

Who was right about education: Bill Gates or Steve Jobs?



By Vivek Wadhwa July 2, 2013
Vivek Wadhwa is the vice president of innovation and research at Singularity University, and fellow at Arthur and Toni Rembe Rock Center for Corporate Governance at Stanford University.



Where are the jobs? Reuters/Claro Cortes

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When students asked me what subjects they should major in to become a tech entrepreneur, I would say engineering, mathematics, and science. I used to believe that education in these fields was a prerequisite for innovation, and that engineers made the best entrepreneurs.

That was several years ago.

I realized how much my views have changed when the *The New York Times* asked me to write a piece for its “Room for Debate” forum two years ago. Since then, I have learned even more about the importance of design and the role of the humanities in fostering creativity. I now believe that the innovation economy needs musicians, artists, and psychologists, as much as biomedical engineers, computer programmers, and scientists.

I advise students to study subjects in which they have the most passion. They must have the discipline to complete their bachelors degree from any good school—not overpriced elite institutions that will burden them with debt and limit their life options. With a bachelors degree, they gain valuable social skills, learn how to interact and work with others, how to compromise, and how to deal with rejection and failure. Most importantly, they learn what it is that they don't know and where to find this knowledge when they need it.

The *NY Times* had asked me to comment on the divergence of opinion between Bill Gates and Steve Jobs. In a [speech](#) before the National Governors Association, Gates had argued that we need to spend our limited education budget on disciplines that produce the most jobs. He implied that we should reduce our investment in the liberal arts because liberal-arts degrees don't correlate well with job creation. Three days later, at the unveiling of the iPad 2, Steve Jobs had said: "It's in Apple's DNA that technology alone is not enough—it's technology married with liberal arts, married with the humanities, that yields us the result that makes our heart sing, and nowhere is that more true than in these post-PC devices."

[Here is what I wrote](#) for The Times:

It's commonly believed that engineers dominate Silicon Valley and that there is a correlation between the capacity for innovation and an education in mathematics and the sciences. Both assumptions are false.

My research team at Duke and Harvard [surveyed](#) 652 U.S.-born chief executive officers and heads of product engineering at 502 technology companies. We found that they tended to be highly educated: 92 percent held bachelor's degrees, and 47 percent held higher degrees. But only 37 percent held degrees in engineering or computer technology, and just two percent held them in mathematics. The rest have degrees in fields as diverse as business, accounting, finance, health care, and arts and the humanities.

Gaining a degree made a big difference in the sales and employment of the company that a founder started. But the field that the degree was in and the school that it was obtained from were not a significant factor.

Over the past year, I have interviewed the founders of more than 200 Silicon Valley start-ups. The most common traits I have observed are a passion to change the world and the confidence to defy the odds and succeed.

It is the same in business. In the two companies I founded, I was involved in hiring more than 1000 workers over the years. I never observed a correlation between the school of graduation or field of study, on one hand, and success in the workplace, on the other. What make people successful are their motivation, drive, and ability to learn from mistakes, and how hard they work.

And then there is the matter of design. Steve Jobs taught the world that good engineering is important but that what matters the most is good design. You can teach artists how to use software and graphics tools, but it's much harder to turn engineers into artists.

Our society needs liberal-arts majors as much as it does engineers and scientists.

But here is a harsh reality: that employment prospects are dim for liberal-arts majors. Graduates from top engineering schools are always in high demand, but PhDs in English from even the most prestigious universities often can't get jobs. The data I presented above were on the background of tech-company founders—those who made the transition into entrepreneurship. Most don't. And, as you can note from Bill Gates' speech, there is a bias against liberal arts and humanities.

So students of the humanities need to be prepared for a difficult slog. They will need to work harder than engineers do to find their way into the realm of entrepreneurship. And they will have to use their advantage of creativity to force their way into key roles. Then they can do that magic that Steve Jobs did with his elegant inventions.