

Connecting the Humanities and the Sciences: Part 4. Final Lesson and Conclusion*

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That leads to a final lesson, one that takes us back to Ada Lovelace. In our symbiosis with machines, we humans have brought one crucial element to the partnership: creativity. “The machines will be more rational and analytic,” IBM’s research director Kelly has said. “People will provide judgment, intuition, empathy, a moral compass, and human creativity.”

We humans can remain relevant in an era of cognitive computing because we are able to “Think Different,” something that an algorithm, almost by definition, can’t master. We possess an imagination that, as Ada said, “brings together ... ideas and conceptions in new, original, endless, ever-varying combinations.” We discern patterns and appreciate their beauty. We weave information into narratives. We are storytelling animals. We have a moral sense.

Human creativity involves values, aesthetic judgments, social emotions, personal consciousness, and yes, a moral sense. These are what the arts and humanities teach us — and why those realms are as valuable to our education as science, technology, engineering, and math. If we humans are to uphold our end of the man-machine symbiosis, if we are to retain our role as partners with our machines, we must continue to nurture the humanities, the wellsprings of our creativity. That is what we bring to the party.

“I have come to regard a commitment to the humanities as nothing less than an act of intellectual defiance, of cultural dissidence,” the *New Republic* literary editor Leon Wieseltier told students at Brandeis a year ago. “You had the effrontery to choose interpretation over calculation, and to recognize that calculation cannot provide an accurate picture, or a profound picture, or a whole picture, of self-interpreting beings such as ourselves. There is no greater bulwark against the twittering acceleration of American consciousness than the encounter with a work of art, and the experience of a text or an image.”ⁱ

But enough singing to the choir. No more nodding amen. Allow me to deviate from storytelling, for just a moment, to preach the fourth part of the traditional five-part Puritan sermon, the passages that provide a bit of discomfort, perhaps even some fire and brimstone about us sinners in the hands of an angry God.

The counterpart to my paeon to the humanities is also true. People who love the arts and humanities should endeavor to appreciate the beauties of math and physics, just as Ada Lovelace did. Otherwise, they will be left as bystanders at the intersection of arts and science where most digital-age creativity will occur. They will surrender control of that territory to the engineers.

Many people who extol the arts and the humanities, who applaud vigorously the paeans to their importance in our schools, will proclaim without shame (and sometimes even joke) that they don't understand math or physics. They would consider people who don't know *Hamlet* from *Macbeth* to be uncultured, yet they might merrily admit that they don't know the difference between a gene and a chromosome, or a transistor and a diode, or an integral and differential equation. These things may seem hard. Yes, but so, too, is *Hamlet*. And like *Hamlet*, each of these concepts is beautiful. Like an elegant mathematical equation, they are brushstrokes of the glories of the universe.

Trust me, our patron Thomas Jefferson, and his mentor Benjamin Franklin, would regard as a Philistine anyone who felt smug about not understanding math or complacent about not appreciating science.

Those who thrived in the technology revolution were people in the tradition of Ada Lovelace, who saw the beauty of both the arts and the sciences. Combining the poetical imagination of her father Byron with the mathematical imagination of her mentor Babbage, she became a patroness saint of our digital age.

The next phase of the digital revolution will bring a true fusion of technology with the creative industries, such as media, fashion, music, entertainment, education, and the arts. Until now, much of the innovation has involved pouring old wine — books, newspapers, opinion pieces, journals, songs, television shows, movies — into new digital bottles. But the interplay between technology and the creative arts will eventually result in completely new formats of media and forms of expression. Innovation will come from being able to link beauty to technology, human emotions to networks, and poetry to processors.

The people who will thrive in this future will be those who, as Steve Jobs put it, “get excited by both the humanities and technology.” In other words, they will be the spiritual heirs of Ada Lovelace, people who can connect the arts to the sciences and have a rebellious sense of wonder that opens them to the beauty of both.

Endnotes

ⁱ Leon Wieseltier, "Perhaps Culture is Now the Counterculture: A Defense of the Humanities," *The New Republic*, May 28, 2013.

[Note: This essay version has been partitioned and subtitled by the editors in order to facilitate student interaction. It may not conform in all details to the spoken lecture or transcript.]