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Redefining Smart

Concern about America's competitive advantage in the global marketplace puts Science, Technology, Engineering and Mathematics (STEM) at the forefront of U.S. state and national agendas with recruitment of females in STEM dominating the conversation. Projections by the U.S. Department of Labor show nine of the 10 fastest-growing occupations are in STEM. The question is how do we get more young women interested in STEM?

According to "Why So Few Women in STEM?" commissioned by the National Science Foundation (2010), the number of women in STEM is growing, yet men outnumber women in these careers. In an era when women are prominent in medicine, law and business, why are there low numbers of females in STEM? According to research, the answer lies in our perceptions and unconscious beliefs about gender in STEM. Science and math fields are seen as "male" while humanities, arts and health are "female." These stereotypes deter female interest and contributes to a loss of confidence about the ability to compete in STEM careers.

Dr. Nirmala Ramlakhan, PhD in Science Education from UCF, conducts research in STEM talent and career development in females. According to Dr. Ramlakhan, knowledge of STEM careers and how to access them, mentorship from successful women in STEM and allowing females to see the link between personal passion and career choice are imperative to encourage females in STEM.

I discovered my passion for science in 4th grade where Mr. Zvirbulis encouraged my inquisitive nature, allowed my imagination to soar, and stimulated my curiosity. I felt competent and smart. My feelings of being smart grew by working on a pilot's license in high school. I attended Florida Institute of Technology (FIT) studying aeronautics and electrical engineering. I was lucky to have a few critical components in my favor: nurtured passion and understanding of STEM careers and how they provide meaningful work.

It is imperative to redefine what STEM means to women, a conclusion drawn by me years ago. No longer should we view STEM in the stereotypical manner geek culture perpetuates. Today's girl desires to balance multiple interests. STEM is no longer antisocial or an unusual career choice for women. The people-oriented and socially beneficial aspects of STEM will attract women, as it does in the medical and social sciences. A meaningful career embracing creativity, passion and problem solving contributes to the dissolution of stereotypes.

As a female passionate about all things STEM, my mission is to inspire young women to consider these careers and mentor their journey. Speaking to other women in STEM, I learned how they would change the dialog to encourage young women.

Carol Craig, CEO, Craig Technologies

Carol discovered her passion in 7th grade in a computer science class. That first computer class hooked Carol on writing code while her curiosity was fostered by her mother. Carol is a Computer Engineer, Electrical Computer Engineer and is completing a PhD in Systems Engineering at FIT. Jokingly, Carol said the guy-to-girl ratio was a perk of STEM, but she liked the challenge of the field. Solving problems by writing code was tangible and fulfilling. To get a girl in STEM, it's all about nurturing passion. She said "I was never shot down, I was always encouraged. It's all about role models in every aspect of a girl's life".

Mary Spio. Founder & CEO, www.One2One.com

Mary discovered her passion at 5 when she had fun with her dad doing math puzzles. She discovered her career path in the Air Force when an engineer told her that she was good at fixing things. The perception that she would be stuck in a lab for endless hours as an engineer made this career unappealing. But she found a passion for satellites and space and went back to college to study electrical engineering, graduating 1st in her class. Mary thought that the ability to send satellites to space seemed like a radical power to have and calls her degree her "Jedi Power." She has multiple patents in digital cinema technology. Mary would tell young women that just as you can train the muscles in your body, you can be good at engineering.

Leila Nodarse, Terracon (Nodarse and Associates, Inc. was acquired by Terracon in 2011)

Leila said "I never really had a passion for science or math, rather my passion was to make a difference in the world; which I believe to be the meaning of engineering." Though her first degree was in communications, Leila chose engineering because it was "practical, solid, marketable and believed obtaining an engineering degree, would make others see her as smart, not just "pretty." Leila enjoys working in non-traditional fields and charting a path for women. Her statement for girls: science is the language necessary to make a difference in people's lives.

Elizabeth Burch, President and Majority Owner, Dignitas Technologies

Elizabeth received her degree in Computer Science and now runs Dignitas Technologies, a modeling and simulation company. Elizabeth said "programming class in high school got me excited about how computers worked." After graduating Elizabeth joined a defense contractor developing military simulation and training devices, deepening her passions in STEM seeing how it could protect our soldiers. To encourage girls in STEM Elizabeth would show them fulfilling and challenging careers and their associated salaries, stressing the importance of being self-sufficient as a woman.

What can you do to encourage girls and young women in STEM?

- 1) Teach them the brain is a muscle and the more they learn, the more brain connections they build, the smarter they become. Smart is a choice.
- 2) Identify passions, challenge imagination and find ways to nurture curiosity.

- 3) Spread the word about female achievements in STEM to counteract gender stereotypes. Carol, Leila, Elizabeth, Mary and Nirmala are fantastic role models.
- 4) Be aware biases exist. Learn about your own bias and take steps to correct it.
- 5) Encourage girls to see their success in math and science as an indication they have skills to be in STEM careers.
- 6) Let them know that intelligence is not about how easy a subject comes to you. It is about challenging yourself to solve problems and knowing that struggle is part of creating something new.

Many devoted folks are working on programs in Central Florida to connect females to careers in STEM. Some new program themes that we are working on include (1) wearable technology, (2) coding to solve social problems, create art and game design, and (3) aviation.

We can redefine smart in a way that is meaningful and engaging for young women and build a future for the next generation.