

Case Study: St. Mildred's- Lightbourn School

Creative Learning Systems SmartLab Helps Girls Pursue Interests in Science and Technology

A troubling gap exists between men and women in the fields of math, science and engineering. According to the American Society for Engineering in Education, women currently earn only one-in-five undergraduate degrees in engineering and represent only 9% of tenured science and engineering faculty at U.S. universities. Recently, this disparity has received increased scrutiny in the wake of Harvard University President Lawrence Summers observations that “intrinsic aptitude” may be one reason fewer women succeed in technical careers.

One school that is addressing the issue head-on is St. Mildred's-Lightbourn School in Ontario, Canada. St. Mildred's is an all-girl's academy affiliated with the Anglican Church. In 2001, St. Mildred's asked Creative Learning Systems to design and install a four-island SmartLab. Dubbed the “Enhanced Learning Centre”, or ELC, it has become the focal point of technology education at the school.

A Comprehensive Approach to Technology

Most schools today believe that students must have some exposure to technology for academic and professional success. As a result, many schools offer computer literacy and technology

education classes. St. Mildred's has a different approach - it doesn't have a technology class; technology is in *every* class. At St. Mildred's, each teacher, from first grade through high school, actively integrates technology-based learning opportunities into the core curriculum.



*St. Mildred's Students Collaborating
in the SmartLab*

Examples vary from science students applying ELC resources to learn about different types of energy, to a physical education class using the multi-media platform to analyze a professional basketball player's technique. Ian McQuaig, the ELC Facilitator explained how this interest has grown among the school's faculty, “The biology teacher had her students use Flash animation to demonstrate their learning. After showing what she had done with her class, I had ten other teachers come in - *on their own time* - to learn Flash!”

The use of technology at St. Mildred's is not an afterthought; it is built into the culture. Written into the school's strategic plan, is a commitment to assure that teachers are getting the training they need to be effective users of technology. For example, as a part of their regular professional development, every teacher spends time in the ELC, working through the same projects as the students. “We don't require new hires to be trained in technology when they arrive here, but we definitely look for people that will be comfortable in our technology environment”, says Dorothy Byers, Vice Principal of Curriculum.

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Shanan Walsh

Graduate, St. Mildred's-Lightbourn School

Provincial Standards from the Ontario Board of Education designate technology education as an enrichment piece. But St. Mildred's believes that, by integrating technology into the *everyday* learning experience, students benefit from an understanding and confidence in the application of technology. The school has therefore expanded on the

Provincial requirements by developing internal standards to connect core curriculum with the technology applications in the ELC.

Nurturing a Lifelong Interest

Early exposure to the SmartLab has been another critical element in St. Mildred's success. By encouraging the girls to utilize these tools from a young age, it becomes a natural part of their everyday learning experience. As the girls graduate to higher grade levels, this familiarity and comfort level allows them to utilize and apply progressively more advanced technological tools.

Along with the use of technology in class, many of St. Mildred's girls have also developed a broader interest in technology. Four years ago, St. Mildred's students formed a robotics league and, in 2003, represented Canada in international competition. This interest continues to grow and St. Mildred's is now a regular host for the regional FIRST LEGO League competitions. "This is a great way to get the girls focused on a common problem and then let them work on it together. Their natural ability to let the best solution come forth, allows for some great collaboration and unique problem solving in the competitions," remarked Mrs. Byers.

Notably, this emphasis on collaboration is not unique to St. Mildred's. "Team-based learning is a cornerstone of our educational philosophy", observed Matt Dickstein, CEO of Creative Learning

Systems. "Girls are often more adept at developing the collaborative skills that lead to success in the SmartLab. This success, in turn, fosters a lifelong interest in science and technology". Mr. Dickstein continued, "Along with our partner schools, we are working to break down the perception of science and technology as fields where boys have a natural advantage".

Opening Doors: Fostering Bright Futures in Science and Technology

The exposure to science and technology in the SmartLab has clearly benefited the girls at St. Mildred's. "Historically, out of a graduating class of 35-40, we might have had only one or two girls going on to study science or engineering at the universities" said Mrs. Byers. Since the opening of the ELC in 2001, this number has increased dramatically and continues to grow. St. Mildred's is now consistently exceeding the national average for high school graduates - boys *and* girls - pursuing undergraduate degrees in science and engineering.

Reflecting on her experience, Shanan Walsh, a St. Mildred's graduate, said, "It wasn't until I started to use the ELC more often that I began to consider engineering more seriously. With all of the different sources of information, and the ability to apply it, I was able to gain a whole new perspective on engineering". Ms. Walsh is now in her second year of Engineering Chemistry at Queen's University.

Without question, the educational partnership between St. Mildred's and Creative Learning Systems has been a success. The integrated use of technology in learning has opened new doors for the girls at St. Mildred's. They now have expanded opportunities to explore and develop areas of individual interest. With those opportunities, many will find that their interests and aptitudes lead them to the fields of science and technology. Ms. Byers summarized by saying, "We want to create an environment for students to become critical thinkers. We think this not only serves them well throughout their academic careers, but helps them to become lifelong learners. Skills such as knowing how to make a decision, analyzing a situation, and making a proper evaluation are important skills to possess, whether you are an engineer or a sociologist."

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*Matt Dickstein
CEO, Creative Learning Systems*

Additional information on St. Mildred's-Lightbourn School and the Enhanced Learning Centre can be found on the web at <http://www.smls.on.ca/campus/elc.html>