

EdTech. A solution looking for a problem?

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This commentary is adapted from Wayne's contribution to the ESRC Education Research Programme event, More or less technology in the classroom – the value and purposes of technology use in schools. Watch the event recording on UCL Mediacentral.

Technologies have long been designed for use in education. However, the 'potential' of this EdTech, especially AI-enabled EdTech, has been frequently overstated and its limitations underexplored. In any case, while EdTech offers 'solutions' to a variety of educational problems, not only do they rarely actually 'solve' the problems that they target, it isn't even clear whether they are the 'right' problems in the first place.

For all the reasons discussed in this post, we need to more clearly establish education's real problems, those that are genuinely affecting teachers and students every day. If EdTech is to be useful, those are the problems that EdTech researchers and developers should be aiming to solve. And then, they should actually solve them.

From the myriad of problems that have been proposed, here I briefly explore some of the most frequently cited. I conclude by suggesting three essential steps.

Teacher workloads

EdTech has long been suggested as a solution to pressures on teachers' time. Probably the earliest well-known example is [B.F. Skinner's 'Teaching Machine'](#), launched in the 1950s, which he promised would reduce the time teachers spent on mundane tasks. In reality, Skinner's machine did no such thing, and nor has any EdTech since (or at least there is no robust evidence that any EdTech has). Instead of reducing teachers' workloads, EdTech tends to displace teacher efforts from one set of activities to another. For example, using Generative AI to write lesson plans often takes more than the time 'saved' to develop multiple prompts and then to make the refinements that the output will inevitably require.

Teacher shortages

EdTech is also often proposed as a solution for teacher shortages. This is particularly so for rural areas of lower income countries. However, such places also rarely have the necessary infrastructure (electricity, Internet access, and IT support). This means that while the immediate student cohort might gain some benefits from a piece of EdTech, the teacher shortage problem isn't solved; it's just kicked down the road. A more effective approach might focus on using technology to enable the adults in those settings to become better trained and better supported, perhaps using AI-enabled systems to facilitate teacher networks that share best practices.

The factory model of education

Another EdTech promise is to move away from the one-size-fits-all factory model of education. The argument is that if platforms like Netflix and Amazon can offer personalised approaches, then education should do the same. However, while some AI-enabled EdTech offer individualised pathways through content, they almost always lead to standardised learning outcomes, which is a very narrow interpretation of personalisation. True personalisation involves enabling each student to achieve their unique potential, which no EdTech even begins to address. It also isn't clear whether EdTech personalisation is ever a good thing, given that it ignores the critical role of social interaction and collaboration in learning.

Poor student outcomes

EdTech is also frequently proposed as a way to improve student outcomes. However, despite decades of EdTech research and development, results remain inconclusive. In fact, [recent reports, including from the OECD, a vocal proponent of EdTech, show that EdTech's impact on academic performance is inconsistent at best](#), with a complex mix of intervening variables at play. Despite heavy investments in EdTech, many countries have not seen notable improvements in student achievement in core subjects like reading, mathematics, or science.

Lack of inclusion

While screen readers and voice recognition can be genuinely helpful for students with some disabilities, unfortunately these assistive technologies have received relatively little attention from EdTech developers. Meanwhile, in other contexts, EdTech can actually exacerbate inclusivity problems, such as the digital divide, increasing inequalities, as many students have insufficient access to the required technologies (such as laptops or the Internet). This is true even of relatively high-income countries like the UK.

Resilience during crises

Following the COVID-19 pandemic, the narrative around EdTech has shifted. Rather than focusing on enhancing education, EdTech is now increasingly being proposed as a solution for education's lack of resilience, as a 'lifeline to learning' or a shield against future disruptions. This is itself worrying given that during the pandemic, as discussed in UNESCO's *An Ed-Tech Tragedy* report, rarely did EdTech enable countries to provide the quality of education to which all children have a human right.

This list of 'problems' that EdTech is supposed to 'solve' could be continued: from behavioural issues and student drop out, to communication breakdowns and campus safety, and the need for students to familiarise themselves with technology as a fundamental skill in today's digital world. We are even told that we need EdTech in classrooms in order to ensure that EdTech in classrooms is as effective as possible. All these additional problems raise further issues, often ethical, sometimes practical, while the possibility that EdTech offers genuine solutions is supported by little evidence.

In fact, while hundreds of small-scale studies have been conducted, large-scale, independent evaluations are virtually non-existent. Moreover, the definition of 'effectiveness' in EdTech remains elusive, making it difficult to assess approaches. There is also an alarming lack of research into the broader impacts of EdTech on students' personal and social development, or on their mental health, or on the ecosystem of the classroom and classroom relationships. EdTech also faces criticism for frequently disempowering teachers ('the computer knows best'), undermining student agency, and contributing to the stealth commercialisation of education (which is supposed to be a common good).

Given this litany of issues, what are the three things we need to do? For me, first, there is a crying need for more rigorous, independent research funded by governments (similar to initiatives like the Netherlands' NOLA). In the UK, this is sadly lacking.

Second, teachers must be supported in becoming critically literate in digital technologies such as AI, particularly concerning technology's impacts on human rights and social justice. This critical literacy is essential for evaluating the implications of EdTech and AI, and for determining whether their use is justified in educational contexts.

And finally, we need legislation to protect learners and educators when engaging with EdTech (this is work I'm contributing to at the Council of Europe), to ensure that technology genuinely enhances the educational experience while protecting young

people's human rights.