

The Idea and Practice of Education in a Digitally Globalised Era

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Despite several decades of the use of computers in education, they have not always delivered the benefits that their advocates have assured us they would¹. A recent review found that instances of educational technology that have succeeded in achieving desired impact at scale, rather than only locally, are rarer than is often presumed². However, any internet search that combines the terms 'education', 'digital' and 'globalisation' throws up literally millions of hits. So far, computers and other examples of digital technology too often promise more than they deliver.

And yet, it is difficult to imagine that computers in education are not here to stay. Furthermore, the worldwide chaos that COVID-19 has wreaked on much of school education since early in 2019 seems likely only to accelerate the importance of such technologies for learning, even if the roll-out of vaccinations for COVID-19 prove globally successful.

Before focusing on the implications of these new technologies for classroom learning, we can note that schools are complex organisations and there is little doubt that Artificial Intelligence (AI) and other digital technologies will prove increasingly important in non-teaching aspects of education³. Some of these have little to do with the classroom teacher – e.g., improved recruitment procedures for teachers and other staff, better procurement systems for materials used in the school, more accurate registration of students. However, others do – e.g., better design and marking of tests and formal examinations, more valid provision of information about students to their parents/guardians through school reports and so on. It might be thought that these are somehow tangential to the core business of teaching, yet many teachers would be delighted if AI could reduce the time they spend on such activities.

The Personalisation of Education

Some of the claims made for AI in education are extremely unlikely to be realised. For example, Nikolas Kairinos, founder and CEO of Fountech.ai, has been quoted as saying that within twenty years our heads will be boosted with special implants, so, “you won't need to memorise anything”⁴. However, one way in which AI and other instances of digital technologies seem likely to enhance learning is through increasing personalisation of education. Neil Selwyn⁵ traces this approach back to the beginnings of computer-aided instruction in the 1960s. Commercial applications of computer-aided personalisation of learning are becoming more widespread. For example, the Chinese on-line company Squirrel has a valuation of over US\$1 billion. Squirrel has teams of engineers that break down school subjects into the smallest possible conceptual units. Middle school mathematics, for example, is broken into a large number of 'knowledge points'⁶. Once the various knowledge points for a school subject have been determined, how they relate to one another and build on each other are encoded. Video lectures, notes, worked examples, and practice problems are then used to help teach the various knowledge points through on-line software. Squirrel students are not taught by humans.

What is still unclear is the extent to which such approaches will replace teachers. I think that what is more likely than full replacement is that in schools in wealthy countries, they will increasingly be seen as another teaching aid that is useful for (human) teachers to

employ. We should note that while some students will no doubt respond better to humans as teachers, there is anecdotal evidence that some learners prefer software. After all, software can be available for us whenever we want it and doesn't get irritated if we take far longer than most students to get to grips with calculus, the Periodic Table, the history we are supposed to be learning, or whatever.

Ethical Issues about Digital Technologies in Education

Although I think these new digital technologies have much to offer education, there are dangers. It is noteworthy (e.g., the Squirrel example above) that it is much easier to get these new technologies to help with the learning of mathematics and the sciences than the arts and the humanities. There is therefore a concern that the increasing use of digital technologies might lead to a narrowing of the curriculum. We want students to learn a rich curriculum, to become informed and active global citizens. This means encouraging them to take an interest in political affairs at local, national, and global levels from the standpoint of a concern for the general good, and to do this with due regard to values such as freedom, individual autonomy, equal consideration and cooperation⁷.

Another concern is that the coming together of biometrics and AI is leading in some countries to ever more tight tracking of people. Betty Li is a 22-year-old student at a Chinese university. To enter her university sleeping accommodation, she needs to get through scanners. In her classes, facial recognition cameras above the blackboards keep an eye on her and her fellow students' attentiveness⁸. In some Chinese high schools, such cameras are being used to determine at each moment in time whether students are happy, sad, disappointed, angry, scared, surprised, or neutral. At present, it seems that little use is being made of such data but that could change, particularly as the technology advances. Do we want this sort of student tracking?

Conclusions

There is little doubt that AI and other examples of digital technologies will play an increasing role in education. As with any new technology, it will be up to people – governments, teachers and others – to determine how such technologies are permitted to be used. Used well, these technologies might make substantial improvements to how people learn, helping to enable human flourishing; used inappropriately, they could trample on people's freedoms.

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¹ Angela McFarlane, *Growing up Digital: What do we Really Need to Know about Educating the Digital Generation?* (London: Nuffield Foundation, 2019),

<https://www.nuffieldfoundation.org/sites/default/files/files/Growing%20Up%20Digital%20-%20final.pdf>.

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<https://www.globalcitizenshipfoundation.org/ed/the-idea-and-practice-of-education-in-a-digitally-globalized-era/>.

² Toby Baker, Luca Tricarico and Simona Bielli, *Making the Most of Technology in Education: lessons from school systems around the world* (London: Nesta, 2019).

https://media.nesta.org.uk/documents/Making_the_Most_of_Technology_in_Education_03-07-19.pdf.

³ Michael Jonathan Reiss, "The use of AI in education: practicalities and ethical considerations," *London Review of Education* (in press).

⁴ Debbie White, D. (2019) "MEGAMIND: 'Google brain' implants could mean end of school as anyone will be able to learn anything instantly," *The Sun*, March 25, 2019, <https://www.thesun.co.uk/tech/8710836/google-brain-implants-could-mean-end-of-school-as-anyone-will-be-able-to-learn-anything-instantly/>.

⁵ Neil Selwyn, *Should Robots Replace Teachers?* (Cambridge: Polity, 2019).

⁶ Karen Hao, "China has started a grand experiment in AI education. It could reshape how the world learns," *MIT Technology Review*, 2 August 2019, <https://www.technologyreview.com/s/614057/china-squirrel-has-started-a-grand-experiment-in-ai-education-it-could-reshape-how-the/>.

⁷ Michael Jonathan Reiss, "The curriculum arguments of Michael Young and John White," in *Sociology, Curriculum Studies and Professional Knowledge: New perspectives on the work of Michael Young*, eds David Guile, David Lambert and Michael Jonathan Reiss (Abingdon: Routledge, 2018), 121–31.

⁸ Echo Xie, "Artificial intelligence is watching China's students but how well can it really see?" *South China Morning Post*, September 16, 2019, <https://www.scmp.com/news/china/politics/article/3027349/artificial-intelligence-watching-chinas-students-how-well-can>.