The Professor of Practice in Engineering Handles the 2nd

Queue the sports jacket – your professor-type look.

Here's your standard issue hardhat and vest. Your professor of practice-type look. This is your author doing a bridge inspection on the Big Island of Hawai`i. You can also see this photo in the back of my children's book ***Beams over Streams, Let's Build a Bridge!*** *(get it on Amazon.com!).*

Executive summary. The value of the four year university degree has been under fire of late. Insofar as engineering goes, the bachelors degree still holds great value. But, this is not to say that the product (the undergraduate) cannot be improved. Here's what the industry wants (and needs).

Give the market what it wants and needs. Construction, since the dawn of time, has been a job creator. Buildings, roads, treatment plants – you name it – the constructors of these complex facilities and infrastructure components need to know how to read plans, interpret specifications, know material properties, do math, critically think, and visualize in three dimensions.

This product is not wholly being delivered by the universities. There are two things needed in the deliverable (the student now employee) to the industry upon graduation.

The 1st thing needed – evidence of hard work and intelligence. Classes like Calculus, Physics, Fluid Dynamics, and Differential Equations are all classes that are rarely used after graduation. Taken and having survived these classes inevitably brings up the lunchtime discussion of "things that were a waste of my time in college." However, taking and passing them shows the ability of the student to work hard and apply themselves in learning. It demonstrates an ability to be resourceful through self-teaching and/or from the leaning on other students to learn the material. The hours put in on this effort translate to a work ethic and a drive needed to succeed in construction and engineering.

The 2nd thing – real life experience. A good engineering program weaves in the knowledge gained in the classroom with its application (even if just a minute amount) in the field. All engineering and construction companies will tell you that internships or cooperative education are highly valued in new hires. This is a plug for schools like Drexel University in

Scott Jennings, P.E., is the President of SJ Construction Consulting, LLC (808) 271-5150, sj@sjcivil.com. He is the former owner of a heavy/civil construction company and now provides cost estimating and training, litigation support, construction management, and efficiency advice to contractors. He is also the author of numerous construction children's books at www.amazon.com!

Philadelphia, Pennsylvania (my alma mater) which requires three 6-month "real world" experiences (co-ops) to graduate.

The cooperative education component is just the side salad of this entree article you're reading now though. The main course of today's meal is the "real world" *classroom* learning experience.

Introducing the Professor of Practice. The internet tells us that the professor of practice started in the mid-twentieth century and is a designation given to faculty which is more based in industry experience than research. This person seems to always have a masters degree, and many schools require they have a doctorate. As stated above, the evidence of basic intelligence is drawn out in the "1st thing" above, but industry falls in love with a university when its students come out knowing how to run a spreadsheet, how to enter a production rate in an estimating software, how to draw something beyond a circle in a drafting program, and even how to write a letter. This industry need should translate locally in your area to construction and engineering companies pushing for the professor of practice in the local engineering program.

My story. I recently gave a presentation to a national committee I sit on with the American Society of Civil Engineers. The slide below from this facilitated discussion laid out the challenges I was, and still am, seeing as both an employer and a university lecturer.

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There was little pushback on these statements. Actually none. And there was no bashing of faculty (there is engineering faculty on this committee!), but there is a need for our entry level engineers and construction professionals to come with a little more practical experience. In my opinion, for construction engineering, these professors can teach classes like construction documentation, temporary structures, estimating, field skills (sketching, plan reading, material procurement, work plan development, et cetera), and claims avoidance. They can be electives or for certain programs, they can be senior level requirements.

To wrap this up, I ask those in academia and in industry to consider supplementing their local university programs with professors of practice. It's a benefit to the university, the industry, and the student!

Work safe!

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