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Generative Artificial Intelligence in the Education System

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This research paper considers the emergence of generative AI (GenAI) technology. It examines the regulatory landscape and policy approaches towards GenAI in education at the global, UK and Northern Ireland level. It outlines the opportunities and challenges to Northern Ireland's education system in light of current research and stakeholder perspectives.

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Key Points

- **What is GenAI?**

Generative AI (GenAI) is a type of artificial intelligence that goes beyond traditional AI by generating new content, like text, images, or code, based on the data it has been trained on. This makes it different from traditional AI which is typically used for tasks like identifying patterns or making predictions.

- **The UK's decentralised approach to regulating AI**

The UK, EU, and USA take differing stances on AI regulation, with the UK focusing on a flexible, decentralised 'pro-innovation' approach, the EU introducing a comprehensive risk-based framework with the EU AI Act, and the USA relying primarily on voluntary guidelines and frameworks, likely to be further deregulated with the incoming Republican administration.

- **Navigating devolved and reserved matters**

The devolved nature of education policy in Northern Ireland, combined with the UK-wide approach to AI regulation (at present being followed by Northern Ireland), creates a complex landscape for policymakers. Clarity and coordination are needed to ensure that AI is regulated effectively in education.

- **The use of GenAI is prevalent in education**

The use of GenAI is rapidly increasing in education, with a majority of children and a significant portion of teachers in the UK reporting to have already used it. This necessitates a proactive approach to policymaking to consider the implications of this technology.

- **Double-edged sword**

GenAI presents both exciting opportunities and significant challenges for education. Policymakers need to consider both sides carefully when developing regulations.

- **Potential to transform teaching**

GenAI can increase teacher efficiency by automating tasks like lesson planning, grading, and providing feedback. This could free up teacher time for more direct student interaction and support which is believed will improve student outcomes.

- **Personalised learning for all**

GenAI can act as a "virtual tutor", providing students with personalised learning experiences tailored to their individual needs and learning styles. This can be especially beneficial for students who need extra support or have special educational needs.

- **Risks of over-reliance**

There is a risk that over-reliance on GenAI could hinder the development of critical thinking, problem-solving, and creative skills in students. AI should support the learning process rather than being used to bypass it.

- **Combating misinformation and bias**

GenAI is prone to producing inaccurate or biased information, sometimes referred to as "hallucinations". Policymakers need to address the risk of students encountering and disseminating misinformation generated by AI. GenAI systems can reflect and amplify existing biases present in the data they are trained on. Policymakers need to ensure that AI used in education is fair, unbiased, and does not perpetuate existing inequalities.

- **Safeguarding student data**

The use of GenAI in education raises concerns about student data privacy and security. Institutions need to ensure that student data is protected and used responsibly.

- **Preparing for the future**

AI tools could change *how* and *what* we teach in the near future. Policymakers should consider integrating AI education into the curriculum and providing teacher training to equip students and educators with the knowledge and skills they need to thrive in a world where AI is prevalent.

Executive Summary

This research paper examines the emergence of generative AI (GenAI) technology and finds that it is increasingly prevalent in education, presenting opportunities like increased teacher efficiency, personalised learning experiences, and the breaking down of structural barriers to education. On the flip side, GenAI also raises challenges such as the potential for over-reliance, the spread of misinformation, the exacerbation of existing biases, privacy and security concerns, a widening of the digital divide, and academic integrity issues.

As of the beginning of 2025, the UK is following a "pro-innovation and pro-safety" approach to AI regulation. Regulation of AI is a complex matter spanning both devolved and reserved matters. As education is devolved, Northern Ireland has some autonomy in setting policy, creating a complex situation requiring navigation of both UK-wide and devolved regulations. As highlighted in the paper, whether GenAI improves or disrupts the education system likely depends on the introduction of good policies and governance.

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1 Introduction

1.1 What is GenAI?

[Artificial Intelligence](#), one of the UK's 'five key technologies of tomorrow' according to the previous Government's [Science and Technology Framework](#), generally refers to computational technology that uses complex algorithms to perform functions that traditionally would require human intelligence. Generative AI, henceforth GenAI, improves on 'traditional' AI through 'neural networks' and training on large datasets, allowing GenAI to *generate* new information outside of the input data it has been provided with. [Large Language Models](#) (LLMs) are one popular kind of GenAI tool that are trained on large volumes of text (often from the internet), allowing them to generate human-like text used to write essays, answer questions, or translate a text. For example, a traditional AI tool could be used to identify spelling mistakes in an essay, whereas a GenAI LLM tool could be used to write the entire essay, read it, and critique itself. A history of GenAI is detailed in this 2024 IBM [article](#), a visual guide to how LLMs work can be found in this 2023 *Financial Times* [report](#) and a useful list of key AI terms can be found in the appendix of this paper.

The use of GenAI in the education system has recently come to the fore of public, academic, and political debate. In the past year, GenAI has been popularised by the rise of open access tools, such as the [OpenAI chatbot 'ChatGPT'](#) in 2022. ChatGPT, in addition to other tools such as [Anthropic's Claude](#), [Microsoft's CoPilot](#), and [Google's Gemini](#), can understand and respond to questions and is capable of quickly writing essays [often indistinguishable](#) from those written by a real human.

The field of GenAI is evolving at a rapid rate and is having an unprecedented impact on a number of sectors and industries, with PwC estimating Northern Ireland will experience a [5.4% GDP increase](#) by 2030 as result of AI. A 2024 [report](#) by Deloitte estimates that 14% of the UK

population have used GenAI as part of their work, an increase of 6% from 2023. With an [increasing demand](#) for digital literacy in several professions, hands-on experience and critical thinking skills are increasingly needed to use and interpret GenAI tools, which at this current rate, could revolutionise society at the scale of other past technological advances such as with the introduction of the internet. Education is predicted to be one of the sectors [most affected](#) by GenAI, with changes to how education takes place and the role of teachers.

The reported use of GenAI technology by students and teachers alike has raised opportunities, challenges, and new ethical considerations for the education system and for policymakers. What does the future of education look like given this powerful technology? How will GenAI affect the role of teachers in schools? What are the effects of GenAI on student creativity and independent thinking? How can we assess students in the world of GenAI?

1.2 GenAI is prevalent in education

A National Literacy Trust [survey](#) of 15,830 children (ages 13 to 18) in the UK found a large increase of usage of GenAI between 2023 and 2024, rising from 37% to 77% of children having used GenAI. In addition, [25% of UK teachers suspected students of using GenAI](#) to complete homework in 2024, a large increase from 6% in 2023.

Even higher rates of GenAI usage are seen in the higher education sector, with a 2024 [survey](#) by the Digital Education Council finding that 86% of university students claim to use GenAI in their studies, with a quarter reporting to use GenAI on a daily basis.

Teachers appear to lag behind the students in their use of GenAI tools. A [survey](#) by TeacherTapp in November 2023 found that 42% of primary and secondary school teachers in the UK have made use of GenAI to help with work-related activities. The National Literacy Trust [survey](#) also found

an increase in teachers using GenAI, from 31% in 2023 to 48% in 2024. The study found that secondary school teachers were twice as likely to be using AI compared to primary school teachers (57% vs 31%).

Looking specifically at Northern Ireland, a 2024 [survey](#) by The Royal Society of Chemistry suggests that Northern Ireland has a slightly lower rate of teacher uptake than the rest of the UK and the Republic of Ireland, with 33% of Northern Irish teachers reporting having used AI in the classroom (however, it is worth noting the low sample size for Northern Ireland in this study, n=46).

Altogether, this data showcases that GenAI is prevalent and increasing in all stages of the education system for both students and teachers alike.

Despite [research](#) suggesting potential job losses in some sectors as a result of GenAI, it is predicted by PwC and others to result in [net job gains](#) in the education sector. It is also of note that the impact of GenAI on jobs is likely to [vary based on educational levels](#), with net job losses for 'non-higher education' jobs and net gains for those with a degree.

The Department of Education is aware of the rise of GenAI in education:

“Artificial Intelligence (AI) is in use, to a greater or lesser extent, in almost every activity.”

“AI has the potential to transform the delivery of the Northern Ireland Curriculum. It can support curriculum planning, create interactive learning environments, and provide real-time assessments and feedback, helping students understand their progress and areas for improvement. AI-powered language learning tools can assist in teaching new languages, reading, and writing skills, adapting to the learner's pace and proficiency. However, it is important to note the risks associated with the use of AI to support the delivery of the Northern Ireland Curriculum, namely that content produced by AI can be inaccurate, inappropriate or biased.”

Paul Givan MLA – Minister for Education, [06/06/2024](#)

2 GenAI regulation in the UK, EU and the USA

2.1 The UK approach to AI regulation

Before looking specifically at the future opportunities and challenges and policy changes that may arise from use of GenAI technology in the education system, it is first worth considering the various approaches to regulating AI more broadly.

With AI affecting complex and wide-reaching areas of policy, both devolved and reserved, Northern Ireland is currently following a wider UK approach set in Whitehall. In the [2021 National AI Strategy](#), the previous Conservative Government set out its ambition to create the ‘most trusted and pro-innovation system for AI governance in the world’. A [2023 White Paper](#) expands on this approach by establishing the UK’s plans for a ‘pro-innovation approach to AI regulation’. In [response](#) to the White Paper consultation in February 2024, the approach is now also described as ‘pro-safety’ to recognise the importance of public trust in AI systems and is based on five non-statutory principles:

- Safety, Security and Robustness
- Appropriate Transparency and ‘Explainability’
- Fairness
- Accountability and Governance
- Contestability and Redress

As set out in the White Paper, this ‘pro-innovation and pro-safety’ approach entails a decentralised regulatory system, with responsibility given to regulatory bodies to decide on policies within their individual responsibilities and relying on existing legal frameworks such as the [Equalities Act 2010](#) (In Northern Ireland, [Section 75 of the Northern](#)

[Ireland Act 1998](#)), the [Data Protection Act 2018](#) and the [Online Safety Act 2023](#). This approach intends to allow for flexibility in policy making that can adapt to the rapid pace of AI development as opposed to a one-size-fits-all approach. As a result, the UK appears to be following a [middle path](#) between the more laissez-faire approach of the USA and the more regulatory approach of the EU's new EU AI Act.

The White Paper also recognises AI as one of the 'five key technologies of tomorrow' identified in the [UK's Science and Technology Framework 2023](#) stating that:

"Education policy must prioritise equipping children with the skills to succeed in a world where AI is ubiquitous".

In November 2023, the UK hosted representatives from 28 countries and the EU, who met in the first intergovernmental meeting on AI, resulting in the signing of [The Bletchley Declaration](#):

'AI presents enormous global opportunities: it has the potential to transform and enhance human wellbeing, peace and prosperity. To realise this, we affirm that, for the good of all, AI should be designed, developed, deployed, and used, in a manner that is safe, in such a way as to be human-centric, trustworthy and responsible.'

The UK is also engaging in multinational governance frameworks. For example, in March 2024 the Digital Ministers of each G7 country made a [joint declaration](#) towards the development of a 'toolkit for artificial intelligence in the public sector' taking into account recommendations from the [OECD](#) and [UNESCO](#). UNESCO has specifically published its own [guidance](#) for the regulation of AI in the education sector.

With the formation of a new Labour Government in July 2024 came a change in [tone](#) regarding the regulation of AI, which in practice appears to follow the ‘pro-innovation’ approach set out in the White Paper. In its manifesto, Labour [proposed to take advantage of AI](#) to modernise aspects of the public sector such as in healthcare. In his ‘[Plan for Change](#)’ speech on the 5th of December 2024, Prime Minister Kier Starmer claimed that AI presents an “unprecedented opportunity” for the UK to “rethink services”. This AI transformation will be delivered in part by the new [Regulatory Innovation Office](#) (RIO) established to [ensure the safety of powerful AI models](#) developed by large companies and to ‘speed up public access to new technologies’. [The RIO will not regulate AI](#), with regulation remaining a matter for smaller regulatory bodies.

“AI is at the heart of the Government’s plan to kickstart an era of economic growth, transform how we deliver public services, and boost living standards for working people across the country. My ambition is to drive adoption of AI, ensuring it is safely and responsibly developed and deployed across Britain, with the benefits shared widely.”

Peter Kyle MP, Secretary of State (DSIT), [06/11/2024](#)

According to The Secretary of State for Science, Innovation and Technology, Peter Kyle MP, the Government will present a [Bill of AI Regulation](#) in 2025, developing a new legal framework, strengthening infrastructure, and targeting large companies developing powerful ‘[frontier AI](#)’ models. The regulation shall:

“[...] be highly targeted and will support growth and innovation by ending regulatory uncertainty for AI developers, strengthening public trust, and boosting business confidence. [It] will avoid creating new rules for those using AI and will instead apply to the small number of developers of the most powerful AI models with a focus on the AI systems of tomorrow and not today.”

Peter Kyle MP, Secretary of State (DSIT), [26/07/2024](#)

On the in January 2025, the Prime Minister gave his full backing of AI adoption in public services, stating it should be '[mainlined in the UK's veins](#)' and agreeing to take forward all 50 recommendations set out in the [AI Opportunities Action Plan](#) to boost AI job creation and economic growth, stating:

Artificial Intelligence is the defining opportunity of our generation. It is not a technology that is coming; a future revolution on the horizon. It is already here, materially changing lives – preventing illness in our NHS, creating exciting new companies in our economy, pushing the boundaries of scientific discovery in our universities. It will turbocharge every mission in this government's [Plan for Change](#). And the potential for further innovation is vast.

Prime Minister Kier Starmer, [13/01/2025](#)

Some highlights of the plan include:

Artificial intelligence will be unleashed across the UK to deliver a decade of national renewal, under a new plan.

- AI to drive the [Plan for Change](#), helping turbocharge growth and boost living standards
- Public sector to spend less time doing admin and more time delivering the services working people rely on
- Dedicated AI Growth Zones to speed up planning for AI infrastructure
- £14 billion and 13,250 jobs committed by private leading tech firms following AI Action Plan

Peter Kyle MP, Secretary of State (DSIT), [13/01/2025](#)

Outside of the Government, there are a number of other well established institutions working on generating guidelines and public policy recommendations such as the Alan Turing Institute's [AI Ethics and Safety Guide](#) and the Ada Lovelace Institute's reports on [Regulating AI in the UK](#) and [Lessons for AI Regulation](#). In addition to AI policy institutes, the Trades Union Congress (TUC) has also developed [recommendations](#) to change legislation to protect workers from some of the negative effects of AI. Some think tanks, such as AI Now, [criticise the UK's approach to AI](#), arguing that its focus on 'winning the AI arms race' and the lack of consistent industrial strategy risk the UK not producing policy that directs AI towards fulfilling its national goals or centering the public interest.

2.2 GenAI in education spans devolved and reserved matters

The UK Government's White Paper states that its AI policy is intended to apply to the whole of the UK:

"Regulatory framework to apply to the whole of the United Kingdom subject to existing exemptions and derogations for unique operating requirement, such as defence and national security."

However, as the UK has adopted a sector-led approach to regulation, the devolved nations, including Northern Ireland, have autonomy to set their own policy on devolved matters. Education is a devolved matter; however, some aspects within education, like data protection, are reserved for the UK parliament. This makes regulation of AI complex for devolved nations, having to navigate UK reserved matters, and various regulatory bodies in Northern Ireland and elsewhere. [Research](#) by the University of Oxford suggests that AI could be a potentially difficult area to regulate between central and devolved governments.

The UK Government says it is ‘[committing to engage with devolved administrations on both the design and delivery of the regulatory framework](#)’ but may only develop comprehensive AI policy with the consent of the Northern Ireland Assembly or by breaking the [Sewel convention](#). To complicate matters further,

“Given that AI is a general-purpose technology that impacts multiple reserved and devolved powers, including contentious and ambiguously devolved equalities and human rights issues, there is a risk of misalignment in the approaches taken by Westminster and devolved administrations. This could materialise through either a devolved nation introducing an AI-specific regulation that Westminster deems to encroach on reserved powers or through disagreements between newly established central Government AI functions and devolved regulators. There is a notable difference between the UK central Government’s “pro-innovation” emphasis and Scotland’s “ethical digital nation” (Edinburgh Innovations, 2022), leaving such disagreements as more than hypotheticals. These internal tensions may prove challenging for Westminster’s “pro-innovation” vision for UK AI governance.”

[Roberts et al., 2023](#). University of Oxford.

Points to Consider

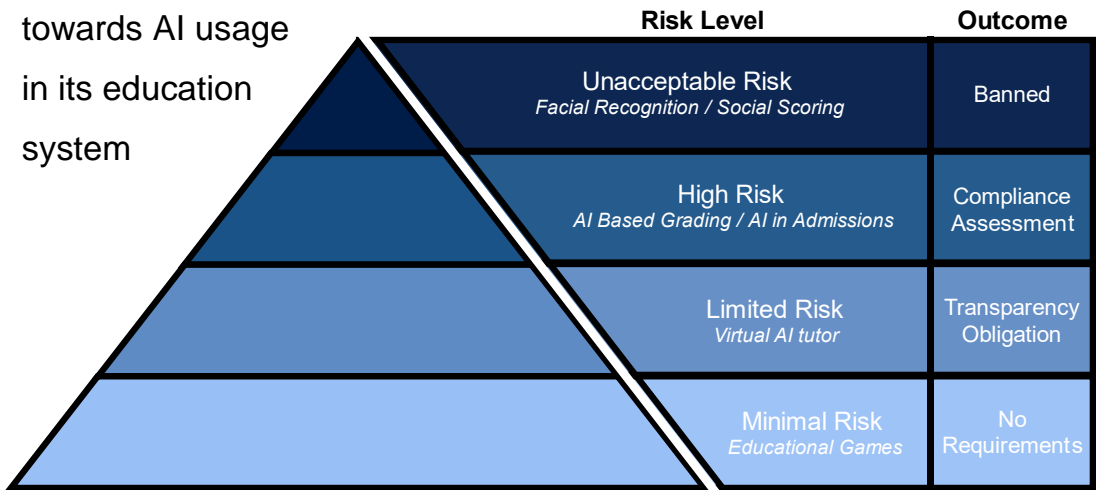
1. To what extent is the Department of Education collaborating with expert AI institutes or with universities to better understand AI in Northern Ireland’s primary, secondary and higher education systems?

2. The UK Government has committed to engage with the devolved nations on AI policy. To what extent have these discussions begun?

3. Does the Northern Ireland Executive agree with the current UK-wide approach to AI regulation?

2.3 The EU approach to AI regulation

The EU's [Artificial Intelligence Act](#) (EU AI Act) aims to create a unified framework for AI systems in the EU, ensuring trustworthy and human-centric AI, with a focus on protecting fundamental rights. The Act has successfully passed through the [European Parliament](#) and [European Council](#). It introduces a [risk-based approach](#), with four categories – unacceptable, high-risk, limited-risk or minimal-risk, with risk defined as ‘systems that pose a significant risk to health, safety, or fundamental rights’. The greater the risk an AI application poses, the stricter the regulation and assessments required for compliance. Applications of minimal or limited risk face few requirements or obligations for transparency of their code. Some AI functions are deemed unacceptable and are outright banned. The more comprehensive approach of the EU to AI regulation will significantly impact the education sector in EU countries. Some elements of the EU AI Act [may apply to some Northern Ireland goods](#) under the [Windsor Framework](#), however, Northern Ireland policy



The risk-based approach to AI regulation in the EU AI Act

remains independent.

Many AI applications in education fall under the 'high risk' category of the EU AI Act. Some implications of the Act relevant to the education sector are provided below:

- [Article 6](#) designates AI systems used in [admissions, grading, and monitoring student behaviour](#) during tests as 'high-risk', meaning that providers and deployers of such systems must comply with the Act's stricter requirements, including risk assessment and management, technical documentation, transparency, human oversight, and accuracy, robustness, and cybersecurity.
- [Article 4](#) mandates a sufficient level of [AI literacy](#) for all staff and persons operating AI systems and will require training of operators on ethics in addition to organisational guidance.
- Transparency requirements outlined in the Act aim to provide insight into the functioning and limitations of AI systems to address concerns about bias. This aspect is relevant to education, where AI-based tools are increasingly used for tasks like grading or personalised learning.
- The Act builds upon existing data protection laws such as GDPR. Schools could be required to keep logs about the AI systems they use, including the period of each use, the reference database, the input data, and the output – this approach risks constraining school time and resource.
- The Act introduces the concept of "[general-purpose AI models](#)" such as ChatGPT, which can be adapted for various purposes. The European Commission is developing a separate Code of Practice for these models. This is of note

given that these models are already prevalent and incorporated into various educational tools.

2.4 The USA approach to AI regulation

In comparison to the UK and EU, the USA is taking a softer approach to regulation, relying primarily on guidelines, frameworks, and voluntary measures to guide the development and deployment of AI systems as opposed to legally enforced requirements at the federal level. The USA currently relies on 'soft law' standards like the [Blueprint for an AI Bill of Rights](#) and the [Executive Order on the Development of Safe AI](#) which outlines principles for ethical AI development and mandates specific actions for federal agencies to minimise the risks of AI. One such mandate was the creation of an [AI toolkit](#) for educators on the responsible use of AI in education. Released in October 2024, the guidance does not introduce new regulations, but rather reiterates existing regulations and regulatory bodies, in an approach similar to the UK. In addition the [US Department of Education](#) offers guidance for ethical use of AI in schools.

Other key regulations in the USA of AI include [The CHIPS and Science Act 2022](#) which allocates funding for research on AI and the [Algorithmic Accountability Act 2022](#) which requires the [Federal Trade Commission](#) to protect consumers and business from 'unfair' and 'deceptive' activities using AI. These principles cover similar topics addressed in the EU AI Act, however, in general tends to rely on *encouraging* businesses to comply rather than *enforcing* compliance. In addition to the federal Government, individual states may decide to introduce their own regulations - [45 states](#) (as of September 2024) have enacted statewide AI legislation, resulting in a [patchwork of regulation](#) across the USA.

The USA's approach to regulating AI remains in question with the Republican administration's [deregulatory agenda](#) (including Trump's cancellation of [Biden's AI Executive Order](#)).

More information on AI usage and frameworks in the USA is detailed in the December 2024 [bipartisan House of Congress AI Report](#).

3 Opportunities of GenAI in education

3.1 Increasing teacher efficiency

A 2018 [survey](#) found that full-time secondary school teachers in the UK spend an average of 20 hours per week on non-teaching administration - roughly equal to the time spent teaching. GenAI is being used by some teachers to [streamline](#) administrative functions, [plan lessons](#), and [mark essays](#), allowing [more energy to be put into teaching](#). A 2020 [report](#) by McKinsey & Company suggests that 20-30% of teacher time could be reallocated through use of AI tools in tasks such as grading, lesson planning and student feedback. AI can provide efficiency for students, who receive immediate feedback when marked by GenAI.

Although GenAI has the potential to dramatically improve teacher efficiency, there are concerns that the system is currently not harnessing it to its greatest effect. A 2024 [survey](#) of 691 teachers using GenAI in the classroom in the UK and Republic of Ireland found that only 3% believed that GenAI had 'greatly' reduced their workload. A further 57% believed GenAI has 'somewhat' or 'slightly' reduced their workload, and 39% believing GenAI has not reduced workload whatsoever. Common criticisms were the time needed to learn how to use AI and the time it takes correcting incorrect GenAI produced content. A second 2024 YouGov [survey](#) of 1,012 teachers found that almost two thirds (64%) felt that at present AI is too unreliable to help with lesson planning.

Points to Consider

4. What specific training is the Department of Education offering to teachers on the effective and ethical use of AI in the classroom?

5. How confident are teachers in using AI tools?
6. Which AI tools are most accurate for use by teachers, to minimise the time needed to fact check the content?

3.2 A personal GenAI tutor for all students

Homework completed on AI platforms, with or without teacher oversight, can provide real-time feedback and act as a space for students to ask questions outside of classroom pressures. In this way, a ‘virtual GenAI tutor’ could potentially help students who are behind in class.

GenAI platforms, such as the UK-based [‘Century’](#), use data to get to [know each student individually](#), their interests and their strengths and weaknesses. This allows a chatbot to identify an area the student struggles with, e.g. algebra, and explain it in a way that engages them, e.g. if the student is interested in space, the question could be on spaceships. This provides the student with a specific example of why a particular topic is relevant to them and provides them with [engaging questions, problems, and games](#) that they are more interested in solving.

Large studies on the impact of GenAI on student intelligence and grades are lacking; however, a 2023 [survey](#) of 500 secondary school pupils in the UK found that 68% believe they're getting better grades as a result of AI assistance. A 2024 [paper](#), still in the peer-review phase, found that AI tutoring of Harvard undergraduates taught them twice as much, in less time, than active tutoring within a group setting. While impressive, it is questionable as to whether Harvard undergraduates are representative of students in the education system at large.

3.3 Breaking down structural barriers to education

Some stakeholders argue that [GenAI helps to level the educational playing field](#) by providing every student with individualised learning. This means that students who would not usually have access to additional in-

person tutoring, or students in schools lacking the time and resources to provide additional support, now have access to a GenAI tutor.

This personalised approach may be particularly effective for [SEN children](#) who may struggle in traditional classroom settings. A GenAI personal tutor, perhaps even trained on LLMs specifically designed for [SEN education and accessibility](#), could act to teach the curriculum in ways adapted to the needs of the individual. GenAI has already been applied in applications like [BookMate](#) to assist the education of students with Autism.

3.4 Language learning

An area in which GenAI has proven success is in its approach to language learning. A major challenge with language learning in the UK is the lack of opportunities to engage in conversations with native speakers. GenAI capabilities allow for conversation, with [many GenAIs able to speak a range of languages fluently](#). These tools could be used to aid in language classes, and perhaps are particularly useful for integration of newcomer populations like asylum seekers who may struggle with language barriers. Furthermore, there is great interest in using GenAI to [preserve and revive languages](#), dialects, and cultural identities facing decline.

One commonly known language learning tool is Duolingo, which [claims](#) to be as effective as five semesters of university language classes. Duolingo has recently released its new GenAI based conversation tool, [Duolingo Max](#), which can be used to roleplay real-life conversations and personalise the language learning process. The problem is that many of these new GenAI capabilities, such as Duolingo Max, sit behind a paywall, meaning that its language learning benefits are inaccessible to many. This is one example of the challenges that GenAI raises in education, the digital divide, discussed in the following chapter.

4 Challenges of GenAI in education

4.1 Digital inequality

Although AI could act to remove some structural barriers to education, some experts [argue](#) that without intervention, AI could make education less equal by widening the digital divide. According to [Digital Nation](#), in 2024, 600,000 students in the UK did not have access to reliable internet or a suitable device to learn on at home. A [survey](#) of 24,000 students in further education found that 14% did not have access to a suitable device required for hybrid learning.

Even for students who do have access to the internet, some of the more sophisticated GenAI tools are behind a paywall, meaning that the benefits of GenAI-enhanced education may fall along socioeconomic status. Currently, many major GenAI tools like ChatGPT have open access versions; however, more specialist educational technology GenAI's require subscriptions that some schools may not be able to afford. For instance, while ChatGPT 3.5 is free, the more powerful ChatGPT 4.0 requires a £20 monthly subscription. [Private schools](#) can take advantage of GenAI subscription technology which would widen the gap between private and public schooling further.

The National Literacy Trust [survey](#) of children ages 8-18 found that those students with FSM (Free School Meal Entitlement, a common indicator of social deprivation) and non-FSM children did not show major differences in rates of GenAI usage. This suggests that at present GenAI access is perhaps equitable across socioeconomic lines – this however does not equate to equal access to GenAI tools of the same quality and power. Given the benefits that GenAI could provide to students as discussed above, maintaining [digital and technology standards](#) will be important, as the digital divide has the potential to exacerbate, not reduce, educational inequalities.

4.2 Over-reliance on GenAI

Some critics [claim](#) that over-use of AI will result in an over-reliance on technology, rather than improving individual intelligence and creativity. It is widely believed that AI should support the learning process, rather than cutting corners to bypass true learning. Examples of possible effects of AI overuse might include:

- GenAI often uses simple language, which might lead to a student developing a less diverse vocabulary.
- GenAI can be used to brainstorm ideas, although it is unknown whether this will improve or reduce creativity.
- Reliance on AI may lead to prioritisation of quick simple solutions rather than more slow complex ones, limiting true understanding.
- The impact of AI-based learning on long-term memory and recall of facts remains unknown.

[Research](#) by the UK Government found that fears of over-reliance were the leading cause of concern by both students and teachers. AI can certainly help fill in knowledge gaps in children; however, doing this too often risks it being a barrier to true learning. The integration of GenAI technology in schools will likely require a delicate approach. A [survey](#) of university students around the world by the Digital Education Council found that 52% of students believe over-reliance on AI could negatively impact their academic performance, and generally do not wish themselves or their teachers to become over-reliant on AI. A [report](#) by The Alan Turing Institute into Scottish primary age children's views on AI found that 'The children had mixed feelings about how AI is, and could be, used in schools. They felt it could be very useful, but also worried about what might happen if it was relied on too heavily'. This fear of over-reliance limiting development of key social skills and knowledge is a [common view](#) raised by both pupils and parents.

Large-scale quantitative data on the impact of AI over-reliance is lacking. However, initial research, such as a [study](#) on 839 high school students from Turkey, found that the unrestricted use of ChatGPT could harm student learning. Trials were performed on students practicing for a mathematics examination with one of the following:

- 1) Access to ChatGPT
- 2) Access to a GenAI with 'guardrails' (i.e., the GenAI was trained and tested on maths problems and teacher input)
- 3) No access to GenAI.

Access to GenAI significantly improved performance compared to those without access. However, during the final exams of the students (in which GenAI was banned), the students who had practiced alongside ChatGPT performed 17% worse than students practicing with no GenAI or GenAI with guardrails. This study highlights the importance of training and testing educational GenAI and that GenAI should supplement, rather than replace teachers. The results of the study led the researchers to conclude "Students tend to use GPT-4 as a crutch, impairing skills development".

4.3 GenAI as a tool for misinformation

GenAI is commonly associated with fake material generated to produce confusion and lies, commonly referred to as 'deepfakes'. One high-profile example of this is the [deepfake](#) of Prime Minister Kier Starmer during the 2023 Labour Party conference, accurately mimicking his voice. GenAI tools used in the education sector are also at risk of teaching children misinformation intentionally or unintentionally. Output information from LLMs like ChatGPT can only be as accurate as its input data - this data can sometimes be incomplete, biased, or incorrect. This results in the possibility for GenAI technologies to produce incorrect information, often referred to as '[hallucinations](#)' - put by one academic as "[convincing-sounding nonsense, devoid of truth](#)".

The National Literacy Trust [survey](#) found that one in five children in the UK did not double check the information provided by GenAI, instead believing the GenAI response without verifying the facts. This shows a significant gap in understanding how GenAI works and suggests that more work is needed to give children the knowledge needed to critically assess GenAI answers. In the same survey, four in five teachers believed that more resources are needed to help teach children critical thinking skills in the age of GenAI to avoid students from unknowingly generating or disseminating inaccurate information. Despite nearly half of teachers reporting to use AI in 2024, the tools they use have likely not been trained on verified information specifically designed to deliver the curriculum.

4.4 Entrenching bias

This risk of misinformation is particularly relevant, given that [AI can tailor content to individual biases](#) making misinformation more persuasive. A [study](#) by Bloomberg found that GenAI image generators can exhibit bias when generating portraits of people in different professions, presenting extreme stereotypes along racial and gender lines.

The world according to [the commonly used AI image generator] 'Stable Diffusion' is run by white male CEOs. Women are rarely doctors, lawyers or judges. Men with dark skin commit crimes, while women with dark skin flip burgers.

Bloomberg, 2023

In addition to AI image generation tools, there have been numerous examples of bias in [healthcare](#), [criminal justice](#), and [job hiring](#) AI algorithms. A 2024 YouGov [survey](#) found that 77% of working adults in the UK oppose AI being used to make hiring decisions, such as in terms of ranking CVs or judging interviews with algorithms which are at risk of bias. The risk of entrenching bias in children through GenAI educational

tools, and the risk of institutions unintentionally biasing their decisions and admissions processes are of direct relevance to policymakers.

4.5 Privacy concerns

Many GenAI companies are based in Silicon Valley, with their data stored outside of the UK. Some companies are 'closed access models' where the algorithm and training data is inaccessible to the public. This poses risks to security and privacy, especially for children. In December 2024, Italy fined OpenAI (ChatGPT's parent company) €15 million for inappropriate use of personal data, in breach of GDPR laws. In response to this problem, some educational institutions like the University of Michigan have [developed their own in-house GenAI](#) tools. The Department of Education in Northern Ireland (DE) has produced guidance for online safety in the [Safeguarding & Child Protection in Schools](#). The DE also funds the [iNEQE](#) Safeguarding Group to provide the Safer Schools NI App, providing safety information on AI for pupils, parents, and schools.

4.6 Academic integrity and plagiarism

GenAI is becoming so advanced that it is often indistinguishable from a human. GenAI can [mimic](#) the style of artists, has been used to pass the prestigious [Bar exam](#) in the USA, and [passed undergraduate psychology exams undetected](#), with an above average grade, at the University of Reading. GenAI can be a source of plagiarism, raising questions about how exams should be conducted in the future.

Tools have been developed to detect plagiarised content, such as Turnitin and GPTZero. However, use of these tools have at times been [ineffective](#), with the detection tools being [outpaced](#) by advances in GenAI intelligence themselves, with many LLMs now smart enough to add errors and alter writing styles to avoid detection. In addition, some tools were

found to [discriminate](#) against students who are non-native English speakers, misdiagnosing a simpler form of English as GenAI generated. Some tools, like [GPTZero](#), claim to have resolved this problem.

The possibility of undetectable plagiarism raises serious [concerns](#) about the effectiveness of current assessment methods, in particular, for unsupervised coursework and online examinations. To address these challenges, educational institutions and policymakers may need to reconsider the frameworks surrounding academic integrity.

“ChatGPT is capable of exhibiting critical thinking skills and generating highly realistic text with minimal input, making it a potential threat to the integrity of online exams, particularly in tertiary education settings where such exams are becoming more prevalent. Returning to invigilated and oral exams could form part of the solution, while using advanced proctoring techniques and AI-text output detectors may be effective in addressing this issue, they are not likely foolproof solutions.”

Dr. Teo Susnjak – Massey University, [2022](#)

The findings of a 2023 Department for Education (DE) [survey](#) of primary and secondary school teachers revealed that 76% of teachers were not confident in advising students on the schools AI policy and ethical usage, highlighting a potential gap in preparedness. This underscores the importance of equipping educators and students with the knowledge and tools to navigate the evolving academic landscape. Strategies could include designing assessments that emphasise critical thinking and understanding, alongside incorporating AI literacy into the curriculum to promote informed and ethical use of such technologies.

This paper will now address the question of *how* and *what* we teach as well as how we conduct assessments in a world where GenAI is prevalent

followed by a discussion of the current UK and Northern Ireland approach to AI regulation in the education sector.

5 Will GenAI revolutionise education?

5.1 New ways of teaching

In the [Final Report](#) of the Independent Review of Education, the expert panel recognises the need for education to adapt to the new ways of learning that AI unleashes. Specifically, the report notes that the system requires:

- Reconsideration of the kinds of knowledge and skills that learners will need for a world where AI has a central role.
- A need for an intelligence and horizon-scanning capability, which the system currently does not possess.
- Regular updating of the curriculum so that learners understand the nature of the new technology and its impact on society and the economy.
- Regular reviewing of pedagogical approaches to determine whether there are new ways in which AI can assist learning.

Independent Review of Education, 2023

Adapting to AI requires a re-evaluation of traditional teaching and assessment methods, particularly in light of the World Economic Forum's [Education 4.0 framework](#), which outlines key transformations needed in childhood education to meet future needs in the digital age. Education 4.0 has broad support from educators in the UK, and emphasises a shift toward personalised, collaborative, accessible, problem-based experiences to cultivate skills in innovation, creativity, and technology.

Instead of simply trying to ban AI or integrate it haphazardly into traditional education settings, some [educators](#) and [technology companies](#) argue that new AI tools have the potential to [fundamentally change](#) how we teach and assess students. On the other hand, critics argue that AI investment is expensive and [might add little practical value](#).

One aspect of the debate which has [overwhelming support](#) is the importance of human teachers in the education process of children. Perhaps in future there will be a shift towards [AI-empowered teachers as facilitators of learning](#), rather than the source of information in the traditional classroom sense.

The [National Education Union](#), representing most teachers in the UK, believes that AI technology should be harnessed to free up staff time; however, it affirms that AI cannot be allowed to replace or devalue the work of teachers.

5.2 New ways of assessment

Some experts, like Mairéad Pratschke (University of Manchester) who gave the [keynote speech](#) at EA's [AI in Education NI Conference 2023](#) suggest that AI has the potential to significantly change the way we assess students. As AI evolves and becomes more adept at generating human-quality text and completing traditional assessments, the emphasis in assessment may need to shift from evaluating the final product to understanding the student's learning process. This means moving away from relying solely on essays, quizzes, and other tasks easily completed and replicated by GenAI. Instead, educators may need to [adopt more dynamic and individualised approaches](#) that focus on higher-order thinking skills, creativity, and the application of knowledge in real world contexts. Some examples of what these assessments could look like are detailed on the next page.

Examples of ways to assess in the age of GenAI

- **Process-Oriented Assignments:** Require students to submit drafts, outlines, annotated bibliographies, and reflective journals alongside the final product. This allows educators to track the evolution of student thinking and understand how they arrived at their conclusions, making it harder for AI to simply generate the final output.
- **Oral and Performance-Based Assessments:** Can be valuable tools as they require real-time demonstration of understanding and application, making it difficult for AI to replace the student's thinking. Students must explain their reasoning, defend their arguments, and demonstrate a genuine understanding of the material.
- **Collaborative Projects and Peer Review:** Encourage students to work together in groups, solve problems, and critique each other's work. These activities promote communication, collaboration, and critical thinking skills, areas where AI cannot fully replace human interaction.
- **Real-World Problem Solving and Application:** Design projects that require students to apply their knowledge to real-world scenarios, develop solutions to complex problems, and create prototypes, models, or proposals. These tasks encourage creative thinking, problem solving, and a deeper understanding of how concepts apply in practical settings.
- **Frequent, Low-Stakes Assessments:** Replace high-stakes testing with more frequent, formative assessments that gauge student understanding over time. This approach provides ongoing feedback, reduces test anxiety, and allows for timely intervention.

5.3 Innovative AI education initiatives around the world

The World Economic Forum has produced a [report](#) into AI-driven initiatives that are set to pave the way towards the future of education and the Education 4.0 framework. Some highlights of the report are detailed below.

Global Examples of Pioneering AI Uses in Education

- [Letrus](#) is a Brazilian GenAI technology voted the best educational technology in the world by UNESCO for its personalised learning, scalability and teacher support. It has been adopted by 3,500 schools across Brazil with a proven record of improving school rankings.
- [Kabakoo Academies](#) in West Africa use AI to help students get into work and merges technology with both indigenous practises and sustainability education. It has been praised by [UNESCO](#), the [World Economic Forum](#) and [The African Union](#) for pioneering educational technology.
- The Ministry of Education in the Republic of Korea (South Korea) has made plans to create [AI textbooks](#), set to be released in 2025. This plan aims to produce a customisable textbook, catered to the readers interests and needs to improve learning. Translations and tools will be available to cater for students with special educational needs.
- [AI4EDU](#) develops GenAI based application for students and teachers in Europe. ‘Study Buddy’ acts as a personal assistant (text or voice) for students using integrated textbooks to engage students, and ‘Teach Mate’ communicates with teachers (text or voice) to create lesson plans, quizzes, grade and give feedback to students.

5.4 What information do students need in this new age?

With AI rapidly transforming various aspects of society, equipping children with a foundational understanding of AI is crucial. Some academics [argue](#) that AI should be taught about in schools for several reasons.

Firstly, AI is increasingly prevalent in our daily lives, from voice assistants like Siri and Alexa to personalised recommendations and advertisements on platforms like YouTube and TikTok. Understanding the basic functions and applications of AI is now considered an integral part of digital literacy. Europol [estimates](#) that 90% of the internet will be AI generated in a few years' time. Children need to learn how to discern reality from deepfakes.

Secondly, children need structured guidance and age-appropriate tools to effectively understand and evaluate AI. Simply interacting with AI-enabled devices without proper instruction may not lead to a meaningful understanding of how it works. Exploring concepts such as algorithms and ethical implications of AI can further enhance their AI literacy.

Ultimately, many in education believe that the education system should nurture critical thinking, problem-solving skills, and responsible use of AI technologies so that children can challenge the reliability of sources and discern the accuracy of information, particularly in the face of AI-generated content. By equipping students with these skills, Northern Ireland can empower its next generation to navigate the complex landscape of an AI-driven world.

Possible topics to learn about AI

- How does AI and algorithms work?
- What is an AI Blackbox?
- How do I distinguish AI from reality?
- How do I find reliable sources online?
- How can AI be used as a tool for misinformation?
- What is appropriate or inappropriate use of AI?
- How do I write a good prompt?
- How does AI impact social media?
- What impact will AI have on my future career plans?

Points to Consider

7. What is the Department of Education Northern Ireland's stance on making teaching about AI a statutory requirement?
8. Should all schools and educational institutions be required to have policy and guidance on AI in place?
9. What steps is the Department taking to ensure AI education is accessible to all students regardless of socioeconomic background or digital access?
10. Should the Department and key stakeholder bodies like CCEA alter their stance on AI usage, and punishment for AI based 'malpractice'? Given the likely permanence of GenAI tools available to students, is it time to consider changing the current framework of teaching and assessment?

6 Regulating AI in education in the UK and Ireland

6.1 There is a desire for AI guidance

[Research](#) by the UK Government found that a majority of parents want AI-based educational technology and products to be regulated. There is an emerging consensus in the education sector in the UK on how to approach the use of AI, particularly in relation to exams. Many exam bodies, and the university sector in general, are taking a cautious approach promoting ethical usage, without banning or embracing AI outright. [Ulster University](#) and [Queen's University Belfast](#) have published guidance for their students. The [Council for the Curriculum, Examinations and Assessment \(CCEA\)](#) and [International Baccalaureate](#) exam bodies (covering primary and post-primary qualifications in Northern Ireland) have also given permission for students to use AI tools in certain circumstances if [transparently credited and referenced](#). Throughout 2024, the debate on AI in education has softened, with many now considering it an inevitability to be embraced alongside improved guidance and ethics.

The rapidly evolving situation over the course of the last few years has prompted requests for further assistance from schools and the sector at large. A 2023 [study](#) involving 200 secondary school teachers in the UK found that 69% think the curriculum and assessment methods should be updated to factor in AI-generated content by students. A second 2023 [survey](#) of 500 secondary school teachers found 41% want there to be better regulation of AI. A [letter](#) from May 2023, signed by teachers from around the UK, reads that advanced AI poses "the greatest threat but also potentially the greatest benefit to our students, staff and schools".

In August 2024 the UK Government announced a new [£4 million project to train GenAI](#) to create 'accurate, high-quality content' for reliable use in schools. This approach of training AI has merit and could be used by teachers if made accessible. Previous attempts to train AI by the UK

Department of Education [increased accuracy](#) of GenAI outputs from 67% to 92% after training an educational AI model on high quality, sourced materials.

The UK Department of Education has also stated:

“We have committed to publish expectations for the safety of generative AI products used in education to address concerns around safeguarding and privacy. Our project to develop a store of educational content optimised for use with AI aims to drive up the reliability and quality of tools. We are providing funding for innovation to develop tools which will help to reduce everyday feedback and marking workload for teachers, whilst avoiding AI use for high stakes marking, responding to parent and pupil views.”

Stephen Morgan MP – Minister for Early Education, [31/10/2024](#)

6.2 AI policy and deployment in Northern Ireland’s education system

The Executive’s [Draft Programme for Government 2024-2027](#) makes no mention of AI, despite some [businesses](#) suggesting that Northern Ireland could be well positioned as a leading hub for AI industries, and with some academics describing Northern Ireland is the ‘[ideal location](#)’ for the deployment of AI in the education system based on its size, infrastructure and considerable investment in digital technology.

The Education Authority (EA) held the [AI in Education in NI Conference](#) in November 2023, attended by 200 school principals and representatives from the EA, Department of Education (DE) and Council for the Curriculum, Examinations and Assessment (CCEA). It gave an overview of various perspectives on how AI is currently regulated in Northern Ireland’s education system.

Below is a list of institutions which are currently key players, or likely to be so in the future, in the regulation of AI in Northern Ireland's education system.

Key regulators of AI in UK and Northern Ireland education

- **Department of Education (DE)**: Oversees policies and strategies for the integration and regulation of AI technologies in the education sector in Northern Ireland.
- **Department for Science, Innovation and Technology (DSIT)**: Develops UK-wide policies and frameworks for the use of AI, including in education.
- **Education Authority (EA)**: Manages the practical implementation and use of AI tools in schools, ensuring compliance with the DE guidelines.
- **Council for the Curriculum, Examinations and Assessment (CCEA)**: Monitors the impact of AI on curriculum delivery, assessments, and standards.
- **Education and Training Inspectorate (ETI)**: Evaluates the effectiveness and safety of AI applications in schools.
- **Information Commissioner's Office (ICO)**: Regulates data protection and privacy laws in the UK, ensuring AI systems used in education comply with GDPR and legal standards.
- **Northern Ireland Human Rights Commission (NIHRC)**: Can ensure AI use in education upholds human rights, particularly regarding equality and non-discrimination.
- **Children's Commissioner**: Advocates for children's rights and ensures that AI technologies used in education prioritise the welfare and best interests of students.
- **Equality Commission for Northern Ireland (ECNI)**: Upholds Section 75 of the Northern Ireland Act 1998 to enforce equality standards and ensure AI systems used in education do not perpetuate bias or discrimination.
- **AI Safety Institute (ASI)**: The UK Government intends to grant ASI statutory powers in 2025 to test AI technology, ensuring safety and ethics. ASI provides guidelines and risk assessments that could influence AI use in education.

6.3 Teaching of AI in the Northern Ireland curriculum

While there is currently no statutory requirement for teaching about AI in primary or secondary schools in Northern Ireland, there is flexibility in the curriculum that could include teaching about AI in subjects such as Information and Communication Technology (ICT), which require teaching on ‘exploring and evaluating reliable sources’. The curriculum emphasises a skills-based approach to education, which in practice should result in student exposure to AI tools.

The CCEA, the body responsible for delivery and integrity of the curriculum, [claims](#) that their approach to GenAI is both “agile” in updating teacher resources and ethics in response to GenAI, and “reactive” when dealing with new challenges that GenAI might have on assessment.

The DE currently has no plans to update the curriculum to include AI:

“The Department has not considered developing an individual strategy around building pupil competence and knowledge of Artificial Intelligence (AI). As announced in my statement in response to the recommendations from the Independent Review of Education, I have commissioned an independent review of the curriculum and I intend to develop a new strategy on literacy and numeracy as a priority.”

Paul Givan MLA – Minister for Education, [15/11/2024](#)

In the higher education sector, both Ulster University and Queen’s University Belfast have [strength](#) in AI research. In March 2024, the Department for the Economy and Invest Northern Ireland announced a £16.3 million investment into the [AI Collaboration Centre](#) (AICC) based in Ulster University in partnership with Queen’s University Belfast to help businesses adopt AI to ‘boost competitiveness and productivity’.

6.4 Rules on AI use in examinations

CCEA, the body responsible for examinations and the curriculum in Northern Ireland, acknowledges the transformative potential of AI while emphasising the need for caution and oversight. There is currently uniformity between CCEA and equivalent regulatory bodies across the UK ([Ofqual](#), [SQA](#), and [Qualifications Wales](#)) in stressing that AI must not compromise fairness, transparency, or the reliability of assessments. All bodies are currently in research phases towards exploring how AI can contribute positively to assessments and teaching while mitigating risks such as bias and misuse.

The [Joint Council for Qualifications](#) (JCQ), of which CCEA is a member, states that use of AI by students to generate work which is not their own constitutes malpractice and will attract severe sanctions if discovered. An executive summary of the JCQ guidance is found in the appendix. In the Summer 2023 examinations, CCEA received [zero reports of malpractice due to AI use](#), however some other regions of the UK identified cases of ChatGPT use for examination. JCQ offers updated [guidance](#) for teachers on how to detect AI-based plagiarism. While this is a clear stance, the difficulty lies in the ability for teachers and assessors to accurately detect AI plagiarism. Although tools promoted by the JCQ to detect AI plagiarism, like Turnitin, have successfully identified [examples](#) of AI misuse, there have also been cases of false positives. Given the rate of AI model advances, it could be argued that AI detection tools cannot address the fundamental problem, with GenAI now able to internationally add in errors and write in ways to avoid detection. Some educators argue that new approaches to examination are needed that allow deeper testing of student creativity, communication, and critical thinking skills. ‘Older’ assessment methods like in-person, practical and oral examinations also avoid potential AI-based malpractice.

6.5 Teacher assistant AI technology

The Education Authority has recently selected the Limerick-based company [Nurture](#) to supply over 1,100 schools with GenAI based teaching assistant technology to better mediate teacher communication with students and to provide personalised learning based on student and teacher observation.

Points to Consider

11. Are parents being made aware of the use of AI in schools and the possible implications?
12. Should AI be required teaching on the curriculum?
13. How sure are policymakers that the educational GenAI tools used in schools are transparent, safe and accurate?
14. To what extent is the Department of Education Northern Ireland funding additional AI initiatives in education, such as teacher resources and training, university courses, or AI systems?

6.6 AI policy and deployment in other UK nations and Ireland

6.6.1 England

The official position of the UK Department for Education toward GenAI in education within England can be found [here](#).

Ofqual, the regulatory body for assessments in England, [explicitly prohibits](#) the use of AI in marking students work without teacher oversight.

In November 2024, [Prime Minister Kier Starmer](#) ‘encouraged young people to get involved in the AI revolution’ whilst opening the new [Google AI campus](#) in London. The campus will train teachers around the UK on

AI and ‘equip them with resources to engage their students’. This teaching programme aims to reach 250,000 pupils by the end of 2026.

[Oak National Academy](#) (ONA) is an online platform created during the COVID-19 pandemic that provides resources for teachers, students, and parents. In October 2023, the United Kingdom Government announced a [£2 million investment](#) into ONA to provide free access to AI-powered lesson planning resources to all teachers in England. The ONA developed a tool that uses GenAI to develop lesson plans and was used to create 2,500 plans in the “first few days” following its launch. As of April 2024, an [estimated](#) 30,000 teachers across England made use of ONA.

“Labour believes we can harness the power of AI to drive down teacher’ workloads while driving up standards in schools. To do that, we’re investing in safe, effective and high-quality AI tools for education”

Bridget Phillipson MP – Secretary of State (DfE), [28/08/2024](#)

While attending the [Global Education and Innovation Summit](#), Stephen Morgan, Minister for Early Education, [announced](#) funding of £3 million towards creating a verified [content store of education data](#) for teachers, incorporating the national curriculum, and a £1 million catalyst award for AI firms who effectively apply teacher assistive technology in schools.

“Artificial Intelligence, when made safe and reliable, represents an exciting opportunity to give our schools leaders and teachers a helping hand with classroom life.”

“Today’s world-leading announcement marks a huge step forward for AI in the classroom. This investment will allow us to safely harness the power of tech to make it work for our hard-working teachers, easing the pressures and workload burdens

we know are facing the profession and freeing up time, allowing them to focus on face-to-face teaching.”

Stephen Morgan MP – Minister for Early Education, [28/08/2024](#)

Alongside the publication of the AI Opportunities Action Plan in January 2025, the UK Department for Education and Department for Science, Innovation and Technology released a joint statement giving an update on the £4 million spent towards AI adoption in the education system, including a list of 16 companies who received catalyst awards:

“Kids are set to benefit from a better standard of teaching through more face time with teachers – powered by AI – as the Government sets the country on course to mainline AI into the fabric of society, helping turbocharge our Plan for Change and breaking down the barriers of opportunity.”

“£1 million has been set aside for 16 developers to create AI tools to help with marking and generating detailed, tailored feedback for individual students in a fraction of the time, so teachers can focus on delivering brilliant lessons.

The prototype AI tools, to be developed by April 2025, will draw on a first-of-its-kind AI store of data to ensure accuracy – so teachers can be confident in the information training the tools. The world-leading content store, backed by £3 million funding from the Department for Science, Innovation and Technology, will pool and encode curriculum guidance, lesson plans and anonymised pupil work which will then be used by AI companies to train their tools to generate accurate, high-quality content.”

UK Department for Education & Department for Science,
Innovation and Technology [13/01/2025](#)

6.6.2 Scotland

The Scottish Government produced a [report](#) to build trust and ethics within Scotland's digital landscape in 2022 as part of its commitment to becoming an Ethical Digital Nation. A 2024 [survey](#) by the Scottish Qualifications Authority (SQA) found that half of educators in Scotland are already using GenAI to support their teaching work, primarily for tasks such as designing materials and lesson planning. While recognising the potential benefits, there are also concerns about the misuse of GenAI, particularly regarding the integrity of assessments. In response, the SQA has prohibited the submission of AI-generated work as the student's own but is working with the recent findings of the [Scottish Independent Review of Qualifications and Assessments](#) which suggests that AI will change how assessments take place in the future. The [Scottish Government](#) is collaborating with educators to improve AI literacy in schools through initiatives like "[Scottish AI in Schools week](#)" and the development of an AI handbook for teachers. The Children and Young People Committee took [evidence](#) on promoting equitable access to AI technologies, establishing ethical guidelines, and addressing concerns about potential bias and misinformation. The Scottish Government is also considering updating its [AI strategy](#) to include recent developments and address the specific needs of the education sector and support development of 'child-centered AI' guided by [findings](#) of the Alan Turing Institute, [Scottish Children Parliament](#) and [Scotland's AI Strategy](#).

6.6.3 Wales

While at present there is [no specific AI strategy for Wales](#), the Government has offered [general guidance](#) for the use of common GenAI tools such as ChatGPT. In addition, as a bilingual nation, AI [tools](#) are being developed using [Welsh Government investment](#) which are well versed in the Welsh language to improve the public's access to services.

In addition, the Welsh Centre for Digital Public Services (CDPS) published a [report](#) on public sector use of AI in Wales.

6.6.4 The Republic of Ireland

In addition to adopting the new EU AI Act, the Republic of Ireland has developed a [Digital Strategy for Schools to 2027](#) which recognises the impact AI will have on the education system and suggests development of resources to guide schools in responding to the challenges and opportunities of AI. The strategy highlights the importance of developing digital literacy among students and providing teachers with professional development opportunities to effectively integrate AI into teaching and learning. While the national AI strategy '[AI - Here for Good](#)' aims to incorporate AI into future digital learning policies, specific regulation of GenAI in the education sector is currently under development.

“It is my clear intent that pupils and students in our primary and post-primary schools will be able to use generative AI for its potential benefits, while at the same time being supported to avoid becoming over-dependent on using it to do their thinking and learning for them. It is imperative that further research is conducted on the impact of digital devices on our classrooms and on their optimum use within our schools. This work has already begun and I look forward to its completion by the end of this year.

Norma Foley TD – Minister for Education (RoI), [01/04/2024](#)

Points to Consider

15. What lessons can be learned from other jurisdictions in the UK and the Republic of Ireland in relation to their AI policies and guidance?

7 The outlook

GenAI is here and it is likely here to stay - raising a number of ethical, regulatory, and practical opportunities and challenges to the education system. How and what children are taught in Northern Ireland could change drastically during this decade. As educational GenAI continues to innovate, we can expect that the future of education will become more personalised, individual-orientated, and efficient. On the current trajectory, the role of the teacher is likely to change toward facilitators of education, rather than the primary source. Great care must be taken when implementing GenAI in the education system to ensure equitable access to AI technology, address data privacy concerns, and provide teachers with adequate training to make ethical use of these new tools. The potential benefits of AI in education are vast, but realising those benefits requires a nuanced approach to policy that prioritises the needs of both students and teachers.

Appendix A: Key terms

Algorithm: A step-by-step set of rules or instructions that a computer or machine follows to solve a problem or perform a task. It serves as the foundation for all AI systems, enabling them to process inputs and deliver outputs. For example, an algorithm might be used to automatically sort students based on their grades.

Artificial Intelligence (AI): While there is no universally agreed definition, in general they are machines or systems performing tasks that would traditionally require human brainpower.

ChatGPT: A specific large language model (LLM) chatbot developed by OpenAI. ChatGPT has been used to write essays, answer questions and many other functions.

Deep Learning: A training method in AI where systems process data in ways inspired by the human brain's neural networks. Deep learning can be used to enhance AI tools knowledge and accuracy.

Deepfake: Synthetic media that manipulates images, audio, or video to falsely replace someone's face or voice. Often used to spread disinformation.

Disinformation: Misleading or false information that is intentionally created and spread to deceive or manipulate people. It often aims to mislead specific groups for political, financial, or social gain.

Generative AI: GenAI are systems smarter than traditional AI, capable of creating outputs such as text, images, or media based on patterns learned from large datasets.

Hallucination: When an AI model produces inaccurate or fabricated responses that sound plausible. A hallucination could occur in a student-facing AI system, where it provides an incorrect answer to a history question, potentially confusing students with unreliable information.

Large Language Model (LLM): AI models that process and generate human-like text based on extensive text data e.g., ChatGPT. An LLM could be used in education to automatically summarise complex academic papers or assist teachers in providing real-time feedback to students' writing assignments.

Machine Learning (ML): The use of data and algorithms to build digital systems that improve with experience. The more data it has access too, the more it can learn.

Misinformation: False or inaccurate information that is spread, regardless of intent to deceive.

Neural Networks: A type of machine learning model using algorithms inspired by the way the human brain processes information. They consist of layers of interconnected nodes (or "neurons") that work together to identify patterns and solve complex tasks. Neural networks operate as "black boxes," meaning that understanding how decisions are made can be challenging, raising concerns about transparency and fairness.

Open/Closed Access Models: Open models have their underlying code and data publicly accessible. Closed AI models have their underlying code and data publicly inaccessible, often kept private by developers.

Appendix B: JCQ AI Use in Assessments Policy

Executive summary of the Joint Council for Qualifications guidance for teachers and assessors on [the use of AI in examinations](#). The CCEA, the awarding body of Northern Ireland, is a partner of the JCQ.

“While the potential for student artificial intelligence (AI) misuse is new, most of the ways to prevent its misuse and mitigate the associated risks are not; centres will already have established measures in place to ensure that students are aware of the importance of submitting their own independent work for assessment and for identifying potential malpractice. This guidance reminds teachers and assessors in centres of best practice in this area, applying it in the context of AI use. The guidance emphasises the following requirements: • As has always been the case, and in accordance with section 5.3(k) of the JCQ General Regulations for Approved Centres (<https://www.jcq.org.uk/examsoffice/general-regulations/>), teachers and assessors must only accept work for qualification assessments which is the students’ own;

- Students who misuse AI such that the work they submit for assessment is not their own will have committed malpractice, in accordance with JCQ regulations, and may attract severe sanctions;
- Students and centre staff must be aware of the risks of using AI and must be clear on what constitutes malpractice;

- Students must make sure that work submitted for assessment is demonstrably their own. If any sections of their work are reproduced directly from AI generated responses, those elements must be identified by the student and they must understand that this will not allow them to demonstrate that they have independently met the marking criteria and therefore will not be rewarded (please see the Acknowledging AI use and AI use and marking sections below and Appendix B: Exemplification of AI use in marking student work at the end of this document); and
- Where teachers have doubts about the authenticity of student work submitted for assessment (for example, they suspect that parts of it have been generated by AI but this has not been acknowledged), they must investigate and take appropriate action.

The JCQ awarding organisations' staff, examiners and moderators have established procedures for identifying, reporting and investigating student malpractice, including the misuse of AI.

This guidance refers to AI tools and AI detection tools as they were at the time of publication; the JCQ awarding organisations are continuing to monitor developments in this area and will update this guidance when appropriate. Examples of candidate AI misuse cases and marking candidate work where AI tools have been used can be found in appendices A and B to this document.

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