Cyborgs Forever

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In the story told by Ben Kotzee in his provocative essay, both Opie and Otis deserve some sympathy. The only one who deserves contempt is the professor. The professor, who has designed a pointless exam that may be beaten with crib notes, deserves to be replaced by a robot. And if she does not rethink her ways, she will be.

We have always been cyborgs, from the dawn of human history. In fact, cyborg-ness is the essence of being human, which is a version of Stiegler's argument. The moment our ancestors learned to use tools and language, we ceased to be natural beings, and became cyborgs. Thinking with a stone axe in hand is very different from thinking without one. The thought of cracking the tiger's skull versus trying to run away can only occur in the technologically-aided cyborg being. In that momentous encounter, we gave up our pure and natural minds for the opportunity to stay alive. As naked primates, we are food; as cyborgs, we get to eat the tiger.

The very notion of learning, as Kotzee correctly points out, has to do with the need to pass on the ways of using technologies. As we develop, the tools change, and the curriculum must change with them. For example, how many people now know how to light a fire with flint and steel? How many are able to interpret animal tracks? Who can make a decent bow and arrow, let alone shoot straight? The answer is – not too many people can do these, because the technologies have become obsolete, and new ones came into use. Abandoning a curriculum is as important as adding a new one. A professor who still teaches poor undergraduates

to light fire with flint is either an anthropologist or a bit odd. A teacher who compels students to recall simple information without Google is making the same mistake. He is fantasizing about some imaginary rustic world without Google and Wikipedia, where a few learned white men in wigs recite whole passages from Plato from memory, in Classical Greek. He prefers the older model cyborgs, and goes to pains to justify his misguided aesthetic preferences.

Looking into the future, I can easily imagine a world where reading and writing become obsolete, and where we will communicate with our machines and with each other in a simpler ways of speaking and listening. After all, in many schools, teachers have stopped teaching kids the cursive, because they are not very likely to write fast with a pen.

Our minds have always been immersed in not just the physical world, but also in the practices of changing it. All these practices are technologies; they are learnable ways of using tools, both physical and mental. For example, the Neolithic revolution has given us not only the breakthrough technology of farming and animal rearing, but also a new outlook on the world, where there are places of permanent dwelling, the notion of home, massive warfare, excess production, the value of farmable land, inheritance, and appreciation for hard work. The first information technology is speech itself, followed by drawing and poetry as ways to remember more and more important things. Writing was not the first information technology, but for sure it is one of the most profound in terms of shaping our minds. The printing press and fiber-based paper technologies made this new technology significantly more affordable, which profoundly shaped more human minds.

The new wave of information technologies we are witnessing is not the first and not the last - nor even the strongest - so I am not sure why Kotzee and the authors he cites consider this particular change as

something unique. The improvement from an encyclopedia to Wikipedia is not that dramatic, really. In fact, we are experiencing a significant slowing down in the growth of labor productivity, perhaps because information technologies have reached the point of saturation.[1] Recently growth in the US has been at 1.1% per year, whereas between 1947 and 1973 it averaged 2.8% annually. The myth of rapidly evolving technology is unfounded. We have entered a more stable period. It is only the bias of presentism that leads us to exaggerate the importance of today with respect to yesterday or tomorrow.

The first question Kotzee asks is whether the mind actually extends beyond the body, or whether it is our practices that actually extend, and the mind stays where it should have been. I am not clear on the pragmatics of the question. His later question does matter: what should we teach children to do? But the former does not help us much to answer this. Who cares where the mind is? It is only in pragmatic applications that the definition of mind comes into some importance.

The answer to the second question is important, and I am generally in agreement with Kotzee on the answer. In my view, we should teach the most common practices, fundamental to our culture and our way of life, with special emphasis on the skills that we believe are going to gain in importance in the future.

A good example from Kotzee's paper is about teaching and testing the ability to run sophisticated searches. We can ask students of education that such and such kids come from poor families, but are performing well in school, what does the research community know about the phenomenon? To answer such a question, one must first know what to look for, for example, the notion of resilience and resilience research. There are several dozen ways to describe the same phenomenon in English, but to be a good researcher, one has to become a good searcher. One should

possess the critical piece of declarative knowledge; it remains critical despite what some may think. In turn, to even understand the concept of resilience, one has to be aware of the link between socioeconomic status and academic achievement. One should get an extra point for citing the Coleman Report.[2] Two extra points for bringing up the notion of "confounding variable," under any of its multiple names.

I really do not care as much if you knew about it for a long time, or your search strategies are so sophisticated that you were able to find the seminal piece of research just five minutes ago, during the exam. In fact, I personally have greater admiration for the brilliant searcher who can find things fast, than for the nerd who knows everything. My sympathies are with Otis the cheater, and his act of rebellion against the mindless curriculum; they are not with Opie the honest nerd. The distinction between knowledge held for a long time and knowledge just acquired is meaningless. The skill of a sophisticated search, however, is central to the contemporary way of life. Therefore, you really want to test students' ability to run a good search, not their memory. This highly complex cognitive competency includes both the practical knowledge of the search engine's syntax, the sufficient declarative knowledge, a large vocabulary, and creativity.

Once we break down the skill of smart googling into a step-by-step progression, then yes, I can allow a certain task to be off-line. But that has to be determined by the logic of the skill development, not because there is something wrong with using the Internet or cell phones. And there are definitely no grounds for privileging older technologies, such as brain-based memory, to the newer ones, such as external digital memory.

The fundamental question I would rather ask is why education seems to be always a couple of steps behind current technologies. Why did we teach inkwell penmanship after the ballpoint pen was invented?

Why did military officers have to learn swordplay for centuries after swords became completely irrelevant? It is as if educators held a dystopian fantasy that the civilization may suffer from some catastrophe. What if a calculator is unavailable and you don't know how to do the long divisions on paper? What if the Internet goes down and you won't know how to convert Fahrenheit to Celsius? In addition, of course, everyone should learn the skills of survival in the wilderness, because you have an astronomically low chance of ever needing to use them. And the skills of setting the privacy settings on Facebook: those you do not need to learn in schools, because you are absolutely going to need them.

It is either dystopian anxiety, or perhaps the notion that there is something intrinsically noble or formational about learning the older, more proven, and "true" set of skills. Therefore, we make the kids learn the 16th and 17th century gibberish instead of translating Shakespeare into the language of the living.

I think the anxiety about cyborgs comes from an assumption about human beings as the natural being, somehow separated from the machines they are using. I think this is what Kotzee means by "ordinary metaphysics." I have little use for any metaphysics, much less for the ordinary kind. We are nothing without our tricks, our instruments, and our machines. Our biological nature is so blended with technological nature, it makes privileging the former just another obsolete technology. Human destiny is unfolding as more, not less, technological. I share Kotzee's main argument, but do not understand the need to compromise with the Luddites and pastoralists. The notion of unaided knowledge is but a phantom. The cyborgs of the world, unite.

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1 Bureau of Labor Statistics, "Labor Productivity and Costs," https://www.bls.gov/lpc/prodybar.htm

2 James S. Coleman, "Equality of Educational Opportunity," Report by the National Center for Educational Statistics (Washington: U.S. Government Printing, 1966).