makes it easier to teach for understanding, to differentiate instruction, and to allow students to infer and conjecture.

Our implementation philosophy emphasizes individuality over conformity. We foster interest and skill in the staff. Then we ask them to put the students first when choosing technologies to integrate into their lesson plans. What will be the technology's effect on student interest and learning? Will it support deep understanding, differentiation, or an inquiry/constructivist approach?

Instead of distributing technology institutionally—giving all fifth grade classrooms interactive whiteboards

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Sylvia Charp Award for District Innovation in Technology

Glen Cove School District received the 2009 Sylvia Charp Award for District Innovation in Technology. ISTE and *T.H.E. Journal* co-sponsor this annual award in honor of the late Sylvia Charp, who was the founder and editor-in-chief of *T.H.E. Journal* as well as an ardent lifelong supporter of ISTE and its mission.

The Sylvia Charp Award recognizes school districts that exhibit effectiveness and innovation in applying technology district-wide. Criteria for the award include:

- Consistent district effectiveness
- Use of the NETS or a local or statewide derivative of those standards
- Effective and innovative implementation of technology
- A commitment to share technology information with other districts

To learn more about this and other ISTE awards, visit www.iste.org/awards.

and all science classrooms computer response pads (clickers), for example—we decided to distribute it according to how appropriate it is to the curriculum and students' interests. You might find 10 science classrooms, for example, with 10 different types of technology. Some have computer response pads, some have document cameras, some have probes or interactive whiteboards, and some have multiple forms of technology. Each school building has a library to house the technology, which teachers can check out for short-term or long-term use.

In the end, not focusing on any particular grade, content area, or building in Glen Cove has led to positive collegial conversations, technology use that supports our philosophy of instruction, effective use of funding dollars, increased test and mastery scores, and greater interest in learning.

Building Blocks

We started with putting a new computer in every classroom. We soon discovered that, even though the teachers were frustrated with the existing technology, they refused to relinquish their old, often broken computers. But when we showed them what one brand-new computer could do, they quickly realized what was possible with technology that worked and were able to let go of their broken equipment to make room for the new.

Of course, new computers necessitated a new infrastructure. We installed a fiber wire backbone district-wide. Then we refurbished the servers and established, at long last, a reliable, high-speed, wireless Internet connection. We were then able to install a student-management system, complete with a portal for parents to check on their children's attendance and quarter grades.

With technical and administrative functionality restored, the teachers finally had a taste of the 21st century. Now we were ready to feed their instructional appetite.

Innovating with the NETS•S

In 2009, Glen Cove teachers began incorporating ISTE's NETS•S and Partnership for 21st Century Skills into their curricula to ensure that all students master the technology skills they need to be 21st-century learners while gaining a deeper understanding of content-area knowledge. Here are a few innovative examples of Glen Cove programs that meet the NETS•S:

Creativity and Innovation

Ninth graders at Glen Cove High School can take a new course this year called Innovations that encourages them to identify a problem they can solve in an area that interests them. They will learn and innovate through an ongoing creative process, and they will engage in passionate inquiry, discussion, and investigations.

Communication and Collaboration

- Students use Elluminate, Safari Live, and VIDITalk to engage in conversations with students around the world.
- Students in grades 3–12 use Moodle during and after school hours to engage in deep conversations about literature, science, and social studies topics they are learning about in class.
- The high school launched a state-of-the-art radio station, BHRD (the instant messaging acronym for "Be Heard"), on March 12, 2009. Students broadcast live sporting events, music programs, and talk shows. The local journalism community has even involved Glen Cove students in visits to their stations and on-air interviews.

Research and Information Fluency

Students from kindergarten through 12th grade are required to write research papers using age-appropriate skills based on the American Library Association's Big6 model. Students have access to print resources and more than 50 electronic databases in the school and community libraries. Librarians, in partnership with classroom teachers, teach about plagiarism and the skills students need to research information, incorporate it into their own knowledge, and reshape it into research they can call their own.

Critical Thinking, Problem Solving, and Decision Making

- Students use technology in every grade all of the time for these purposes. For example, math students may use Geometer's Sketchpad to explore mathematical models, then use critical thinking and problem solving to understand and make conjectures and decisions about mathematical concepts.
- Discovery Cove is a new multimedia learning center for grades K–2 that encourages learning that is inquiry based, linked to literacy and the arts, and rich in technology resources, such as interactive touch tables.

Digital Citizenship

Using curriculum and case studies developed through Project New Media Literacies, a partnership with Harvard University and MIT, eighth grade students engage in activities that surface, explore, and deepen understanding of the ethical and moral issues surrounding the digital environments, including identity, privacy, ownership, authorship, credibility, participation, and the responsibilities associated with the new roles youth assume online.

Technical Operations and Concepts

Students are required to take both computer and technology classes that explore and instruct them in Web 2.0 tools, microworlds, building bridges, and other technology concepts, systems, and operations.

Solid Foundation

Chastened by the lessons of other districts that wasted millions of dollars putting technology into classrooms where teachers knew less about it than their students, we decided to make technology available only as the teachers are trained in its appropriate use. We already had a professional development program in place that was geared toward good pedagogical practice, but we supplemented this with a new-teacher program for the first three years of every teacher's

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employment, including one full year dedicated to integrating technology into instruction.

New teachers spend that year with their teacher cohort learning about multiple forms of technology, including interactive whiteboards, computer response pads, video and film production equipment, and Web 2.0 tools. At the end of each professional development session, they must identify a technology's use in their particular subjects or grade levels as well as a plan for using it, with an emphasis on how to promote creativity, innovation, critical thinking, and problem-solving skills while attaining a deep understanding of content.

The New Glen Cove

In three years, Glen Cove's turnaround has been nothing short of miraculous. Despite budget limitations, our middle school is home to a new TV studio (a sister station to the studio already in place at the high school), and our high school gained an Internet radio station. Both the middle and high schools have two digital language labs. In addition to the new computers in every classroom, lab, and library, we have installed interactive whiteboards and projectors, digital document cameras, clickers, computer-on-wheels (COW) laptop stations, and mini-PCs district-wide. The middle school music program uses MIDI synthesizers, and many teachers integrate digital still and video cameras into classroom work.

Students use a Moodle system to discuss content, often late into the evening hours. And students and teachers can use our videoconferencing equipment to connect with peers in China, New Zealand, Brazil, and elsewhere.

The upgrades don't stop at the classroom. Administrative improvements include a new intranet and an IP phone system, including access to an e-911 service. We've also wired the middle and high schools with digital security cameras that we can check (with a password) over the Internet, and we installed a community emergency notification system. We even live-stream district events over our website, which has been completely redesigned.

Model District

The results speak for themselves. Our state assessment scores in grades 3–8 have increased dramatically. English language arts scores have risen by 9–29% across the district, and math scores have risen 12–41%. Attendance is up. Passing and mastery rates are up. Suspensions are down. Graduation rates and college acceptances are up.

Glen Cove School District has become the model for the use of classroom technology in Nassau County, New York. Officials from outside districts now consult with Glen Cove officials to implement measures similar to the ones we have put in place.

But to me, the most heartening results are in the classroom. As the assistant superintendent, I visit every school weekly to spend time with the administrators, teachers, and children. Teacher morale and interest has shown a steady and, in some cases, steep increase. One teacher of 13 years told me, "I feel like a kid in a candy shop. My students are so excited!" And I know it's true, as at least a dozen students have personally thanked me for the technology in their classrooms.

From here, we plan to continue to introduce new technology where applications support our instructional philosophy, to provide avenues for teachers to collaborate, and to offer professional development that inspires while linking good instructional practice to student learning. We also began a long-term study in 2008 to track all students for five years following high school graduation to determine the effectiveness of our instructional program.

We hope—and expect—that by supporting relevant teaching that incorporates the use of technology for all of the right reasons, we are inspiring thinkers, creators, and innovators and teaching them the necessary skills they need to be productive, civic-minded communicators in the modern world.

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