

**Written evidence by Professor Seun Kolade (AIE0050)****Education Committee****The use of Artificial Intelligence and EdTech in Education**

I am Professor of Entrepreneurship and Digital Transformation at Sheffield Business School, Sheffield Hallam University. My recent work has focused on generative AI, teaching and learning, assessment, and the wider challenge of preserving human capability in increasingly AI-mediated environments. This submission draws primarily on that body of work, especially my recent book on generative AI in higher education, my published article on AI and assessment, and my more recent work on generative AI and knowledge production [1]- [3]. I have also designed training materials on Generative AI that have been delivered to hundreds of academics across the world.

This submission makes a simple argument. AI and EdTech should be treated as tools for augmentation, differentiation and better educational design, not as substitutes for teachers, nor as shortcuts that allow learners to bypass the effort through which genuine understanding is formed. Their greatest immediate opportunity lies in supporting more personalised learning, reducing unnecessary workload pressures on educators, and helping the system respond more intelligently to variation in need, pace and aptitude. Their greatest danger lies in over-reliance, deskilling and what I would describe as enfeeblement: the gradual weakening of attention, judgement, persistence and independent thinking when AI becomes a substitute for learning rather than an aid to it.

In my view, the strongest case for educational use is at primary and secondary level, where AI can help teachers manage increasingly diverse classrooms and differentiated learning needs under severe time and staffing constraints. The greatest risk, however, is especially visible in higher education, where generative AI now poses a direct challenge to inherited models of independent coursework, essay writing and knowledge certification. The policy task is therefore not whether to admit AI into education. That question has already been overtaken by events. The real task is to decide what kinds of use should be encouraged, what kinds should be constrained, and what institutional safeguards are needed to ensure that AI strengthens rather than weakens educational purpose.

**1. Opportunities and risks across different stages of education**

The opportunities and risks of AI do not fall evenly across the education system.

In early years settings, the case for direct child-facing AI is limited and should be approached cautiously. At that stage, relational development, language acquisition, play, co-regulation and human interaction remain fundamental. Technology may support practitioners behind the scenes, but it should not displace the primacy of human presence and care.

In primary education, the opportunity is clearer. AI can help teachers adapt materials, vary explanations, support literacy and numeracy practice, and respond more effectively to mixed-attainment classrooms. The central risk is that schools adopt tools too quickly without sufficient thought for child development, screen dependence, data use, or the tendency for technology to become a poor substitute for direct teaching.

In secondary education, the case becomes stronger still. AI can support guided revision, adaptive questioning, alternative explanations, low-stakes feedback, and extension work for more advanced pupils. But so do the risks. There is a real danger of over-reliance, authenticity problems in homework, uneven access outside school, and shallow engagement where students become increasingly skilled at producing answers without necessarily understanding the underlying concepts.

In colleges and universities, the opportunities remain substantial, particularly in feedback, independent study support, simulation, accessibility and lifelong learning. Yet this is also where the challenge to assessment becomes sharpest. Generative AI has made it much easier for students to produce plausible written work at speed. That does not merely create an academic integrity problem. It raises a more fundamental question about what we are trying to assess, and whether inherited methods still do that job well.

**2. Personalised learning and differentiated provision**

The most persuasive educational case for AI lies in personalised learning under teacher direction.

One of the longstanding practical problems in schooling is that a single class often contains a very wide spread of readiness, confidence, pace and cognitive profile. Even highly skilled teachers cannot always produce, in the time available, multiple versions of explanations, tasks, scaffolds and extension activities for every lesson. AI can help close part of that gap.

In my recent work, I have argued that generative AI makes it more feasible to personalise learning materials, explanations, activities and feedback in ways that would otherwise require a prohibitive amount of teacher time [1]. This matters especially in three areas.

The first is tailored support for pupils who need more scaffolding. AI can help educators generate simplified versions of texts, alternative explanations of the same idea, shorter practice activities, multilingual support, vocabulary glossaries, and staged prompts that help learners work towards understanding rather than simply confront difficulty all at once. This is particularly valuable for pupils with lower prior attainment, those learning through English as an additional language, and those who need more structured routes into the curriculum.

The second is more responsive provision for pupils with SEND. AI is not, and should not be treated as, a replacement for specialist professional judgment. But it can support more accessible content design, more flexible presentation formats, chunked instructions, and alternative ways into learning. In our work, we show how AI can be used to generate need-specific content and personalised study pathways for learners with different profiles and barriers [1]. That basic principle travels well into school education, provided it is mediated by teachers and support staff who understand the learner in context.

The third is stretch for more academically able and gifted learners. One weakness of differentiated practice is that support often receives more attention than extension. AI offers a useful corrective. Teachers can use it to produce richer cases, deeper comparative questions, more advanced reading pathways, and more demanding analytical tasks without starting from a blank page each time. That makes it easier to provide higher challenge for pupils who are ready to move faster or think more deeply.

The important caveat is that personalised learning must not become algorithmic streaming. The role of AI should be to expand the teacher's capacity to adapt, not to automate fixed assumptions about what a child can or cannot do. Human judgment must remain central.

### **3. Relieving resource and staffing pressures without compromising quality**

A second major opportunity lies in the resource constraints facing the education system, especially in schools. It is difficult to have a serious conversation about AI in education without recognising the conditions under which many educators are working: high workload, intense administrative burden, staffing pressures, widening behavioural and pastoral demands, and increasing complexity in pupil need.

Here, the key distinction is between routine work and specialist work. In our work on generative AI in education, we make the case that AI is particularly well suited to routine, repetitive and time-intensive tasks such as generating first drafts of lesson plans, quizzes, worksheets, summaries, standard communications and preliminary feedback [1]. By contrast, it is much less suited to the specialist, relational and interpretive parts of education: diagnosing misconceptions in context, mentoring, motivating, managing sensitive conversations, exercising ethical judgment, and creating a classroom culture in which trust and learning can flourish.

That distinction matters because it provides a sensible middle position between two unhelpful extremes. The first is exaggerated optimism that AI can replace educators. The second is exaggerated fear that any use of AI necessarily dehumanises teaching. The better view is that AI can reduce friction in the backstage parts of the job so that teachers, lecturers and practitioners can spend more time on the frontstage work that only humans can do well.

At primary and secondary level, that could make a material difference. If teachers can save time in planning, differentiation of materials, low-stakes formative assessment, first-pass feedback and standardised communication, some of that time can be redirected to direct pupil support, parental engagement, safeguarding and richer pedagogical work. This is one of the clearest ways in which AI could help mitigate personnel resource constraints without compromising the quality or competitiveness of English education.

However, I would stress that this will not happen automatically. Poorly chosen tools can create new burdens rather than remove old ones. Schools and colleges should not be left to navigate a fragmented market alone. There is a strong case for clearer national guidance, trusted procurement pathways, and shared support structures so that institutions are not individually reinventing the wheel.

### **4. The challenge of enfeeblement**

The most underappreciated risk, in my view, is enfeeblement.

By this I mean the weakening of learners' own cognitive and intellectual capacities when AI becomes a habitual substitute for reading, thinking, drafting, interpreting and struggling through difficulty. In our recent work, we identify the risk of mental redundancy and over-dependence where generative AI is treated not as an assistive tool but as an intellectual proxy [1], [3].

This is especially important in higher education, but the issue starts much earlier. If pupils and students become accustomed to outsourcing explanation, synthesis and expression to AI systems, they may become more fluent in producing outputs while becoming less capable of independent judgement. That is not simply an issue of cheating. It is an issue of human formation.

The appropriate response is not prohibition. It is deliberate design. Learners need to be taught how to use AI critically, not merely functionally. They should understand hallucination, bias, over-confidence in generated outputs, the need for

verification, and the difference between using AI to support understanding and using it to avoid understanding altogether.

In practical terms, this means the system should place greater value on those aspects of learning least amenable to shallow outsourcing: discussion, oral defence, application to context, process reflection, problem-solving, comparison, interpretation, and performance under conditions where understanding must be demonstrated rather than merely presented.

## **5. Assessment, authenticity and higher education**

Assessment is the area where AI is already forcing the clearest change.

In our 2024 study, we found that ChatGPT was capable of producing highly original and often high-quality written content in response to typical higher education assessment tasks [2]. The problem here is not only that plagiarism detection becomes less effective. The deeper problem is that many assessment formats, especially unsupervised take-home essays, are becoming less reliable as indicators of what the student actually knows and can do.

This does not mean essays have no future. It does mean their place must be reconsidered.

In the same work, we argue for a broader approach to assessment in which the emphasis shifts from knowledge reproduction alone, or “know what”, towards competence, or “know how”, and performance, or “show how” [2]. That shift is educationally desirable in its own right, but AI makes it more urgent. If generative systems can increasingly perform parts of the knowledge-synthesis task, then education must place greater weight on applied understanding, judgement, performance, and the ability to explain and defend reasoning.

For higher education, I think this points towards a more mixed assessment ecology: more supervised digital assessments where appropriate; more applied and context-rich tasks; more oral defence and presentation; more reflective accounts of process; more portfolios; and, in some fields, greater use of simulations and dynamic scenarios. In our broader work, we also argue that AI-enabled serious games and scenario-based environments may become increasingly useful because they allow assessment of adaptation and performance, not just written output [1].

At school level, the same principle applies in age-appropriate form. Homework, coursework and unsupervised take-home tasks can no longer be treated as if nothing has changed. Schools, awarding bodies and regulators will need to think more carefully about where controlled conditions matter, what can reasonably be completed independently, and how authentic understanding is evidenced when AI is readily available outside school.

## **6. Safeguarding, rights and inequality**

AI in education also raises clear ethical and safeguarding questions.

These include privacy, data use, commercial incentives, manipulation, age-appropriate design, and the possibility that vulnerable learners are either overlooked or disproportionately affected by poor-quality systems. Pupils with SEND, care-experienced children, and those at greater risk of exclusion or exploitation should be especially visible in policy design, not treated as an afterthought.

There is also a substantial equity issue. The benefits of AI are unlikely to be evenly distributed unless policy actively addresses the gap. Differences in device access, home broadband, school type, adult digital literacy and confidence in using AI tools can all shape who benefits and who falls behind. The same is true for home-educated children, who may either benefit greatly from flexible AI-supported learning or face additional disadvantage if access and guidance are weak.

Parents and carers therefore need much better support than they currently receive. If AI becomes more deeply embedded in home-based study, disparities in adult digital literacy will increasingly shape children’s educational outcomes. That is another reason why AI literacy should be treated as a core educational entitlement rather than a niche specialism.

## **7. Government framework and system readiness**

The Government is right to be paying closer attention to AI and EdTech, but in my judgement the current framework is still not sufficiently coherent.

The problem is not the absence of activity. It is the risk of fragmentation. Too much responsibility still sits with individual institutions to make sense of procurement, pedagogy, quality assurance, safeguarding, accessibility, staff development and assessment change all at once. Better-resourced institutions will cope more confidently. Others will lag, improvise or adopt tools without sufficient scrutiny.

What is needed now is a clearer national framework that answers a small number of practical questions. What is AI for at each stage of education? Which forms of use are encouraged, limited or prohibited? What standards should apply to safety, accessibility, bias, privacy and developmental appropriateness? What minimum level of AI literacy should staff

and learners have? How should assessment design evolve? And what shared procurement or evaluation mechanisms can reduce duplication across the system?

Infrastructure also matters. It is not enough for a school or college to have nominal access to technology. Institutions need reliable digital infrastructure, fit-for-purpose tools, trained staff, technical support and enough confidence to implement these tools well. Otherwise, policy will continue to outpace practice.

## Recommendations

I recommend the following eight steps.

1. **Adopt a clear national framework for AI and EdTech by educational stage.** This should distinguish between early years, schools, colleges and universities, and set out expectations around pedagogy, safeguarding, accessibility, procurement, data use and assessment.
2. **Make teacher-mediated personalised learning a central priority in schools:** The strongest educational value lies in using AI to support differentiated teaching for pupils with SEND, lower prior attainment, EAL needs, and high prior attainment.
3. **Use AI to reduce routine workload, not to dilute professional judgement:** The focus should be on lesson planning support, adaptation of materials, low-stakes assessment and standard administration, while preserving the relational and interpretive core of teaching.
4. **Create a national entitlement to AI literacy for both staff and learners:** This should cover prompting, verification, bias, hallucination, privacy, authorship, academic integrity and responsible use.
5. **Accelerate assessment reform, especially in higher education:** The system should move beyond over-reliance on unsupervised written coursework and towards a broader mix of supervised, applied, dialogic and performance-based assessment.
6. **Develop stronger guidance and support for parents and carers:** Family understanding of AI is now part of the equity question, especially where home-based study increasingly involves AI-enabled tools.
7. **Embed safeguarding, accessibility and inclusion by design:** This includes stronger attention to vulnerable learners, clearer expectations around children's data, and routine scrutiny of bias and developmental appropriateness.
8. **Invest in evaluation, not just adoption:** The education system needs ongoing evidence on what actually improves learning, reduces workload and protects human capability, rather than assuming all digital innovation is beneficial by default.

## Conclusion

AI and EdTech can make a significant positive contribution to education in the United Kingdom. They can help teachers differentiate more effectively, support learners more intelligently, widen access, and reduce some of the avoidable pressure on an overstretched system. But those benefits will not flow automatically from adoption.

The key issue is purpose. If AI is used to support better teaching, richer feedback, fairer access and more thoughtful assessment, it can strengthen education. If it is used uncritically, it may encourage dependency, weaken human capability, deepen inequality and make parts of assessment increasingly untrustworthy.

My own view is that UK should proceed with ambition, but with discipline. The country does not need an anti-AI stance in education. It needs a human-centred one. The test should always be whether a given use of AI strengthens the knowledge, confidence, judgement, creativity and agency of learners and educators. That, in the end, is the standard that matters.

## References

- [1] A. Owoseni, O. Kolade, and A. Egbetokun, *Generative AI in Higher Education: Innovation Strategies for Teaching and Learning*. Cham: Palgrave Macmillan, 2024.
- [2] O. Kolade, A. Owoseni, and A. Egbetokun, "Is AI changing learning and assessment as we know it? Evidence from a ChatGPT experiment and a conceptual framework," *Heliyon*, vol. 10, e25953, 2024.
- [3] O. Kolade, A. Egbetokun, and A. Owoseni, *Generative AI in Research: Applications in Research Design, Data Analysis and Feedback*. Palgrave Macmillan, 2026.

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