One Cheer for Michael Gove

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Michael Gove has correctly lambasted the current ICT curriculum: his proposed solution is as wrong as the current curriculum, as findings from the LSE/NIACE Penceil Research Project (www.penceil.lse.ac.uk) demonstrate.

Penceil explored how the Basic IT skills curriculum needs to be transformed and the lessons from that also tell us much about how young people can best learn about ICTs.

The dominant mode of teaching computing both in schools and to adults is as part of training students to survive in an office (and dominantly an MS Office) environment. Learning how to use a word processor and a spreadsheet is a useful low level enabling skill but it has little to do with learning to engage creatively with information and communication technologies.

Gove's response is a disastrous elision of two separate problems. The first and most refractory issue is the British low regard for engineering skills. This is a looming catastrophe for all engineering based industries: automotive, aerospace, civil and software engineering are all fearing critical skills shortages. The solution to this is not to make either civil engineering or software engineering part of a core curriculum. The answers lie in the far more entangled realms of cultural and financial valuing of engineering skills. As long as financial engineering is rewarded ten times more favourably than any other kind, then bright students will be enticed away from productive engineering, including software engineering.

Software engineering, computer science and programming must be available options but options not core. The core skills lie, unsurprisingly in the words *information, communication* and *technology*. These are devices for managing information and enabling communication and students need to be given the chance to develop the skills to do this well.

Locating and critically analysing information on the web is a more complex task than entering a phrase on a search engine. Constructing search terms that will put the items you want at the top of the list is a complex task that is infrequently taught and only slightly less infrequently learned, let alone entering the strange world of the advanced search link. Evaluating the quality, authority and reliability of the items on the list provided requires linguistic sophistication, awareness of sources of bias and social and political shrewdness.

Online information is thin in its indicators of provenance and its hinterland of assumptions about the world. While it was relatively straightforward to discuss with students the differing assumptions behind a report in the Guardian and one in the Mail; it is far more complex to locate, for a British reader, the assumptions behind the Sydney Morning Herald or the Des Moines Register. Similarly when seeking health information finding the hidden commercial sponsors of a medical information site and this adjusting for the special interest that may be promoted there is hard.

These are essential skills for 21st century information literacy, that must be part of any ICT curriculum or else unwary readers may be led to believe Mr Gove's pronouncements to be well-informed and authoritative.

Communication is equally important. The Internet allows us to communicate with people distant from us both culturally and geographically. We do not know how our reader will understand what we write; whether that which is inoffensive in our home town may be deeply offensive elsewhere; how to find an appropriate register and language for a multitude of forums. We need the skills and insights of English and language teachers to inform our ICT teaching efforts.

Finally, this is a technology, or more accurately an array of technologies; and erratic and troublesome technologies at that. We all need learn how to keep our technologies working well and deal with mysterious error messages and sudden breakdowns without panicking or spending excessive money and time on ill-qualified repair services. The media (and politicians) alternately present us with a heaven of unlimited services and opportunities and a hell of threats, frauds and dangers; we have to learn how to navigate between a naïve trust and a debilitating fear; for this we need social skills and a technological awareness. A basic understanding of what happens when we click on an icon or a hyperlink is necessary, we do not yet have a guide to how far to explore the insides of our machines and of course this will vary with the interests and aptitudes of different groups of students. What will intrigue some will mystify and alienate others; decisions of what to do when is best left to competent teachers and their students and not to national politicians prescribing for an unknown universal pupil.

An added complication is that whatever technologies we teach now will be dated in ten years time, unusable in twenty and museum pieces in thirty. We need to ensure that learners are curious and flexible in their approach so they can adapt, adapt to and embrace unthought-of future devices and not be left floundering as they grow older: a curriculum for curiosity not certainty.

We need a discourse of engagement with ICTs to accomplish tasks which are important and meaningful to learners not the mandating of one menu of irrelevant skills in place of a redundant set. Teaching about and through ICTs is more complex than imaginatively summoning a phantom cohort of software engineers to drive the economy forward. A thoughtful curriculum will foster a generation of thoughtful users and co-creators of information and sufficient programmers to code all our dreams.

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