

2024 Year in Review

In this edition of the Skinny, Professor Rose Luckin examines the past year of AI for education, at what she had previously termed an "AI Gold Rush," with exciting developments appearing almost daily. Amid this rapid pace of change, Rose stresses we must remember to "breathe, think, learn and be wise" if we are to ensure AI truly enhances education for all.

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AI in Education: 2024 Year in Review

Before I launch the new style 2025 Skinny, with its increasing focus on 'What the Research Says' about AI in Education, at [Bett at the end of January](#), I thought it useful to take a quick look back over the past 12 months of The Skinny.

As we look back on 2024, we find ourselves in what I have previously called an "AI Gold Rush," with exciting developments appearing almost daily. But amid this rapid pace of change, we must remember to "breathe, think, learn and be wise" if we are to ensure AI truly enhances education for all.

This year has brought fascinating insights about both the potential and limitations of AI in education. While AI systems show remarkable capabilities in processing information, they mainly remain like a "brain in a vat" - learning differently from humans who experience the world through all their senses. For example, a child learns what a "dog" is through petting, hearing, watching - while AI knows dogs only through words and images. This interesting contrast helps us think about how to best use AI to enhance, rather than simply automate, education.

The landscape of 2024 has been rich with learning opportunities. What's particularly interesting is how today's experiences with AI often confirm principles established through years of careful research. Just as good cooking relies on understanding fundamental techniques, or healthcare builds on established medical knowledge, effective educational technology needs to build on what we already know about how people learn and how AI can best support that learning.

As we enter 2025, there is a lot of energy and activity around AI agents with Microsoft predicting everyone will have a team of agents working for them by early 2025. Agents are systems that can "operate autonomously, perceive their environment, persist over a prolonged time period, adapt to change, and create and pursue goals (Russell & Norvig, 2020)." In principle, these agents can bring educational benefits, but most current "agents" are simply tools wrapped around LLM models and not that sophisticated yet. Current agents also lack common sense, and they highlight a core challenge - how to maintain the crucial human elements of learning in an increasingly automated environment. Even advanced agents struggle with social skills and common sense, achieving at best only a 24% success rate in real-world tasks.

Looking ahead, three key steps can help schools make the most of AI:

- First, taking time to understand both the opportunities and challenges AI brings to education. Educators and institutions can achieve this through workshops, policy development initiatives, and active collaboration with AI researchers to ensure they are well-informed about the potential and limitations of these technologies.**
- Second, learning from both current developments and established research about what makes AI effective in educational settings.**
- Finally, working with experienced partners who understand not just the latest technology, but the principles that help it truly support learning.**

As we reflect on 2024's developments in AI education, it's clear that success comes from thoughtfully combining new technology with tried-and-tested educational principles. The most effective approaches consider the whole context - the environment, people, and tools that shape learning - while building on what research tells us about making AI truly helpful in education. By thoughtfully integrating technology and proven educational principles, we can ensure that AI enhances learning for all, not just a few.

So, as we head into 2025, let's remember that while AI moves quickly, good education is built on timeless principles. By combining the wisdom of experience with the possibilities of innovation, we can ensure that technology serves learning, rather than the other way around.

See you at Bett (and remember to register for a ticket [here](#))!

And to read the rest of the Skinny 2024 Year in Review, read on!

- Professor Rose Luckin, Institute of Education, UCL, January 2025

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Summary of 2024 AI in Education Activity

Government Investment and Institutional Response

1. Key Investments:

- The £4 million content store project is accurate and reflects the government's aim to create a pool of curriculum resources to support AI tools for lesson planning and assessments.
- The up to £2 million allocation to Oak National Academy for AI-powered teaching resources has been publicly announced, emphasizing the creation of accessible resources for all schools.
- The £3 million initiative to train AI systems to improve reliability in marking and lesson planning aligns with efforts to focus on practical AI applications that reduce teacher workload.
- The £1 million competition for AI tools aimed at reducing teacher workload reflects the government's broader commitment to innovation in education.

2. Innovation and Safety:

- The government's dual emphasis on innovation and safety is consistent with statements from ministers. For instance:
 - Lord Patrick Vallance's cybersecurity focus highlights the risks posed by generative AI systems.
 - Peter Kyle's two-pronged strategy for AI regulation and safe implementation demonstrates a commitment to balanced governance, supporting both innovation and ethical use.

3. Research and Public Perception:

- The Department for Science, Innovation, and Technology (DSIT) and the Department for Education have conducted studies to gauge understanding of AI among parents and pupils. Findings of both optimism (e.g., personalised learning) and concerns (e.g., overreliance and data privacy) are consistent with current discussions in public and policy circles.

The Skills Gap Challenge

A concerning trend emerged in adult education, with England experiencing a 47% decline in adult learners between 2010-11 and 2022-23, resulting in a loss of 7 million qualifications. This decline, most pronounced in deprived areas, came precisely when AI-related skills became increasingly crucial for employment. Indeed, by year's end, research showed that 97% of IT jobs paying over £100,000 required AI skills as a core requirement, highlighting the growing digital divide we must address.

Corporate Investment and Innovation

Google.org's £10 million investment through its GenerationAI initiative aimed to reach 200,000 educators, addressing a critical gap where 77% of educators felt unprepared to teach AI skills despite 72% of K-12 students wanting AI guidance. This investment, part of a larger £75 million AI Opportunity Fund, demonstrated the private sector's recognition of education's crucial role in the AI revolution.

The Rise of Alternative Education Models

The year saw significant growth in alternative education models, with home-schooling numbers in England rising from 80,900 in 2022 to 92,000 in 2023. Online schools like Minerva's Virtual Academy experienced dramatic growth, with revenues increasing from £500,000 in 2022 to £4 million in 2024, reflecting growing demand for flexible, technology-enhanced learning options.

Higher Education's AI Integration

A comprehensive survey across 33 UK higher education institutions revealed that while 24% of teaching staff were incorporating AI tools, only 13% received institutional support and 18% received proper training. This highlighted a critical gap between adoption and preparation that institutions must address.

Academic Integrity Challenges

Universities faced unprecedented challenges with AI-related academic misconduct. The Russell Group institutions reported varying levels of incidents, exposing significant disparities in how institutions track and handle these cases. The fragmented approach to managing AI-enabled cheating highlighted the urgent need for standardised approaches to AI detection and prevention in academic settings.

Innovative Educational Tools

Several notable developments emerged in educational technology. Khan Academy's collaboration with Microsoft demonstrated the potential for AI to enhance personalised learning. Google's LearnLM-Tutor, a generative AI model optimised for one-on-one conversational tutoring, showed promising results in early testing at Arizona State University, where students reported finding the AI tutor helpful and accessible.

Looking Forward: The Human Element

As we move into 2025, it's crucial to remember that while AI offers powerful tools for education, it cannot replace the fundamental human aspects of learning. The relationships we build with students remain crucial to successful teaching, and our schools and colleges continue to be vital spaces where young people learn about building successful human relationships and developing essential capabilities like empathy.

Some Key Education Technology News Stories from 2024

January-March

- Research revealed schools as the most trusted entities for AI decision-making in education, with teachers identifying marking, data entry/analysis, and lesson planning as key areas for AI assistance
[\[https://connectedbydata.org/blog/2024/09/05/ai-education-public-attitudes\]](https://connectedbydata.org/blog/2024/09/05/ai-education-public-attitudes)
- Google.org announced £10 million investment through GenerationAI initiative to reach 200,000 educators, addressing a critical gap where 77% of educators felt unprepared to teach AI skills despite 72% of K-12 students wanting AI guidance
[\[https://ascd.org/news-media/google-org-announces-grant-to-iste-ascd-to-launch-generationai\]](https://ascd.org/news-media/google-org-announces-grant-to-iste-ascd-to-launch-generationai)
- Concerns emerged about the UK's adult education landscape, with a 47% decline in adult learners between 2010-11 and 2022-23, resulting in a loss of 7 million qualifications

April-June

- The Center on Reinventing Public Education released "Wicked Opportunities" report, emphasising the need for urgent leadership in shaping AI's impact on student learning, particularly for historically marginalised communities
- Khan Academy collaborated with Microsoft on AI initiatives, with OpenAI co-founder Greg Brockman and Khan Academy founder Sal Khan emphasising the urgent need for AI integration in education

- Google published findings on LearnLM-Tutor, demonstrating success in real-world testing at Arizona State University, where students reported finding the AI tutor helpful and accessible

July-September

- Bill Gates visited First Avenue Elementary School in Newark (July 9), witnessing Khanmigo AI tutor in action and noting its potential for personalised learning
- US Department of Education released comprehensive guidance for AI ed-tech developers (July 11), emphasising that AI should not make decisions unchecked by educators and must be based on evidence-based practices
- NSW Government announced NSWEdUChat (September 16), an AI chat tool designed to help teachers with tasks like producing student resources and correspondence, reportedly saving some teachers more than an hour per week
- David Game College in London launched the pioneering Sabrewing Programme, offering AI-driven adaptive learning for GCSE students with dedicated learning coaches and a focus on life skills

October-December

- Book Creator revealed its measured approach to AI integration, focusing on the "6Cs": Creativity, Collaboration, Critical Thinking, Communication, Citizenship and Character [<https://bookcreator.com/2024/10/when-will-book-creator-have-ai-in-it/>]
- Survey across 33 UK higher education institutions revealed concerning gaps in AI support, with only 24% of teaching staff incorporating AI tools, 13% receiving institutional support, and 18% receiving proper training [<https://www.timeshighereducation.com/news/one-four-uk-lecturers-now-using-ai-tools-teaching>]
- Universities faced unprecedented surge in AI-related academic misconduct, with Russell Group institutions reporting varying levels of incidents and struggling with centralised record-keeping [<https://www.timeshighereducation.com/news/student-ai-cheating-cases-soar-uk-universities>]
- Parents sued school in Massachusetts after son punished for using AI on paper, highlighting the challenges schools face in developing clear AI policies [<https://abcnews.go.com/US/parents-sue-school-massachusetts-after-son-punished-ai/story?id=114819025>]
- Research by major tech companies revealed significant developments in AI education tools, including improved benchmarks for testing AI models' abilities in coding, language skills, and math problem-solving
- Scale AI introduced new leaderboards for evaluating AI models' educational capabilities, while researchers developed new benchmarks for testing agentic behaviours in AI, particularly in workplace scenarios