ROYAL STATISTICAL SOCIETY

DATA | EVIDENCE | DECISIONS

RSS EVIDENCE ON THE USE OF ARTIFICIAL INTELLIGENCE AND EDTECH IN EDUCATION

10 April 2026

1 Introduction

1.1.1 This is the Royal Statistical Society's (RSS) evidence to the Education Committee on the use of Artificial Intelligence and EdTech in education. The RSS is a membership organisation for statisticians and data scientists, and we advocate for the importance of statistics and data. Representing over 12,000 members, we champion the role of statistics and data in society, and work to ensure that policy formulation and decision-making are informed by evidence for the public good.

1.1.2 We believe that statistical literacy is important for all in our society to be able to understand the data and statistics which influence the world around them, and to empower people to meaningfully engage with these statistics. Education should equip students with the skills needed for day-to-day life and the world of work. As the use of Artificial Intelligence proliferates across almost every area of society, transforming how individuals interact with the state, the workplace, leisure, and even their own health, statistical literacy is even more important in ensuring future citizens understand the models underpinning the AI that shapes their lives.[1]

1.1.3 We must be careful not to conflate AI and EdTech. While AI can be embedded within some EdTech, they carry distinct opportunities and challenges. There is much more evidence available on the pedagogical value of EdTech, its impact on inclusion, and barriers to implementation.[2] While both can present challenges, AI raises additional concerns that

[1] Royal Statistical Society (2026). 'AI is Statistics: Why statistical thinking is vital for the effective, ethical and safe use of AI', https://rss.org.uk/RSS/media/File-library/Policy/2026/AI-is-Statistics-FINAL.pdf

[2] For evidence on the use of technology in mathematics education in schools see: A. Clark-Wilson & C. Hoyles (2017). *Dynamic Digital Technologies for Dynamic Mathematics.* UCL IOE Press; A. Clark-Wilson, N. Bretscher, C. Crisan, E. Geraniou, E. Gono, A. Neate & C. Shore (2021). *Learning from the pandemic: capitalising on opportunities and overcoming challenges for mathematics teaching and learning practices with and through technology.* In BSRLM (41); J. Young (2017). Technology-enhanced mathematics instruction: A second-order meta-analysis of 30 years of research. *Educational Research Review,* 22, 19-33.

traditional EdTech does not, including algorithmic bias in assessment, risks of hallucination or generation of harmful content, and risks to academic integrity of take-home assessments. As a result, the use of AI in education requires additional governance, including algorithmic transparency and robust evaluation.

1.1.4 We believe that the overarching principle guiding the use of technology in education is that it should make students more skilled, rather than less skilled, and it should result in increased or improved learning. The incorporation of technology should vary based on the maturity of the learner.

2 Challenges and opportunities

2.1.1 Digital technologies have significant potential in fostering learning and skills development in education.

2.1.2 In statistics and data education, technology can help Key Stage 3-4 students to work with real datasets, explore different visualisation techniques, and understand statistical concepts such as distribution, trends and variation. A Level students use EdTech for modelling, regression and visualising distributions, with schools expected to dedicate time for students to explore a Large Data Set (LDS) in preparation for the A Level Mathematics exam. Software such as CODAP, Desmos, iNZight and GeoGebra are used by teachers to help students engage dynamically with statistics. We strongly support these uses of technology, which demonstrate the real-life application of statistics and aid students' conceptual understanding.[3]

2.1.3 AI has the potential to transform education by personalising learning, supporting students with diverse learning needs, and automating tasks such as marking and giving formative feedback.

2.1.4 A key barrier to the adoption of EdTech and AI in education is the state of digital infrastructure in schools. The RSS is aware of schools which cannot adequately prepare A Level students for the LDS exercise, because teachers report difficulty scheduling access to a computer room or

[3] Royal Statistical Society (2024). 'Key recommendations for the statistics curriculum in the UK', https://rss.org.uk/RSS/media/File-library/Policy/2024/Recommendations-for-statistics-curriculum-in-the-UK-full-paper-final.pdf

connectivity problems. This exacerbates inequalities caused by students' unequal access to devices and internet at home, as students with poor access struggle to participate in tech-enabled homework or access AI tutors, and are less digitally literate overall. Equity must remain at the forefront of considerations when adopting EdTech and AI.

2.1.5 Biases in AI training data carry serious potential risks for the use of AI in education. AI trained on unrepresentative datasets can generate inaccurate or discriminatory outputs for marginalised groups, such as multilingual learners or learners with SEND.[4] In practice, this may result in lower automated grades, or students being nudged towards different academic pathways based on biased thinking.

2.1.6 We believe that there is a clear need for a national policy governing the use of AI in schools. Currently, schools and teachers receive little guidance on when AI should, or should not, be used. Any such policy must be robust enough to keep pace with rapid technological change.

3 The impact on teaching

3.1.1 As AI use becomes more prevalent across society, we believe that the curriculum must place greater emphasis on statistical literacy, to help learners use AI effectively and ethically.[5]

3.1.2 Statistical thinking is essential for using AI responsibly, as it helps individuals to question data quality, understand underlying assumptions, interpret uncertainty and assess limitations. Key statistical concepts such as sampling error, bias, robustness and explainability are now practical skills needed to effectively use and understand AI. It is important that students are taught statistical literacy in the context of a framework for how to verify AI outputs.

3.1.3 The need for students to develop a statistical mindset which empowers them to critically engage with AI outputs is underscored by emerging evidence around how young people

[4] R. Manzoor, W. Hussain & M. L. Anjum (2025). Out of dataset, out of algorithm, out of mind: a critical evaluation of AI bias against disabled people. *AI & Society,* 40, 3941-3951; C. E. Binkley, J. M. Reynolds & A. G. Shuman (2025). Health AI poses distinct harms and potential benefits for disabled people. *Nature Medicine,* 31, 12-13.
[5] Royal Statistical Society (2026). 'AI is Statistics: Why statistical thinking is vital for the effective, ethical and safe use of AI', https://rss.org.uk/RSS/media/File-library/Policy/2026/AI-is-Statistics-FINAL.pdf

engage with AI. Research suggests that one in four teens in England and Wales have turned to AI chatbots for mental health support[6] with over half of teen users of AI companions reporting moderate to compete trust in the information and advice they receive from AI companions.[7] This highlights the urgency of ensuring that students are equipped with the statistical and critical thinking skills needed to navigate AI safely. The RSS, along with the Royal Society, has been campaigning for a maths curriculum that places greater emphasis on data and digital literacy, and using AI safely should be a key part of this broadened curriculum.[8]

3.1.4 Teachers require more support to effectively integrate traditional EdTech, and to teach with AI and about AI. Evidence shows teachers play a pivotal role in successfully integrating EdTech into maths classrooms[9] yet current progress often depends on teachers' personal motivation to adopt new tools. In a survey of 990 secondary mathematics teachers, the most commonly sought form of professional development was for use of digital technology in maths, with over half of teachers reporting a moderate or high need for professional development in this area.[10] To ensure that all students benefit from the integration of technology into education, change must be supported more systematically, through dedicated training and professional development provided by government and school leaders, as well as through changes to assessment practices.

3.1.5 Teachers also need the right infrastructure and resources, meaning that every school must have reliable internet access, robust IT support and enough devices, tools and apps for all students. Additional teaching resources which help students to reflect upon issues such as training data bias are also valuable; there are several examples of good practice across the UK

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[6] Youth Endowment Fund (2025). 'Children, violence and vulnerability 2025: Mental health and experiences of violence', https://youthendowmentfund.org.uk/wp-content/uploads/2025/12/CVV25_R3_Mental_health.pdf
[7] A. McStay & V. Bakir (2026). 'Do AI companions understand? Most UK teens say yes', https://drive.google.com/file/d/1dNte5ZH6prpm1inDQsZnN-N7H_0K4VPA/view
[8] Royal Society (2024). 'A new approach to mathematical and data education', https://royalsociety.org/-/media/policy/projects/maths-futures/mathematical-and-data-education-policy-report.pdf
[9] B. Kissane, A. McConney & K. F. Ho (2015). *Review of the use of technology in mathematics education and the related use of CAS calculators in external examinations and in post school tertiary education settings.* Perth, WA: School Curriculum and Standards Authority.
[10] Observatory for Mathematical Education (2025). 'Review of Mathematical Education 2025', https://www.nottingham.ac.uk/observatory/documents/reports/rome-2025.pdf, p.78.

(https://genedlabs.ai/bias-teachable-moments), USA (https://ai4k12.org/) and Finland (https://www.gen-ai.fi/en).

3.1.6 National policy is needed to guide teachers' use of AI outside the classroom, for tasks such as grading, lesson planning or generating content, to help teachers choose appropriate AI tools for different tasks and inform teachers about how the tools have been evaluated and what the limitations may be. This should provide clear principles for ethical AI use, ensuring that decisions made with AI continue to meet the needs of every child. Teachers should receive the support and guidance necessary to take advantage of tools which reduce the burden of planning, marking and administration tasks, so that they can use AI tools confidently and responsibly, while ensuring accuracy and high quality.

3.1.7 Technology is reshaping the authenticity, reliability and validity of assessment methods. In statistics education, we believe that technology should be used where it adds genuine value, for example in helping students to practice statistical skills on real-world datasets. It would be remiss to revert entirely to traditional exam-only assessment, as a result of risks to the academic integrity of take-home assessment posed by AI. We believe that decisions about technology and assessment must account for the specific needs of different subjects; policies should not be uniformly applied across all disciplines.

4 The impact on learning

4.1.1 We believe that statistical literacy is a fundamental component of digital literacy in an AI world. As AIs become deeply integrated into everyday decision-making, students need the skills to question the data behind the decisions, recognise potential bias and interpret outputs appropriately. Strengthening statistical thinking supports responsible digital citizenship by equipping learners to question AI tools and outputs, understand their limitations and use AI tools critically and responsibly. It encourages an approach to AI-adoption which supplements learners' skills rather than replacing them.

4.1.2 Modern statistics education relies on technology to illustrate real-world data practices, such as data cleaning, modelling and visualisation. Digital tools allow students to work with authentic datasets, explore simulations and understand statistical concepts in ways which are difficult to achieve through paper-based methods alone. We believe that ensuring access to appropriate

EdTech is therefore critical for teaching contemporary statistical methods and preparing students for a data-rich world.[11]

4.1.3 Any increased reliance on technology must acknowledge the persistent inequalities in access to devices, software, and reliable internet—both inside and outside school. Students without consistent access to technology risk falling behind their peers, disadvantaging students from lower socio-economic backgrounds and students living in rural areas. Addressing these disparities is essential for ensuring that no learner is excluded from developing the statistical and digital skills needed to participate fully in an AI-enabled society.

5 Conclusion

5.1.1 There is a clear need for evidence-based policy on the use of EdTech and AI in education, however there are serious knowledge gaps, particularly around AI, which must be addressed.

5.1.2 We urge the Department for Education to coordinate a programme of research which examines how different levels and types of technology use affect learning outcomes. This should include evaluating the distributional impacts of new technologies in the classroom, so that future policy is grounded in robust evidence.

[11] Royal Statistical Society (2024). 'Key recommendations for the statistics curriculum in the UK', https://rss.org.uk/RSS/media/File-library/Policy/2024/Recommendations-for-statistics-curriculum-in-the-UK-full-paper-final.pdf