



Engineering and Science Education Seminar
Friday, October 31, 2008, 3:30 – 4:30 pm
422 Rhodes Engineering Research Center
(Overflow Room: 112 Brackett Hall)

On Education vs. Training

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In schools fortunate enough to attract good students who are good people, the faculty has an obligation to help those students develop comparative advantages for their careers. Without comparative advantages, graduates are not as likely to be given responsibility, be productive, and attain career satisfaction. If students have also developed a self-image that includes an obligation to service and ethical responsibility, they are much more likely to have a meaningful life.

Unlike education, training no longer provides comparative advantage. To clarify the distinction implied between education and training, consider these examples. Learning calculus is training, while learning to think using calculus is education. Learning spelling and grammar is training, while learning to write is education. Learning to use CAD software is training, while learning to design is education.

Since training is a commodity, focusing the residential university experience on training is a misuse of resources. I believe students enrolled in a university should expect to be educated rather than trained. Unfortunately, most of our education systems are dedicated to training. Lecturing about codified material is almost always training. Most conventional tests evaluate the success of training.

I believe engineering education is best accomplished through practice. Students who have the opportunity to be apprentices, i.e., to be mentored by experts, are much more likely to become effective professionals. Dialog over monologue. Doing over pretending.

In our new world economy, successful professionals will be those who are skilled at training themselves, i.e., able to learn whatever codified knowledge they need for their current tasks, and are able to find the people and situations to help further their education.

Through concrete examples and some pie-in-the-sky dreaming, I hope to stimulate a dialog among faculty and students so that both benefit.

Presenter Biography



Dr. Woodie Flowers is the Pappalardo Professor Emeritus of Mechanical Engineering at the Massachusetts Institute of Technology and a Distinguished Partner at Olin College. Dr. Flowers serves as National Advisor and Chairman of the Executive Advisory Board for FIRST (For Inspiration and Recognition of Science and Technology).

Dr. Flowers helped create MIT's renowned course "Introduction to Design." He also received national recognition in his role as host for the PBS television series Scientific American Frontiers from 1990 to 1993 and received a New England EMMY Award for a special PBS program on design. He is a member of the National Academy of Engineering and a Fellow of the American Association for the Advancement of Science and of the American Society of Mechanical Engineers. He recently received The Joel and Ruth Spria Outstanding Design Educator Award from ASME, a Public Service Medal from NASA, and a Doctor Honoris Causa from both Andreas Bello University in Chile and Worcester Polytechnic Institute. He is a MacVicar Faculty Fellow at MIT for extraordinary contributions to undergraduate education. He was also the Inaugural Recipient of the Woodie Flowers Award by FIRST. Currently, Dr. Flowers is a director of two companies and advisor to three others. He and his wife Margaret live in Weston, Massachusetts.

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