



**UCL**



# **AI for People & Planet**

*Educating our Children*

## AI for People and Planet – Educating our Children

### Policy Commentary

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#### Executive Summary

The **Artificial Intelligence (AI) for Educating our Children** discussion was organised as part of the UCL roundtable series '[AI for People and Planet](#)'. The aim of this roundtable was to bring together the leading experts in education to assess how the UK education industry can leverage the benefits of AI effectively and to identify strategies for overcoming any obstacles on the way. The purpose of this document is to inform policymakers, entrepreneurs and educators on the opportunities that AI can present to the education sector, but also to alert them of the changes that need to be made to allow the modernisation to progress smoothly.

The key themes highlighted during the discussion included:

1. Inequity in access to and data collected from AI technologies must be addressed in order to ensure systemic inequalities are not exacerbated.
2. Education technology should support the development of agency and self-regulation in students so as to instil values of lifelong learning.
3. Government leadership is important, but teachers, as well as parents, should be closely involved in the process, resulting in bottom-up, market-led innovation, as top-down, government-controlled approaches are likely to be less successful.
4. Forming partnerships between stakeholders, including parents, teachers, software companies and public institutions to create more equitable systems presents an opportunity for co-design moving forward.
5. Senior leadership teams in schools and decision makers must recognise that teachers are crucial in spearheading changes in the classroom.
6. We need to deploy technology in more radical and transformational ways and in order to do so, we need commitment from both teachers and decision makers to break with convention.

These themes are presented in more detail below.

## **Discussion 1: In the wake of the COVID-19 restrictions, where are we now? How can we leverage the radical changes in the uptake of technology within education to progress effectively and leverage the benefits of AI?**

The COVID-19 pandemic and subsequent lockdown measures has restricted access to schooling for an estimated [1.4 billion children](#) worldwide. While AI is well-placed to improve access to education, there are challenges that need to be addressed before these technologies can be integrated into education systems on a wider scale.

Opportunities that AI, learning technologies and data science offer to education include assisting teachers in highlighting learning gaps, analysing large datasets to identify potential points for intervention and scaffolding content to facilitate students' progression. However, these opportunities cannot be fully realised without first considering deep-seated issues of social inequity, as well as inequity in access. The COVID-19 pandemic has deepened existing structural inequalities – a report from the [Institute of Fiscal Studies](#) found that children from poorer families spent 30% less time at home learning than their wealthier counterparts. Proponents of education technology may overlook the function of schools as safety nets for families where parents may struggle with supporting their children's learning from home.

As the UK learns to live with the consequences of the COVID-19 pandemic, **the integration of AI and other technology in education should be central to the Government's ['levelling up' agenda](#)**. The recent [A-level and GCSE results 'fiasco'](#) has demonstrated how the integration of AI to 'level up' has to account for issues of equity and fundamental human rights. Datasets cannot be used to train AI algorithms without a level of human moderation to ensure the representativeness and usefulness of the datasets. Similarly, **the pledge of extending broadband coverage across the country would facilitate the access to education nationwide**.

Currently, we do not have the right policy from the Government to access data from the student constituencies who have the greatest need and thus a question is raised as to how we ensure that the data we gather is genuinely inclusive and representative of all learning abilities. Conversely, the desire to make the datasets fully inclusive, can lead to paralysis, as the sample size may get too large to clean and pre-process efficiently in a sector that is not yet AI savvy. There is also a risk that the time lag between the AI collecting and analysing the data and educators being data literate enough to leverage it may be simply too large to make a meaningful effect. Moreover, drawing conclusions from the data captured may be difficult simply because [learning science](#) as a discipline is still not well-understood by AI developers, and vice versa. However, advancements in the field have demonstrated the opportunities that can be realised when synergies between educators and AI developers takes place. For example, [Lexplore](#), a Swedish company, has developed a system that quickly scans for students at risk and detects dyslexia by tracking reader's eye movements. The company has expanded to the UK and the system is now [supported by the British Dyslexia Association](#).

The overall goal of education is to build a sense of agency and self-regulation in children and young people, allowing them to continue learning throughout their lives. Ideally, **education technology should support the development of agency and self-regulation**. However, in practice, software modelled on the [gamification of learning](#) imparts an extrinsic value for learning (i.e. if I learn this, I get a reward), when the emphasis should instead be placed on teaching an intrinsic value for education to support lifelong learning. AI could support the

education process by monitoring whether children are memorising information for the sake of good grades or an external reward, or are 'learning to learn' instead. However, the mechanisms for this kind of monitoring would need to be developed with the individual's privacy and data protection at the forefront. We should also be mindful of the risk of applying the idea of active, self-directed learning to the students who cannot yet study in such a way and who need further support.

Despite the advances made during the pandemic, the UK's education system remains relatively 'low-tech' and currently focuses on developing routine cognitive thinking in children. While it is not unusual for education systems to lag behind technological progress, a failure to remain abreast coupled with the automatising of many jobs may lead to social crises and issues of unemployment in the future. This is accompanied (not only nationally, but globally) by the rapidly rising costs of education to the taxpayer and decreasing growth in productivity. Working with organisations such as the [OECD's Directorate for Education and Skills](#), which has a cross-cultural and cross-sectoral reach, and private educational software companies, to **introduce technological advances in pedagogy will enable the UK education system to be more resilient and adaptive as it enters the post-COVID-19 era.**

### **Discussion 2: What do we know (evidence, technological gaps, key stakeholders) and what we don't know (policy and business solutions)?**

Determining the remit and structures in which the companies designing educational software should be operating is an important policy area. For example, there is currently a lack of consensus as to whether companies should be competing against each other or working to complement and refine existing products. Education advocates also need to **work with policymakers to facilitate step-changes in schools**. Progression relies on endorsement from the Government, as independent efforts from the market have not been successful to date.

**Government leadership is important, but teachers, as well as parents, should be closely involved in the process, resulting in bottom-up, market-led innovation, as top-down, government-controlled approaches are likely to be less successful.** The teaching community needs to have a chance to act independently, and to be supported to familiarise itself with the new technology and then use it to address core problems. Naturally, involving every teacher and parent in the process from the beginning is likely to be too complicated, so **the integration of AI into education could begin on a small, grassroots scale**, with the acknowledgment of the potential risks the new technology may pose, **before the results are replicated nationwide.**

Working across sectors and **forming partnerships between stakeholders, including parents, teachers, software companies and public institutions to create more equitable systems presents an opportunity for co-design moving forward.** For example, the Government could play a role in funding training on how teachers can incorporate AI technologies in their classroom through high quality CPD days.

### **Discussion 3: What changes are needed? (e.g. funding, regulations, ethics, policy, attitudes) and what difference would these make (to whom, to what)?**

One of the most important changes that the current discourse around modernising education may bring is demonstrating how AI can facilitate progress in schools. Software companies and

educators need to demonstrate how technology can quickly identify current gaps in the quality of schooling, in order to put AI integration at the forefront of education policy in the UK. **A future education group, comprised of different stakeholders, should be established, publishing a green paper on education by 2027.**

A factor contributing to the UK's slow uptake of technology in this area is that the teaching community has not been brought into the process and the lack of professional equality with which teachers are regarded, as opposed to doctors or lawyers. Industry professionals have expressed concerns that the role of the teacher will be diminished to the point of obsolescence if advanced technology is integrated into education. Senior leadership teams in schools and decision makers must **recognise that teachers are crucial in spearheading changes in the classroom**. We need to deploy technology in more radical and transformational ways and in order to do so, we need commitment from both teachers and decision makers to break with convention.

Another crucial change would be to ensure that AI is leveraged, not only for personalising the education process, but also for including the students who would otherwise struggle to access basic education. This can be done through aggregating data to take account of each student's personal circumstances, in order to learn what their needs are. However, this in turn can only be achieved by ensuring that every child has the necessary hardware and software, including a stable broadband connection, to engage with the technology. Otherwise, the attainment gap may only become wider. **Each child in the UK should have an AI teaching assistant, potentially as early as 2026.**

## Conclusion

The AI for Educating our Children roundtable has served as a unique platform for generating ideas from some of the industry's leading experts; the proposals that have emerged are well-placed to become the first steps on the path to the integration of AI into the UK educational system. The discussion has revealed some very important questions, including:

- How can we involve the teaching, student and parent communities in the innovation process and make sure that the change is driven by these stakeholders?
- How do we leverage AI to scaffold children's learning, while avoiding the mistake of over-personalising education?
- How can AI help in creating equitable learning systems and eliminating educational inequalities?
- How do we bring together ideas from AI and learning sciences in ways that create equitable solutions?

An adaptable and advanced education system that supplements the knowledge and expertise of teachers and parents is crucial to ensuring that the next generation of young people in the UK are flexible and attractive to employers in the future. Some challenges remain on the path to improving the learning experience through AI, such as the conservative environment in education, the mismatch between the teachers' skills and the modern technology, or the inherent risk that comes with any innovation. However, provided that discussions like this one can continue producing ideas, we can remain hopeful that obstacles can be overcome.

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