

Editorial Director

Gary Breed
gary@highfrequencyelectronics.com
Tel: 608-845-3965
Fax: 608-845-3976

Publisher

Scott Spencer
scott@highfrequencyelectronics.com
Tel: 603-472-8261
Fax: 603-471-0716

Associate Publisher

Tim Burkhard
tim@highfrequencyelectronics.com
Tel: 707-544-9977
Fax: 707-544-9375

Assistant Editor

Katie Landmark
katie@highfrequencyelectronics.com
Tel: 608-845-3965
Fax: 608-845-3976

Production Assistance

Ken Crocker

Business Office

High Frequency Electronics
7 Colby Court, Suite 7-436
Bedford, NH 03110

Editorial and Production Office

High Frequency Electronics
403 Venture Court, Unit 7
Verona, WI 53593

Also Published Online at

www.highfrequencyelectronics.com

Subscriptions

circulation@highfrequencyelectronics.com
subscribe online at:
www.highfrequencyelectronics.com



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Those Clichés About Education are Often True

Gary Breed
Editorial Director



You've heard plenty of clever sayings about education and the learning process. Each of us will have a different response to them—some are clichés, but all have an element of truth. Here are a few of the most common:

Education is a Lifelong Process — That's for sure! If we were limited to the topics taught when we were in EE school, obsolescence would find us quickly. When I started college way back in 1966, there was talk of a shortage of engineers in the AC power distribution field, and Rotating Machinery was the subject of Junior Lab. "RF" meant radio and TV broadcasting, or maybe two-way radio systems, while "microwaves" was that esoteric specialty involving mysterious things like waveguide, traveling-wave tubes and klystrons, used in radar or wideband FM point-to-point communications. Optical technology was over in the Physics department and had little connection to electronics.

In the 1980s the microprocessor dominated the interest of EE students. Then computer simulation took over as the "hot topic" in the 1990s. Many schools even changed the name of the EE department to Electrical and Computer Engineering.

Then, as we know, "wireless" happened and things changed again. Engineers had to go back to those linear systems, communications theory and electromagnetics classes before moving forward to learn about advanced modulation and the effects of propagation in cluttered environments. And it's not just the engineers—whole university engineering departments updated their curricula, lab facilities and faculty expertise.

We know it will happen again as technology changes in the future, so be sure to take this old saying seriously.

Education is More than Memorizing Facts, it's Learning to Solve Problems — More than anything else, professors tell me that today's EE students are smarter than ever, but less capable than ever at thinking for themselves. I think this is a logical result of the way our society is raising children with such a strong emphasis on organized activities. Being organized is good for academic achievement, but if you don't grow up with self-

directed activities like sandlot baseball or double-dutch jump rope, life's lessons in initiative and peer-to-peer cooperation can easily be missed.

A College Degree is Just the Beginning — In the professional world, this was true 40 years ago and may never change. Beyond its reference to the lifelong learning process, this saying is meant to tell new graduates that their classroom lessons provide good tools for their careers, but they will be challenged to use them in ever-changing ways. In a degree program, it is simply not possible to include every possible theory or technique, or explore every possible application.

Education is the Process of Discovering How Much We Don't Yet Know — This is a good follow-on to the last saying. If a degree isn't all we need, then we should be ready for those things yet to be

learned. After a few years in a developing career, every one of us goes through a stage where we think we really know a lot. Then, something comes along to knock us off our little pedestal. Yes, you or I may have learned a lot and accomplished a lot, but we are constantly reminded that there is an infinite list of things waiting to be discovered, developed and refined.

Nothing You Learn Ever Goes to Waste — This is my personal favorite saying because of my own irregular career path into technical publishing. In addition to the technical skills I've developed, I constantly need to recall past lessons in spelling and grammar, and remember what was discussed in past jobs with the circulation staff and graphic artists.

My job uses concepts I learned in philosophy and history classes, not just physics and mathematics.

Your job will have its own requirements beyond engineering, too—things like managing other engineers, understanding regulations, and writing reports and presentations. Those regulations may include safety, environmental and employment rules and procedures, not just FCC and other technical regulations. Your writing requirements now include many e-mails, where a concise, accurate style is appreciated by the recipients.

Today's compressed development schedules and diverse development teams require people skills and a broad understanding of other disciplines. If you can draw from past experience or learn new lessons to deal with these “non-engineering” areas, your job will be easier and, hopefully, your value to the company will be recognized.