Getting Our Stories Straight

Inspiring public messages don't match what faculty say.

BY ALICE L. PAWLEY

In its 2008 report "Changing the Conversation," the National Academy of Engineering encouraged the engineering profession to present messages that appeal to young people's desire to improve lives and make a difference in the world. Market research found that engineering failed to inspire the public in the way that a justice-seeking legal profession or the lifesaving health fields do. The report urged adoption of a positioning statement aimed at a diverse audience that begins, "No profession unleashes the spirit of innovation like engineering," and such slogans as "Engineers help shape the future."

These messages may indeed form a compelling vision of engineering in the minds of the public. But they're at odds with the narratives offered by faculty members, who embody engineering for undergraduates and are often the first point of contact students have with the profession.

My research looked at the important stories that engineering faculty at a research-oriented university both explicitly told students and implicitly conveyed through their practice. In three-hour interviews with each of 10 faculty members, I asked how they defined engineering and how they chose particular content to teach; their research focus and how they funded, implemented, and published it; and how they decided on service activities.

Three main categories of stories emerged. The first, engineering as applied science and mathematics, described math as the root of both engineering and science, but faculty members differed on whether they thought engineering was similar to science. Those who considered engineering to be different

described it as more useful or helpful to society than science.

The second narrative, engineering as solving problems, also connected engineering to utility, to the notion of "real problems" or ones that "mattered." These interviewees talked about the problems as something to pick up and solve, or as presented by an amorphous and disembodied "society." One assistant professor admitted, "I like solving problems, so to me it's just like they're there, and I see them and I find them."

The third narrative, engineering as making things, connected engineering to the physical construction of highly technical and mechanized products. This was intended to serve both as a motivator for engineering undergraduates and as a way to differentiate engineering graduate students from science graduate students.

Interviewees tended to apply these narratives to all engineering disciplines and places where engineers worked. However, further discussion often prompted faculty members to identify contradictions in these narratives. For example, one called himself an engineer but questioned the practicality of his research; another described the purpose of his research as solving an explicit problem but acknowledged there was significant "distance" between his research and a finished product.

While some faculty narratives portrayed engineering as tackling difficult challenges or as problem solving that is useful to society, few captured the creativity or inspirational power of a profession that helps to "shape the future." What also became clear is that the narratives instructors use to define our

profession to novices don't necessarily represent what faculty actually do as engineers. If students make career choices based on these narratives, incorrect and uninspiring definitions of engineering will persist.

If we want our students to see engineers as grappling with significant problems in order to make a world of difference, it is critical that engineering faculty not only convey such definitions to students but model them through the practice of their teaching, research, and service. Otherwise, messages
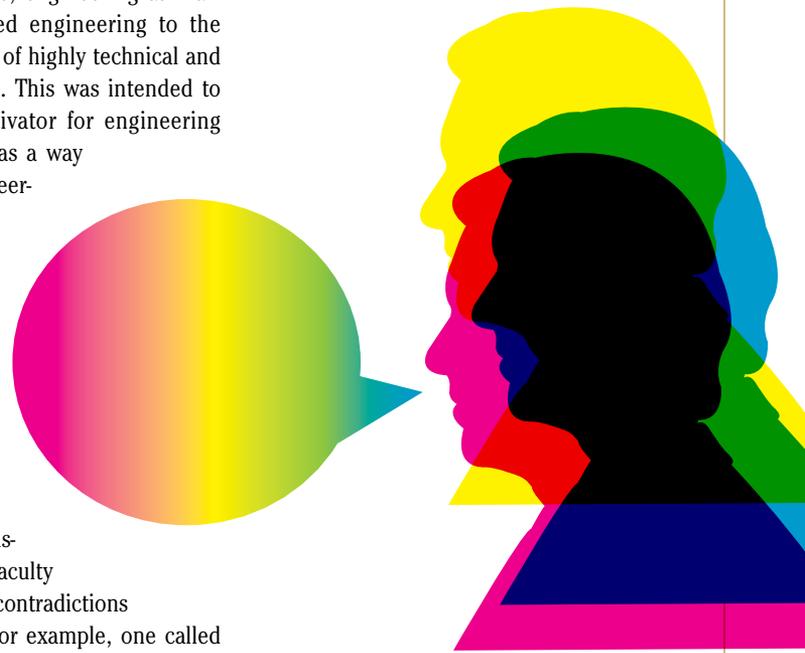
adopted simply to improve the image of engineering are sound and fury, signifying virtually nothing for the next generation of engineers and making little difference to the discipline as a whole.

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