

"I work like a slave but love what I do."

Written by judy chapman



As Elizabeth Mabrey said as we were wrapping up our conversation. " *I work like a slave but love what I do. It's boring not to know things.*"

Elizabeth has developed a system to make lemonade from lemons. Basically frustrated with the public education system in the U.S., she fought many battles with administrators and teachers while her two sons were younger. For 3 years, after a stint in the local public middle and grammar school system, she had both boys attend Rutgers Preparatory School before switching them back into Hunterdon Central High School which she considers the best of the public schools she has experienced.

At one point in our recent discussion with Elizabeth she mentioned that she finally came to view our public schools as providing day care services while the parents work. Following family dinners together - she always thought they were important – Elizabeth added to her sons' education through home schooling. The approach obviously worked as Elizabeth's two sons are now engineering majors at U Penn and Cornell Universities.

Elizabeth is originally from Hong Kong and clearly recognizes the weaknesses in the Asian approach to education. The term she used to describe the rigid, non flexible teaching style in Asia with up to 50 students per class is "stuffing the duck" which basically means jamming as much information as possible into the kids without really ever teaching them to think creatively and outside the box. She believes the U.S. system does a better job of teaching creativity but doesn't do nearly well enough helping students develop the necessary discipline to capitalize on their creative thinking skills.

Elizabeth has her undergraduate degree from Marywood University and her Masters from Drexel where she studied Computer Science. For the first 20 years of her working career Elizabeth worked the 60-70 hours a week necessary for a woman with a passion and interest in technology to advance in software development with leading companies such as BEA.

Finally, in 2004 Elizabeth frustrated about the education system the way she was experiencing it for her sons, decided to leave the corporate cocoon and start her own business, *Storming Robots, Engineering for Kids*.

I learned about Elizabeth and her robotics program for kids in grades 3 through 12 from my husband Jack. He learned about Elizabeth and her work with young people while interviewing a home-schooled young man applying to MIT. He was so impressed with the college applicant who was enrolled at Storming Robots and the obvious impact that Elizabeth was having on him that he suggested I visit with Elizabeth to learn more. I wanted to assess whether this program might be an important resource for other New Jersey families with their own young kids.

What I Learned Talking With Elizabeth



Elizabeth Mabrey, Founder-Storming Robots

Elizabeth has a personality that won't stop. She was passionate and energetic from the very first part of our conversation. She talked quickly and her enthusiasm just jumped out at me.

Working for corporate America provided Elizabeth a high salary but not much real satisfaction. Frustrated totally with the school systems around her she decided to start a program to teach kids about robotics and technology and to teach them to think creatively and outside the box. She is passionate about students needing to learn to be problem solvers in all dimensions of their lives. She uses robotics and technology to strengthen these skills.

Currently Elizabeth's program has 140 students enrolled. Some come from as far away as Newtown, PA and Spring Lake, NJ. Most come after school on assigned days. Kids being home-schooled often come during the day. Only 5 of the students are young girls, a major disappointment to Elizabeth who claims the girls in the program really do exceptionally well. Last year at this time she had about 90 students. The subsequent growth spurt she attributes to more parents becoming aware of the need to help their children learn the math and science skills to survive and compete in the world that is emerging all around us.

To facilitate students being able to keep pace Elizabeth opens Storming Robotics on Sundays to give students who miss a class or two a chance to make up their assigned project work.

The school year program breaks into three terms, each running for three months. The tuition per term is \$330 which allows each student to

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come to the Storming Robots facility on Route 22 West in Branchburg for two hour sessions once a week.

Elizabeth accepts kids as early as 3rd grade and allows each to advance at whatever rate they can achieve. At the end of each term Elizabeth and her staff prepare a written progress report for the parents.

While at Storming Robots the kids work both solo as well as with teams on robot development projects that they select. Some of the examples I saw while there were amazing. Teams from Elizabeth's robotics program compete on a national and international level.

There are five staff members helping Elizabeth including two high school students who are stand outs in the program.

When we talked about the level of interest and the turn over among students at Storming Robotics Elizabeth indicated that 99% of the kids really want to be there. Parental pressure to have them attend just isn't needed. Storming Robotics becomes like a second home to the students. The students have even started publishing their own newspaper three times a year to highlight the experiences and accomplishments of the students. As Elizabeth said, *"If students stay two terms with us they stay a very long time after that."*

During the summer Elizabeth and her team (her husband, ex with Microsoft, also works in the business) run Storming Robots summer camps that provide a great way for new families to get first hand experience with Elizabeth's concept. The camp runs for 8 weeks and students can attend from 1 to all 8 weeks.

To quote Elizabeth's web site: "All summer programs focus on problem solving, analysis, the delivery of true robotics experience and engineering, from mechanical building to automation with robotic programming. All hands-on projects are exercised with an engineering process. Projects involve mathematical applications and problem solving, not just "how to calculate", but also "how to apply" under various scenarios in fun but challenging ways.

Complexity of tasks given to each participant is only limited to what each individual is capable of. For example, a 6th grader may be given complex tasks usually given to a 10th grader; but, if and only if, he/she demonstrates his/her ability to take on the challenge."

I asked Elizabeth where she will be 5 years from now with Storming Robotics? Convinced that she has in fact developed an educational system that works and teaches kids to think and problem solve Elizabeth wants to grow her program substantially but isn't yet certain how that will happen. She has ruled out franchising as being too difficult a way to maintain quality control over her methods. Early on in her development she tried to integrate her robotics teaching program into both public and private schools in her area but ran into road blocks and a lack of interest at every turn. But I am certain Elizabeth will find a way to expand her foot print and impact on young people. She is too passionate and too capable to be stopped from extending her program.

To learn more visit www.stormingrobots.com. If you have young school age kids in your life you should check it out. This is a real resource.

Editor's Note: This past weekend the teams had a very successful competition. Three of the competitive teams won to advance to next round. The high school team of five, has just won its way to International Space Station Final. The next step is to have their program run in space on ISS and an astronaut will be their referee. How cool is that!

<http://www.zerorobotics.org/web/zero-robotics/finalists2011?tournamentId=1> (We are the defending champion).

Then, at another lower grade competitions, two of the rookie teams advanced from FIRST LEGO League Robotics Regional to State Tournament. One group consists of three very sharp 3rd graders, while another group consists of five 5th & 6th graders.