

A New Era: How Artificial Intelligence (AI) is Supporting Teaching and Learning

The opportunities and challenges of AI in schools and PRUs in Wales and how leaders should respond

Executive summary

This thematic report explores how artificial intelligence (AI), and generative AI (GenAI) in particular, is currently being implemented and its emerging impact in schools and pupil referral units (PRUs) across Wales. The evidence base includes visits to a broad range of schools, conversations with school leaders, teaching staff, and pupils, as well as an extensive survey of staff in schools and PRUs. The report aims to help schools and policymakers understand and address the opportunities and challenges of AI and to provide real-world examples of effective engagement.

The report concludes that a coherent national approach is necessary to ensure the security of data and maximise the potential of AI to support teaching and learning, inclusion and effective leadership in schools and PRUs in Wales, and to mitigate the challenges and risks. This includes clear national guidance and support frameworks alongside structured professional learning. These will be crucial in ensuring that AI enhances teaching and learning: sustainably, equitably, safely and ethically.

Overall, many schools are still in the early stages of exploring AI. In most cases, initial use is driven by individual staff members who have an interest in digital innovation and see the potential benefits of AI on their professional practice. However, a few schools have begun embedding AI strategically within their broader digital strategies and school improvement plans, demonstrating clearly how AI can effectively support teaching and learning and school leadership and management. At present, schools are largely exploring the potential and challenges of AI independently and with limited support and collaboration within and across Wales' 22 local authorities.

Teachers across the sectors included in this review consistently reported substantial workload reductions resulting from AI use, notably in areas such as lesson planning, resource creation, differentiation of learning materials, and report writing. For example, teachers describe how AI-generated scaffolds, worksheets, and creative prompts enable them to focus more on the quality and personalisation of their teaching. In many cases, teachers note how AI allows them to produce better quality resources that are more closely linked to the needs and interests of pupils. Staff in special schools and PRUs particularly highlight the benefits of AI-generated communication stories and bespoke literacy pathways, which enhance engagement and inclusivity for pupils with complex additional learning needs. **Crucially, where the use of AI is proving most beneficial, it is within the context of a clear understanding of effective pedagogy and child development.** However, teachers also highlight concerns that an overreliance on AI could deskill less experienced teachers, for example in ensuring that lessons and activities are well-linked to the next steps in pupils' learning. Digital innovations in education rarely succeed without a clear focus and reflection on the impact on

pupils.

Pupils show interest in the creative opportunities provided by age-appropriate AI tools, especially in primary and special schools. Engagement is strongest when pupils participate in collaborative, creative projects such as digital storytelling, podcasting, and visual arts. At secondary level, pupils use AI effectively for independent learning, including summarising revision notes and generating personalised quiz questions. However, many secondary teachers expressed concerns about potential over-reliance on AI, stressing the need to guide pupils in critical, ethical use of these tools. Leaders stressed the necessity to adhere to malpractice guidance regarding the use of AI in assessments leading to qualifications.

A few schools have integrated AI into their assessment, feedback, and reporting policies. Where this occurs, it is often through individual experimentation rather than strategic planning. Teachers using AI in assessment contexts find it promising for formative feedback and summarising assessment data but consistently emphasise the necessity for professional scrutiny to ensure accuracy and fairness. Some schools have begun using AI to draft letters and pupil reports, substantially reducing administrative workloads, freeing up staff time for more strategic and pupil-focused activities.

Schools increasingly recognise AI's potential to support equity and inclusion, especially for pupils from disadvantaged backgrounds or with additional learning needs. However, there is also the risk of a digital divide, as pupils who can afford paid-for AI tools may gain advantages that others cannot. Despite the potential benefits of AI, schools also identify challenges including limited digital confidence among staff, uneven access to training, ethical concerns around AI bias, and safeguarding and data protection issues. Staff highlight the need for clear guidelines, structured professional learning, and a national approach to ethical AI use.

Strategic leadership in a minority of schools has driven successful AI implementation through comprehensive professional learning and clear policies. In a few cases, collaborative cluster-based professional learning has proven effective in developing staff confidence and a unified approach. In many schools, professional learning around the use of AI has been limited to the informal sharing of practice. While this is beneficial, it has not substantially improved staff confidence compared to strategically driven professional learning programmes.

AI is being used effectively in school administration to streamline routine tasks, such as drafting letters to parents, summarising reports and the creation of new school policies. A few schools have introduced robust procedures to ensure data protection and compliance with General Data Protection Regulation (GDPR) requirements. Overall, however, too many schools that have begun to explore the use of AI remain unclear of their statutory duties regarding the protection of personal data.

In Wales, the Hwb platform and Digital Competence Framework (DCF) have underpinned efforts to embed digital learning and equity since 2012, with recent Welsh Government guidance and training materials further supporting schools, practitioners, and parents to address the opportunities and challenges of AI.

Our recommendations

R1 Develop national guidance on the strategic implementation of AI in education

The Welsh Government should:

- Provide schools and PRUs with clear, up-to-date guidance on the strategic implementation of the

ethical, safe, and inclusive use of AI

- Support this national guidance with model policies, templates, and practical tools to help schools/PRUs develop consistent, compliant approaches to AI use

Local authorities and school improvement services should:

- Support school/PRU leaders in implementing national guidance and embedding AI into digital strategies and improvement plans that align with their overall priorities

Schools and PRUs should:

- Use national guidance to build on local authority support to develop whole-school approaches to the safe, ethical, and inclusive use of AI
- Involve staff, governors, pupils and parents in shaping expectations and practice around the use of AI
- Integrate AI into school improvement planning and digital strategies where there is clear value, aligning with broader aims for teaching, learning and well-being

R2 Ensure high-quality professional learning on AI

Through the National Professional Learning and Leadership Education Wales Body, the Welsh Government should:

- Build on the widespread use of the Hwb platform and the availability of common AI tools across Wales, to co-ordinate a national programme of professional learning and enquiry on AI
- Ensure that the national programme of professional learning on AI supports effective pedagogy and aligns with data protection and safeguarding principles

Local authorities and school improvement services should:

- Deliver the national programme of professional learning on AI and support schools/PRUs to apply it to their context
- Facilitate collaboration and peer support for improvement through AI-focused networks and professional learning communities
- Integrate the use of AI into wider professional learning opportunities to support all aspects of school improvement

Schools and PRUs should:

- Include AI as a focus in their own professional learning programmes, enabling staff to explore how AI can support teaching, learning and school improvement
- Encourage reflective practice on the appropriate use of AI tools to support effective teaching and learning

Initial Teacher Education providers should:

- Prepare student teachers to use AI to support their professional practice and develop their ability to prepare pupils to engage with AI safely, ethically and critically

R3 Ensure that the curriculum provides pupils with the digital literacy skills to engage ethically and critically with AI

The Welsh Government should:

- Update the Digital Competence Framework (DCF) to incorporate AI-related digital literacy, including critical evaluation, ethical understanding and developmentally appropriate guidance for pupils

Local authorities and school improvement services should:

- Provide guidance and examples to support the teaching of AI-related digital literacy across the curriculum, aligned with the updated DCF

Schools and PRUs should:

- Implement the requirements of the DCF to teach pupils the risks, challenges and benefits of AI in education and society
- Use AI tools in teaching and learning only where there is clear evidence of a positive impact on pupils' progress and well-being
- Ensure that pupils develop an understanding of the importance of referencing AI use, its impact on academic integrity, and its potential to limit critical thinking when misused

To address these recommendations effectively, the Welsh Government should establish clear lines of governance and accountability, including a single point of contact with overall responsibility for their implementation. This individual or team should co-ordinate the work of relevant departments within the Welsh Government and external bodies such as Estyn, ensuring a coherent and aligned approach. It will also be important to work closely with the Welsh Government's newly established Strategic Artificial Intelligence Advisory Group to ensure that actions align with national priorities for the development and use of AI. Given the unique and fast-moving challenges presented by the rapid rise of AI, it is essential that these actions are implemented with urgency. Welsh Government should also put in place robust mechanisms to monitor and measure the progress and effectiveness of their response, maintaining a clear and consistent focus on the impact of their actions on learners and the education system.