

OF ART AND CS EDUCATION

By Isabel Beichl, Editor in Chief



LET'S START WITH THREE STATEMENTS:

1. COMPUTING HAS CHANGED BOTH THE CHARACTER AND THE PRACTICE OF SCIENCE.
2. COMPUTING IS ITSELF A SCIENCE.
3. RESEARCH IN SCIENCE AND TECHNOLOGY HAS DETERMINED THE DIRECTION OF COMPUTING.

The first two seem to be obviously true, but the third is debatable, especially if we take “direction” to mean “ways of using computers.” It seems clear (to me at least) that the large and growing set of “apps,” the huge industry in games, and the amazing developments in search engines didn’t come about as side-effects of scientific research. And even if they did, they’ve taken off in directions most scientists would never have anticipated. In any case, their effect on commerce and indeed on the functioning of society has been huge.

It’s interesting to contemplate the education and training of some of the people who created this revolution, in particular some of the greats: Bill Gates, Larry Page, Sergey Brin, and, of course, the late Steve Jobs. The education of these inventors and visionaries was nonstandard, at least when compared with the way that scientists are trained.

For example, none of these leaders completed a PhD degree. An old friend who liked to ask and then answer his own questions once said: “What does it prove to get a PhD? It proves only that you can get a PhD.” I don’t personally believe this, but it’s worth considering. If a

person intends to do research in, say, mathematics, there are literally thousands of years of development that current work builds on. You can read a proof in Euclid and it seems almost modern. The “incomplete” education of the inventors of modern popular uses of computers is more like that of artists, where some time is spent in the academy followed by a break-out and invention of new forms.

This observation doesn’t mean that time in academia is unnecessary, but rather that education can perhaps be organized differently. And, judging from the biographies found in Wikipedia, each of these gentlemen had superb childhood educations. Humans really do learn a lot of the most important stuff quite early in life.

The important conclusion, I think, is that education’s more elementary and fundamental parts are more important than the later more specialized parts. That’s why I’m always pleased to learn that articles and features from *CiSE* are finding use in college classrooms. Publishing advanced and specialized papers is a noble and important endeavor, but, if you want to influence a large audience and potentially affect computing’s future, *CiSE* is one place to do it. I thank Francis Sullivan for his interesting comments and insight on this subject.

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