



In the March issue (“Incompetent and Unaware of It”), I argued that engineers should be restricted to practicing within the scope of the licensing examination(s) that they have passed, citing a documented psychological phenomenon known as the Dunning-Kruger effect – the natural human tendency to overestimate one’s own capabilities. Not surprisingly, that article – and especially the abridged version of it that appeared in the January 24 issue of *Engineering News-Record* – has been somewhat controversial within the engineering community. I wrote it mainly in the hope of starting a conversation, and now I would like to make another contribution to the discussion.

The National Society of Professional Engineers (NSPE) has a longstanding policy in favor of *generic* licensure. According to its Position Statement No. 1737, “NSPE endorses the NCEES Model Law definitions of the ‘practice of engineering’ . . . and encourages enactment of Model Law provisions. NSPE endorses and supports the concept of licensure of engineers only as a ‘Professional Engineer’ and opposes licensure status by designated branches or specialties.” However, the National Council of Examiners for Engineering and Surveying (NCEES) Model Law definition of a Professional Engineer (PE) states, “The board may designate a professional engineer, on the basis of education, experience, and examination, as being licensed in a specific discipline or branch of engineering signifying the area in which the engineer has demonstrated competence.”

This provision concisely captures why I believe that *discipline-specific* licensure is necessary in order to hold paramount the safety, health, and welfare of the public. Education, experience, and examination – the traditional “three Es” of licensure – are the (objective) means by which an individual has *demonstrated* competence in a specific discipline or branch of engineering. By contrast, generic licensure relies on (subjective) self-assessment to establish whether someone is competent in any particular technical field. Once a person has passed the PE exam – *any* PE exam – it is then completely up to that person to define his or her own limits of practice.

Proponents of generic licensure have a foundational belief that this is how it should be – that decisions in these matters are rightly made by each engineer on a case-by-case basis, not by a governmental authority issuing a blanket pronouncement. After all, the purpose of licensure is to identify those who have achieved the bare minimum level of competence to protect the public, not to differentiate those who have more advanced qualifications in a given specialty. As licensed professionals, we are legally bound by a code of ethics that explicitly requires us to perform services only in areas of our competence.

This line of thinking raises several important questions, given the current system of licensure in the United States. If I am really the best judge of my own competence, then why was I required to pass a PE exam at all? If the test is simply meant to set the bar of minimum competence across the board, why does NCEES administer 24 *different* PE exams nationwide, each of which is intended to evaluate a candidate’s competence in a carefully delineated

*subset* of engineering subject matter? And now that I am a licensed professional, how am I supposed to determine exactly what my areas of competence are so that I can conscientiously fulfill my obligation to stay within them?

Granted, a certain amount of self-regulation is inevitable. For one thing, passing an examination and receiving a license to practice does not relieve us of our responsibility to continue building up our expertise throughout our careers by means of additional education and experience. It obviously takes more to design the structural, mechanical, or electrical systems for a 100-story tower than to provide the same services for a single-story building. However, the *fundamentals* of each discipline are the same for both projects – and that is precisely what the structural, mechanical, and electrical engineering exams encompass. Passing one of these exams indicates that someone is competent to ascertain whether it would be appropriate to accept particular assignments *within that discipline*.

In other words, licensure is *already* discipline-specific – *entirely* discipline-specific – when it comes to the PE exams; the logical next step is to make licensure discipline-specific when it comes to actual practice, consistent with the NCEES Model Law provision that I cited above. Like it or not, specialization is a firmly entrenched reality in the engineering profession today. Every discipline is becoming more and more complex, and has less and less overlap with others that may have been closely aligned with it in the past. Rather than bemoaning this trend, we need to acknowledge it and adapt the licensure laws around the country accordingly.

NCEES prepares each of the PE exams in accordance with a detailed specification that spells out the knowledge and skills that it is intended to assess. These specifications ([www.NCEES.org/Exams/PE\\_exam.php](http://www.NCEES.org/Exams/PE_exam.php)) are not, in fact, blanket pronouncements of a governmental authority, or even of NCEES as an organization; they are actually developed by volunteer committees of highly competent practitioners in the corresponding disciplines using a psychometrically valid process that solicits input from a relatively large sample of licensed professionals. This ensures that each test legitimately differentiates those who are minimally competent to practice in the technical field that it is intended to cover from those who are not.

It thus makes perfect sense to use the specification(s) for the PE exam(s) that an engineer has passed as the basis for designating the area(s) in which that person has demonstrated competence, and to require the engineer to practice only within the corresponding domain(s). From where I sit, the arguments to the contrary that NSPE and others have offered in favor of generic licensure are considerably weaker than the case for discipline-specific licensure. ■

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An abridged version of this article appeared as a Viewpoint piece in the June 13, 2011 issue of *Engineering News-Record*.