Generative AI in Education: A Guide for Schools

"ChatGPT represents a tipping point in the development of AI and we teachers ignore it at our peril. For educators, it's going to be as transformational as Google was in 1998, and requires a serious conversation about the benefits, challenges and implications for schools and learners. The future will be changed by it indelibly. Educators have to start engaging with it in a meaningful way." *Dr Vaughan Connolly, teacher and researcher, University of Cambridge*

Background

Since the launch of the text generating AI tool, ChatGPT at the end of 2022, there has been an explosion of new, freely available commercial Generative AI tools such as Google's Gemini (formerly known as Bard), DALL-E and MidJourney, that pose both opportunities and challenges for learners and educators alike. There is also a growing suite of education specific AI tools emerging such as Quizilise, Curipod and KhanMigo.

This guidance aims to address questions that leaders and educators in SLC will have about this emerging technology, including:

- what Generative Artificial Intelligence is and how it differs from traditional Artificial Intelligence
- how educators could benefit from using AI and the potential risks and limitations
- how learners could benefit from learning **about** and learning **with** AI, including its potential risks and limitations
- how learners could be **supported by** AI, to enhance accessibility to learning
- legal and practical considerations for schools
- the implications for Learning, Teaching and Assessment
- quick reference guide – DOs and DON'Ts
- next steps for SLC

Generative Artificial Intelligence

Generative AI (GenAI) refers to a type of artificial intelligence that is designed to generate new, original content autonomously, including (but not exclusive to) the generation of:

- **text** - writing articles, stories, poems, quizzes, study materials, policies and documents
- **images** - generating realistic pictures, artwork, graphic designs
- **music** - composing original music in different styles
- **video** - producing videos or altering existing ones
- **conversations** - engaging in natural language dialogues
- **computing code** - generating pieces of programming code and chatbots for answering student queries

Traditional AI, such as the Alexa voice assistant and Google's search engine, follow specific rules to complete tasks but they don't create anything new, unlike GenAI which is capable of creating new content.

In education, GenAI can enhance content creation, making learning materials more engaging and tailored to learners' needs. It can automate the generation of routine content such as quizzes, worksheets, and lesson plans, saving teachers time and allowing them to focus more on student engagement and interaction.

However, ethical considerations, such as content accuracy and inclusivity, must be taken into account in education settings. If the training data used by GenAI is incomplete or biased it can lead to the generation of incorrect, nonsensical or false content – this is often referred to as GenAI hallucination. Concerns around the potential risks for data security and plagiarism also need careful consideration as well as the need for ongoing training and development opportunities for staff.

How educators could benefit from using AI and potential limitations

Teachers may benefit from the use of GenAI through:

- **content creation, idea generation** - GenAI can spark creativity by generating ideas, prompts, or examples for lesson plans and activities, helping teachers bring innovative and engaging content into the classroom
- **differentiation** – it can assist in creating personalised educational materials tailored to individual student age, stage and needs, allowing teachers to address diverse learning styles and preferences (including use of translation tools to assist students who are learning in a second language, making it more accessible)
- **providing feedback and support** – for example ask GenAI to create a quiz to test learner understanding or provide feedback on a learner's piece of work and then providing ideas on how it can be improved, identify grammatical errors, robustness of arguments etc
- **significant reduction in teacher workload -** through the automation of routine tasks, facilitation of personalised learning, and streamlining of administrative responsibilities, which allows educators to focus more on impactful teaching and student engagement.

Limitations of GenAI for educators to consider:

- **bias** - GenAI models are trained on large datasets, which may inadvertently contain biases, it is therefore crucial that generated content is scrutinised to ensure that it is diverse, inclusive, and free from discrimination
- **reliability and accuracy** - educators must critically evaluate and fact-check the content generated by GenAI systems as it can be skewed due to bias but also inaccuracies depending on the data it was trained on eg ChatGPT3.5 is trained only on content up to January 2022, which limits its utility for more recent information whereas Google's Gemini service is connected to the live internet, but may lack the analytic power of ChatGPT
- **data privacy** – it is crucial that educators are aware of the need to protect personal information ie their own, their learners, their school and local authority. Educators must never upload or input identifiable information into GenAI tools as this could be stored and used for analysis and content generation for other users
- **ethical considerations** – educators should be aware of the potential for AI generated content to pose questions around plagiarism and intellectual property, particularly when engaging with tools that generate music and artwork. However, these are not new challenges faced by education and there are existing approaches and processes that should continue to be used to mitigate the risks posed by Gen AI. Current guidance, set out by the

Scottish Qualifications Authority, should be adhered to and shared with learners who are undertaking national qualifications.
- **age restrictions** – currently, many GenAI services are restricted to over 18s or require parent/carer consent for children to use them, which limits how a teacher may wish to use GenAI tools **with** their learners (see *Legal and Practical Considerations*) as opposed to using such tools themselves for content creation and the like, as outlined above.

How learners could benefit from learning <u>about</u>, learning <u>with</u>, and being supported by AI, and the limitations

*Learning **about** Generative AI:*

Learners could benefit from more targeted support and personalised learning experiences if their teacher makes effective use of generative AI tools. But it is also important that they learn about this emerging and transformative technology from a user's perspective. This will ensure they have a clear understanding of its benefits, including the skills they will need to develop to use it effectively and safely and an awareness of its limitations.

Learners should learn about:
- protecting personal information
- prompt engineering
- iteration and refining responses
- evaluating responses and critical thinking
- limitations such as bias and inaccuracies
- ethics and responsible use
- referencing and curating evidence

*Learning **with** Generative AI:*

Learners may engage with GenAI content that their teacher has created but challenges exist at this point in time with the accessibility of some GenAI tools by learners themselves, due to the restrictions imposed by the Terms and Conditions of Use. For example, the minimum age requirement for using ChatGPT is 13 years old and users between 13 and 18 years old need to have their parent or carer's permission to use the service. However, attempting to ban or even restrict a learner's use of GenAI is likely to be time consuming, ineffective, and ultimately futile; it would only serve to widen the digital divide and fuel inequity in our education system, particularly for those learners who rely on access to school devices and resources for learning.

*Learning **supported by** Generative AI:*

All learners and their learning can be supported by the use of GenAI through, for example, personalisation of materials in terms of age, stage, prior learning and by providing instructional learning. However, this technology could be particularly beneficial for learners with additional support needs, helping them to engage in learning that is more adjustable and accessible.

Legal and practical considerations

Concerns exist relating to data privacy and security, in particular the fact that GenAI has the potential to collect and store large amounts of personal information. Strong partnership working between teachers, learners, their parents/carers and education leaders and national and local policy makers is critical to ensure the needs of learners in the 21st century are met, whilst keeping everyone, and their data, safe and secure.

In lieu of any nationally produced guidance, the current advice to educators and leaders of establishments in SLC is:

- educators are permitted and encouraged to make appropriate and informed use of GenAI
- learners are permitted to make appropriate and informed use of GenAI tools, provided any necessary permissions are in place from parents/carers

Educators are responsible for ensuring any age restrictions are adhered to eg ChatGPT Terms and Conditions state that it is 'not meant for children under the age of 13'.

Implications for and impact on Learning, Teaching and Assessment

As stated in the recommendations from Professor Hayward's Independent Review of Qualifications and Assessment:

- As a matter of urgency, Scottish Government should convene and lead a cross-sector commission to develop a shared value position on the future of AI in education and a set of guiding principles for the use of AI.
- The use of AI Large Language Models, such as ChatGPT, should not be banned but learners and teachers/lecturers must be supported to make best use of them. AI offers the potential to reduce administrative burdens and to lessen the time taken for other teaching tasks. All opportunities to do that should be taken.
- Coursework should remain an integral part of qualifications, but existing tasks should be reviewed to ensure that they are compatible with the new context created by recent developments in AI

In anticipation of the response to the above from national Government and associated bodies, this SLC Guidance Document will be reviewed and updated regularly to reflect the rapidly changing nature of the use of GenAI and development of tools and resources to support education.

Quick reference guide

DO	DO NOT
• explore the use of GenAI tools and discuss with learners	• ask learners to sign up to GenAI tools without checking Ts&Cs eg ChatGPT requires parent/carer permission for 13-18 year olds and is not suitable for under 13s.
• make use of GenAI tools to spark ideas, create content, differentiate and personalise materials	• enter any personal or identifiable information into GenAI tools eg pupil or school details, data specifically related to you/your school
• develop good digital hygiene when using GenAI tools ie provide as much context as possible eg state the age/stage the content is aimed at, the format required, ensure output is inclusive etc	• use content generated by AI without reviewing and checking for accuracy and/or bias – remember, GenAI can 'hallucinate' and generate false information
• reinforce current SQA guidance (as at 2023/2024) related to the use of GenAI and national assessments	• allow learners to use GenAI to create/refine content for national assessments/qualifications • allow learners to reference, as a source, outputs generated by AI

Next steps

Dynamic policy and guidance creation

As the local and national responses to the use of AI in Education begins to emerge and evolve, the guidance and approaches for use will also continue to develop and mature. Iterations of the policies and guidance produced for use by establishments will be research-based, practical and legally informed.

Cross-sector Working/Review Group(s)

To realise the potential, and mitigate the dangers, of the use of AI in Education, strong partnership working within, between and across establishments within SLC will be critical. To this end a cross-sector Working Party has been setup, which will review current guidance and help shape future guidance, to endeavour to keep pace with developments in AI.

CLPL

In addition to national CLPL offerings and that of the West Partnership, bespoke training and development opportunities for SLC settings and staff will be devised to meet local needs.

All updates and training opportunities will be shared with establishments and links will be available on the Digital area of the Staff Learning Centre.