

BY RICK NELSON, EDITOR-IN-CHIEF

Innovation: genius, practice, or luck?

Three columnists recently touched on this issue, and reached three different conclusions.



David Brooks, writing in *The New York Times*, contends that practice makes perfect (**Reference 1**). He begins by positing “certain paragons of greatness—Dante, Mozart, Einstein—whose talents,” certain romantics would claim, “far exceeded normal comprehension, who had an otherworldly access to transcendent truth, and who are best approached with reverential awe.” Today we know better, Brooks claims, noting, “In the view that is now dominant, even Mozart’s early abilities were not the product of some innate spiritual gift. His early compositions were nothing special.” Mozart, according to Brooks, owed his talent to a father who made him practice.

Is practice, whether with or without innate talent, enough? Not according to Robert H Frank, a Cornell University economics professor, writing in the *The Huffington Post* (**Reference 2**). “There’s no question that hard work and talent make someone more likely to achieve economic success,” he writes. “But for every successful person ... there are hundreds of others who are just as talented and work just as hard, yet earn only modest incomes.” He concludes, “Even talent and the inclination to work hard are themselves heavily dependent on chance.”

In engineering, given sufficient talent and—if Frank is right—luck, what might practice do for us? It might allow us to memorize equations and programming languages, for example. Is rote memorization helpful? Not according to AC Grayling, writing in *The Guardian* (**Reference 3**): “It is a common presumption that if people know a lot, they must be intelligent. Anyone who can reel off capital cities or count to 10 in several languages ... is counted a bright spark.” But, he continues, “There are plenty of very bright people who do not know the world’s capitals and cannot count in other languages, because they have never had a chance to learn them. ... By the same token plenty of people know lots of facts without being creative, thoughtful, quick-witted, humorous, and perceptive—the marks of true intelligence.”

How do these questions relate to innovation? Grayling doesn’t use the term, but for him *innovation* would seem to

be synonymous with intelligence: “Intelligence is a matter of output, not scores in a test. Einstein was unsuccessful at school and no great shakes as a mathematician, but he was creative and insightful. ... A vivid interest in things, and an active desire to understand more about them, is a major characteristic of intelligence.”

Where does this writing leave us? I’m inclined to agree with Frank, but he provides no recipe for success. We can’t revise our genes or command luck to smile on us. All we can do is follow Brooks’ advice and practice. But we can infer one suggestion from Grayling: Organizations wishing to foster innovation must create an environment that fosters in its employees a vivid interest in and active desire to innovate. That’s not an easy task in this day of budget cuts and layoffs—which can distract even the most innovative engineers, wherever their innovative spark originates.

One way to learn to focus is to study how successful innovators operate. The stories of three of them appear in this special section. Jim Williams of Linear Technology warns of the dangers of the rigid setting of goals, which individuals might meet at the expense of companywide innovation. Chuck Grant of Cadence attributes his innovative career in part not to a narrow focus on one area but rather to the chance to gain experience in test, marketing, training, sales, and customer support. And when asked how he became an innovative engineer, Cadence’s Ken Wadland says simply, “I don’t follow rules.”

Read the profiles in this issue, and review our previous “EDN Innovators” profiles at www.edn.com/innovators. Let us know what you think.

REFERENCES

1. Brooks, David, “Genius: The Modern View,” *The New York Times*, May 1, 2009, www.nytimes.com/2009/05/01/opinion/01brooks.html.
2. Frank, Robert H, “Success and Luck,” *The Huffington Post*, May 2, 2009, www.huffingtonpost.com/robert-h-frank/success-and-luck_b_195162.html.
3. Grayling, AC, “Knowledge and genius,” *The Guardian*, May 1, 2009, www.guardian.co.uk/commentisfree/2009/may/01/genius-knowledge-iq-tests.