

Do You Know Where You're Going To?

Judy M. Vance, Ph.D.

Professor

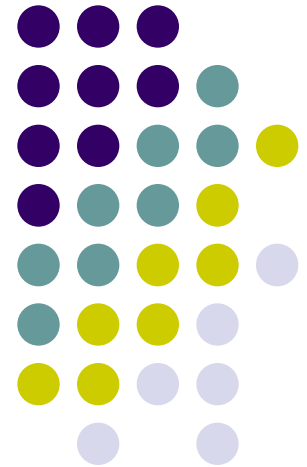
Mechanical Engineering

Iowa State University

Program Director

Engineering Design

National Science Foundation



Discover Your Strengths

Marcus Buckingham and Donald O. Clifton



- Learner
- Input
- Intellection
- Achiever
- Harmony

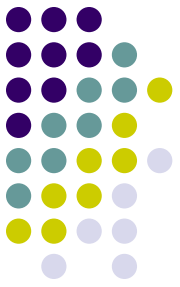
My History



- Wisconsin – LaCrosse
- Iowa – Fort Dodge
- Iowa – Ames
- Iowa – Des Moines
- Iowa – Ames
- Washington, D.C.

Fellow Lady Astronaut Trainees

The Mercury 13 1958 - 1962



- All but one of the 6 women began in very ordinary circumstances.
- Despite formidable obstacles, each forged a path into aviation and dreamed of a role in spaceflight.

Shirley Ann Jackson

President Rensselaer Polytechnic Institute



- The country's economic and national security depends upon its capacity for innovation.
- The “quiet crisis” requires engaging everyone, including women and minorities who have traditionally been underrepresented in STEM fields.

NSF Press release 07-032, “Shirley Ann Jackson, Leader in Higher Education and Government, to Receive the Vannevar Bush Award”, March 22, 2007

Kristina M. Johnson

Dean, Pratt School of Engr, Duke Univ



- Women have the kinds of strengths – such as being able to multi-task, integrate and organize information and visualize solutions – that will be required to help solve the problems engineers will face in the future

Duke News Release, “Pratt Dean: The U.S. Needs More Women and Minorities in Engineering”, March 9, 2007

Fellow Lady Astronaut Trainees

The Mercury 13



- NASA never seriously considered giving the six women in the FLAT program astronaut status.
- It wasn't a lack of qualifications that kept them out of the running; prevailing social views and competing political objectives did.

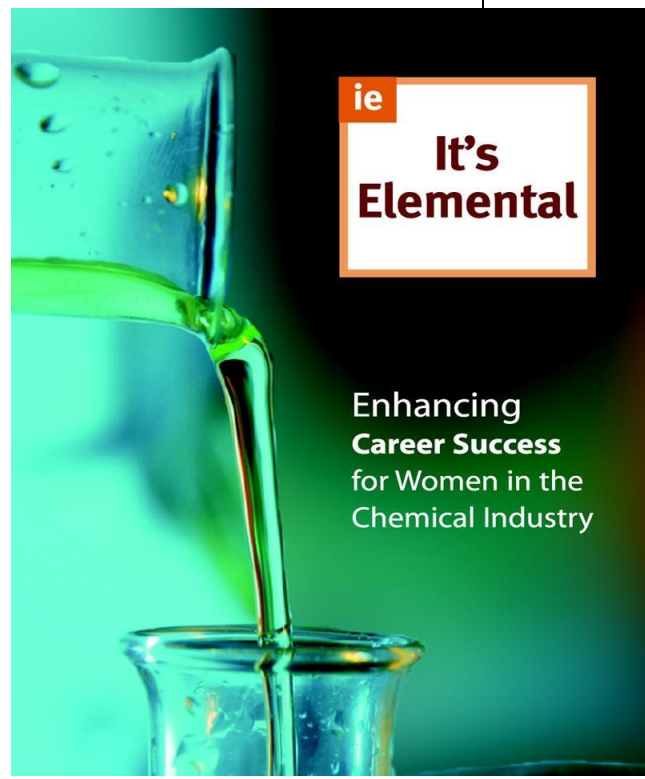


Factors for Career Success

Survey of Men and Women in Chemical Industry

- Mentoring is hugely important

(Identified by both men and women)



NSF Report, *It's Elemental: Enhancing Career Success for Women in the Chemical Industry*, March 2007.

Shirley Ann Jackson

President, Rensselaer Polytechnic Institute



- First African American woman
 - To receive the Vannevar Bush Award
 - To receive a doctoral award in Physics from MIT
 - To chair the Nuclear Regulatory Commission
 - To be elected to the National Academy of Engineering
 - To be president of a major national research university

Shirley Tilghman

President, Princeton University



- Recognizing that in order to do it, you're going to have to give up some things. You give up the pottery class on the weekends.
- You know you have limited time at each activity, whether it's at home or at work, and you make the most of those hours.

“The Tiger Roars”, The Wall Street Journal Online, July 17, 2006

Kristina M. Johnson

Dean, Pratt School of Engr, Duke Univ

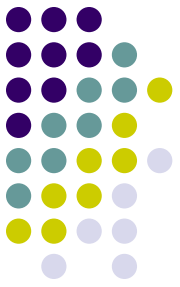


- Successful women in technology seem to share these traits: “focus, commitment, and enthusiasm and passion for their jobs.”

Duke News Release, “Pratt Dean: The U.S. Needs More Women and Minorities in Engineering”, March 9, 2007

Stephanie Kwolek

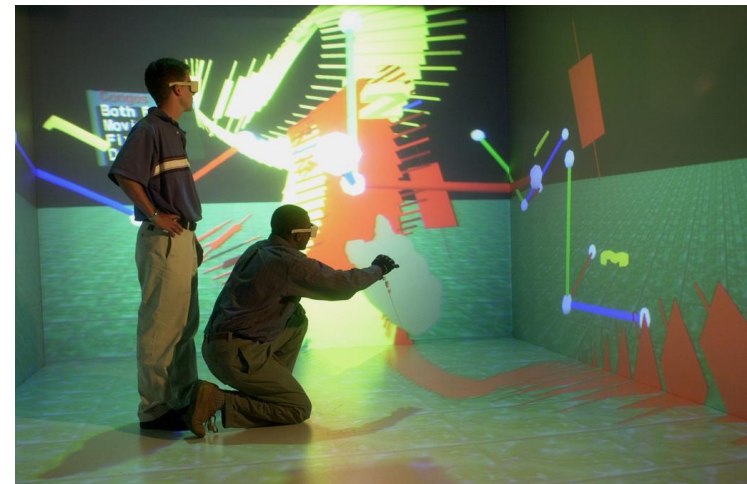
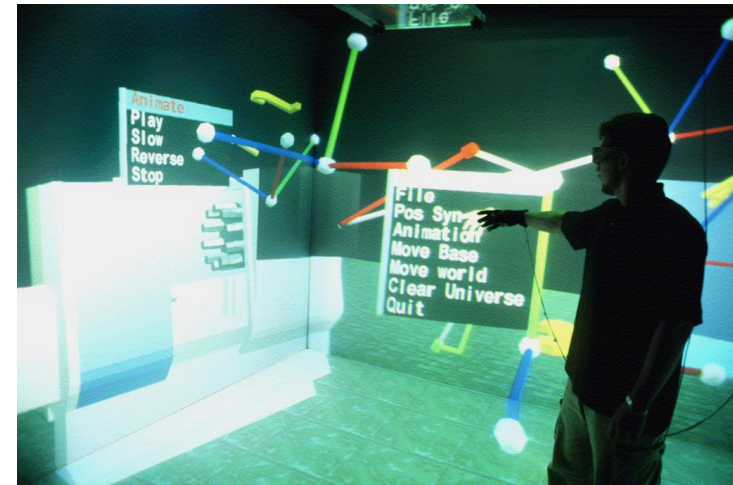
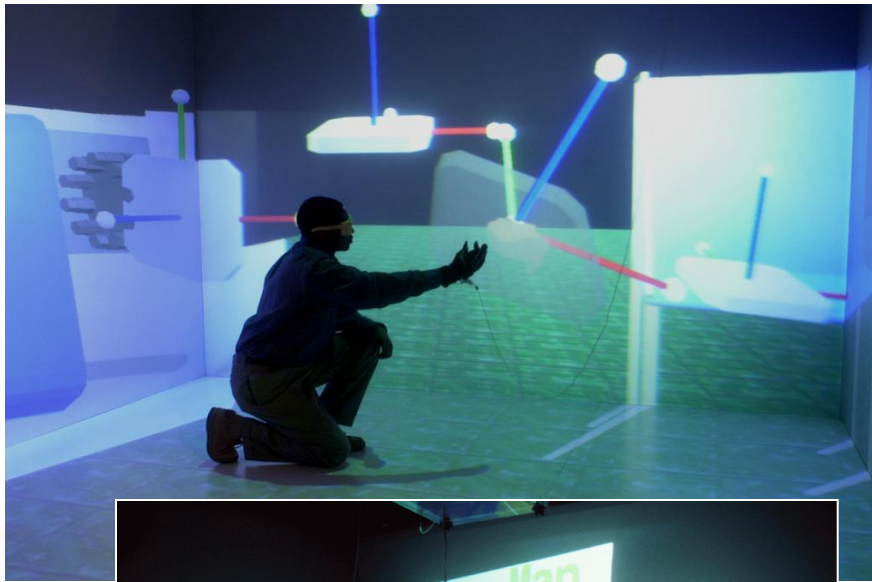
Inventor of Kevlar



- My discovery involved both intuition and the scientific process. It also involved some good luck and perseverance, when conditions looked most hopeless.
- An eye trained to observe small differences in progress and product helped too.
- And creativity made a difference.

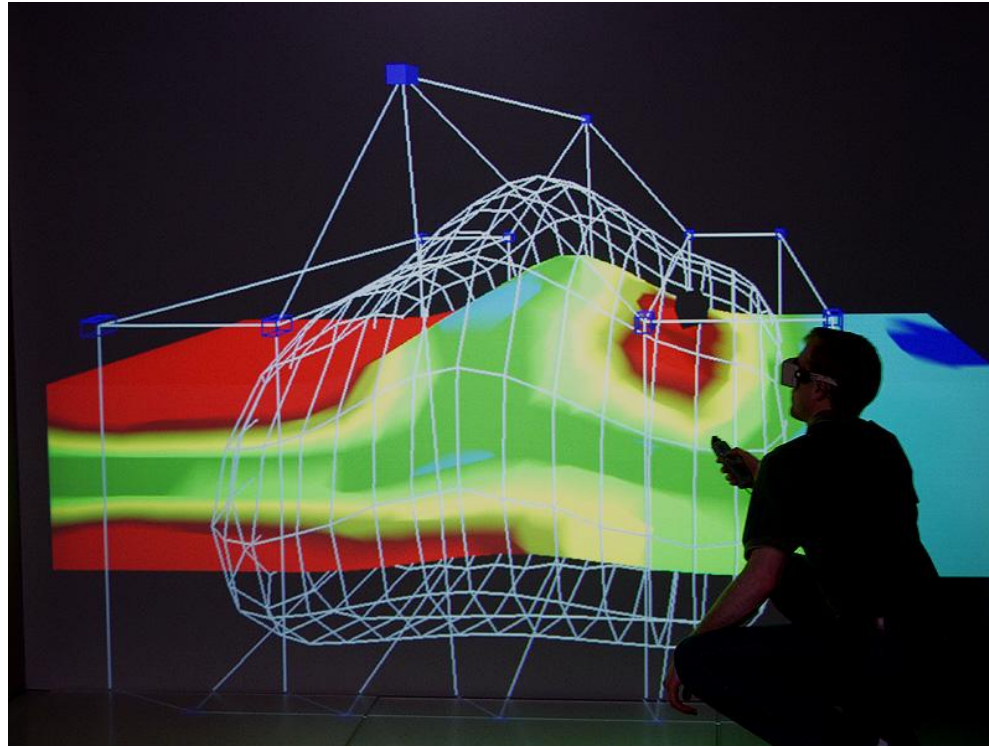
Quinn, Jim, “I was able to be creative and work as hard as I wanted”, Hall of Fame Interview, *Invention and Technology*, Winter 2003.

VRNets



Kihonge, John N., Vance, Judy M., and Larochelle, Pierre M., "Spatial mechanism design in virtual reality with networking," *ASME Journal of Mechanical Design*, 124(3), September, 2002, pp. 435-440.

IVDA



Chipperfield, K., Vance, J. M., Fischer, A., “Fast meshless reanalysis using combined approximations, pre-conditioned conjugate gradient, and Taylor series”, submitted to the Journal of Mechanical Design.

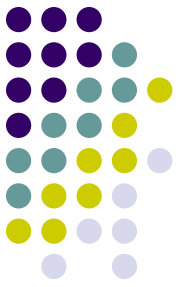


NHE

Kim, ChangEun, Vance, J.M., "Development of a networked haptic environment in VR to facilitate collaborative design using Voxmap Pointshell (VPS) software," *ASME Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Salt Lake City, Utah, September 28 to October 2, 2004, in press.

Shirley Tilghman

President, Princeton University



- The first lesson is no guilt. We have to allow women to say that it is fully legitimate to be at work, it is fully legitimate to be at home – and you shouldn't feel guilty when you're in either one of those places. You do what you can do. It's about balance.

“The Tiger Roars”, The Wall Street Journal Online, July 17, 2006

Nancy Pelosi

Speaker of the U.S. House of Rep



- Including being Speaker of the House, the best jobs I have had are as a mother and a grandmother.

“Hello, Speaker Pelosi”, The Washington Post, March 18, 2007.

Data



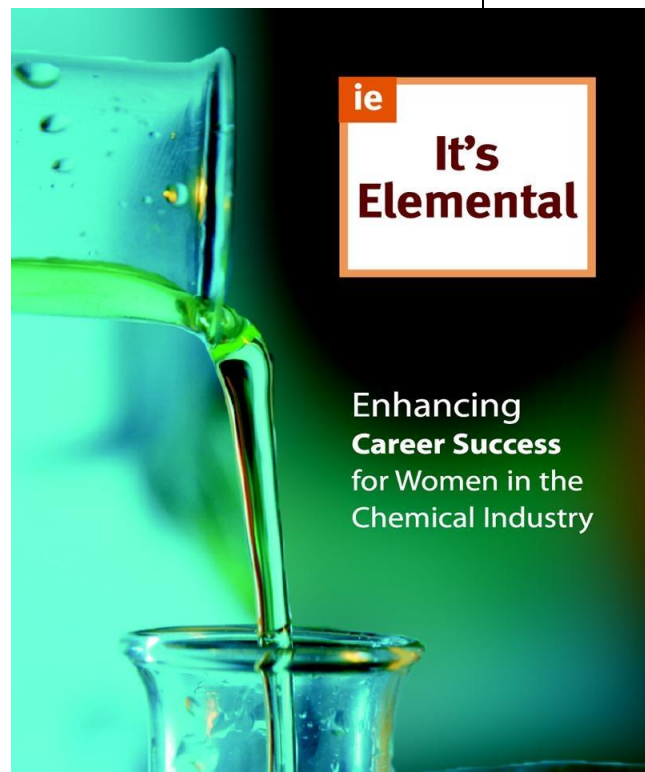
- From 1930 to 2007, there has only been one woman president of AIAA: Sheila Widnall (2000)



Factors for Career Success

Survey of Men and Women in Chemical Industry

- Women
 - Blow your own horn
 - Be on highly visible projects where contributions can be recognized and rewarded
- Men
 - Ability to relocate



NSF Report, *It's Elemental: Enhancing Career Success for Women in the Chemical Industry*, March 2007.



The Next Generation

- Opportunities for the next generation of women to thrive in industrial settings will increase as younger women coming up through the pipeline are better informed and prepared

NSF Report, *It's Elemental: Enhancing Career Success for Women in the Chemical Industry*, March 2007.

Grace Murray Hopper

Rear Admiral, U.S. Navy



- Kept a clock in her office that ran counterclockwise to demonstrate that there is always more than one way to do things.

Layne, Peggy, “Women in the National Academy of Engineering”, *SWE*, Winter 2003.



Do you know where you're going to?

Do you like the things that life is showing you?

Where are you going to? Do you know?

Do you get what you're hoping for?

When you look behind you there's no open
door -

What are you hoping for?

Do you know?

