Automation in education – is EdTech a threat to public values?

Educational technology (EdTech) plays a growing part in education across Europe. **Orla Lynskey** *writes that while this technology has the potential to help students learn more effectively, it also presents serious challenges for public values such as equality and proportionality.*

Private providers of digital technologies are becoming deeply embedded in the provision of public services in ways that depart from, and exist outside of, traditional public-private partnerships. This is significant as these more informal arrangements sidestep the governance mechanisms established to ensure that public-private partnerships do not jeopardise traditional public values.

The provision of education provides an interesting, if somewhat anomalous, example of this dynamic of pseudo-privatisation through technological collaboration. In England, for instance, education is already subject to a large degree of privatisation, with increasing use of educational technology (or EdTech). Yet there is still much that remains unknown about the way this technology is being used and the potential societal ramifications of its pervasive deployment.

What is EdTech?

EdTech can be defined expansively as the "practice of using technology to support teaching and the effective day-to-day management of education institutions". As such, it covers a huge range of uses including access to school facilities; pupil surveillance and profiling; automated assessment and personalised learning.

The legislative framework for education in England and Wales allows for substantial discretion in how the Department for Education and local education authorities facilitate learning. This has paved the way for the use of digital technologies to achieve these

objectives. Indeed, the Department for Education has emphasised that it considers technology to be an effective tool to achieve multiple aims.

Some of these aims are designed to benefit students directly, including engaging students and communities, supporting excellent teaching and raising student attainment, while others may offer more indirect benefits, such as reducing workload and inefficiencies. The Department for Education's strategy also seeks to promote the role of the UK in developing EdTech technologies, noting that the UK has the "opportunity to build the best EdTech ecosystem in the world". In this way, the role of the state in assuring the provision of suitable education for pupils is blurred with the role it takes on as a facilitator of educational entrepreneurship.

EdTech in English schools

EdTech is being used in diverse ways in English schools. Perhaps the least surprising use of technology in education is its use as educational infrastructure, where it provides a digital platform through which various pedagogic activities can take place. Google, for instance, offers a workspace for education. One component of this is Google Classroom, which is marketed as a platform for "streamlining assignments, boosting collaboration and fostering communication".

An important report by the Digital Futures Commission documents that Google Classroom has been downloaded over 1.34 million times in the UK to date. It was singled out by the Department for Education as a tool for schools to use for remote learning during the pandemic, with 34% of primary school children being asked to use it.

The use of biometric data processing in English schools for identification and authentication offers another example of the use of EdTech in England. The extent to which this data is now used is documented in a recent report by a children's digital rights group. Schools have been among the earliest adopters of this technology and the report highlights that as early as 2011, 30% of schools in England were using student fingerprint data for various purposes.

One of the main providers of this biometric data processing technology is CRB Cunninghams which offers "cashless payment and identification systems" to over 3,000 schools in the UK. CRB Cunninghams provides schools with facial recognition

technology systems. These systems are trained using images of children provided by the school at registration and improved by using images taken at the point of sale so that "the algorithm grows with the child".

There is a legal requirement in the UK to offer a reasonable alternative to biometric data processing where either a parent or a child withholds consent to such processing. Yet, the Defend Digital Me biometrics report suggests that there is no governmental department actively monitoring adherence to this requirement. Overall, acceptance of the use of biometric processing by schools therefore appears to be high: the same report notes that in 2020, a school in Gateshead was offered a free trial of facial recognition technology and all but five of the over 900 pupils at the school signed up. The justification provided for the use of this technology is efficiency: CRB Cunninghams, for instance, notes that it "eliminates the occurrences of lost cards and security system complications".

A third way in which EdTech is being used in schools is for the "personalisation" of education. Conceptions of what constitutes personalisation may vary significantly. For instance, in 2008 it was noted before a Parliamentary Committee in the UK that a survey of 67 schools had identified more than 67 different interpretations of personalisation. We could, for instance, think of personalisation based on learning styles, student choice or adaptive learning (amongst others). Adaptive learning might differ based on personalised learning pathways or competency-based progression.

Century Tech is an example of a commercial provider offering a "personalised" learning platform in England. It conceives as personalisation in terms of personalised learning pathways for students based on an initial assessment of a student's baseline performance of a task. It also provides an overview of student performance for teachers, categorising students into groups deserving of praise, requiring more support or requiring more effort.

The societal implications of EdTech

The deployment of EdTech in schools raises several important issues. First, the use of EdTech has implications for proportionality and human rights compliance. Biometric data processing is typically viewed as a particularly serious interference with the right to respect for privacy, given its unique and inherently personal nature. Human rights courts

insist that its processing is subject to significant safeguards. The widespread processing of biometric data in schools for the sake of convenience appears incompatible with the notion of proportionality, which provides that interference with a right should serve a legitimate aim and should not go beyond what is necessary to achieve that aim.

Second, EdTech inevitably raises accuracy and equality challenges that require attention. Where profiling is used to sort and score children, as is the case with Century Tech, there is an inherent risk of error. For instance, if a student is categorised as requiring “more effort” due to the time they took to complete an exercise, this might mask important underlying reasons (such as an inability to concentrate for prolonged periods or competing demands on their time). Teachers therefore require training to interpret algorithmic recommendations and to ensure their appropriate usage.

While empirical evidence remains lacking on the impact of EdTech on disadvantaged groups, there are signs that its use negatively impacts them to a disproportionate extent. Examples include the requirement in some schools that students who receive free school meals (the poorest students) must enrol with biometric systems to receive their lunch and evidence collected by the Department for Education that the area where schools’ needs are least likely to be met by EdTech is in supporting students with special educational needs and disabilities (SEND). This suggests that the rollout of EdTech in schools should, at a minimum, be accompanied with equality impact assessments.

Finally, the expansion of EdTech entails a shift in dynamics in education with more control and power given to private providers at the expense of the state as a provider of public services. This shift is difficult to perceive and to quantify as it is not governed by formal relationships between EdTech providers and the state or local authorities. Indeed, the decentralisation of competence for the delivery of education to local education authorities may conceal the extent of this shift and contribute to the power asymmetries between EdTech providers and schools.

Yet, we can observe this shift in various guises. EdTech has the power to increase the commercialisation of education from an early age. This is true in the primary market of EdTech provision for schools but also in ancillary markets, for instance by enhancing demand from parents for EdTech. Exposing children to certain brands, interfaces and processing operations at an early age, such as through the familiarity with Google products that stems from the widespread use of Google Classroom, primes children as a

market of potential future consumers. For Google Classroom in particular there is a risk of blurring the boundaries between the core classroom services and additional services (such as YouTube) where the protection offered to children is lower and their data is readily mined.

Such commercialisation is occurring despite apparent unease among students. For instance, according to the Digital Futures Commission EdTech survey conducted in 2022, only a tenth of students thought it was acceptable for apps they use at school to share information about them with other companies. As Baroness Kidron has observed, the "processes and practices of EdTech deliberately, seamlessly and permanently extracts children's data for commercial purposes – purposes that may not be aligned with the best interests of the child, the broader education community or indeed the expectations of society more broadly".

More generally, the very nature of pedagogic exercises can change because of the use of technology in the classroom. Pedagogic theory and empirical evidence suggest that before students can engage with materials critically, for instance by searching for information in a search engine, they must be exposed in a directed way to the fundamentals. The OECD, for instance, concluded in 2016 that greater exposure to such "inquiry-based instruction" (as opposed to teacher-directed practice) is negatively associated with science performance in 56 countries.

Yet, in 2017, the New York Times noted that Google was helping to drive a philosophical change in public education, which de-emphasised the teaching of traditional academic knowledge to prioritise skills-based training. Before introducing technology uncritically to the classroom, it is necessary to revisit the evidence we have about what works for learning from a pedagogic perspective.

EdTech offers opportunities for improved outcomes in the education sector, potentially helping students to learn more effectively and staff to deploy their finite resources more efficiently. However, it also presents serious challenges that go to the heart of public values such as equality, proportionality and the very idea of public services. It is these challenges that the CIVICA DigiPublicValues project was set up to uncover and address.

This article is the third in a series of blog pieces drawing on research from the [DigiPublicValues: Preserving Public Values in Privatised Digital Systems] project – a joint CIVICA research project by the London School of Economics and Political Science (LSE), Università Bocconi, European University Institute and the Hertie School's Centre for Digital Governance. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017201. Please [visit this webpage] for more information on the collaborative research projects funded by CIVICA Research.

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