

**Generative Artificial Intelligence in Education - Call  
for Evidence**  
**23 August 2023**

## **Opportunities and benefits:**

*How do you think generative AI could be used to improve education?*

Given The Bell Foundation's key objectives and programmatic activity, which focus on overcoming exclusion and disadvantage through language education, our response to this and the following questions will consider specifically the impact of Generative Artificial Intelligence (AI) on disadvantaged pupils in England who speak English as an Additional Language (EAL).

In the context of EAL provision, Generative AI is already being used in some settings in England for three main purposes: (1) to support the development of these pupils' proficiency in English, which according to research is a key predictor of their educational attainment (Strand & Hessel, 2018) ; (2) to enable teachers and support staff to adapt teaching effectively to address these pupils' language support needs; and (3) to translate school information to help create a welcoming and inclusive environment for children and their families. Despite its potential for improving the educational outcomes of these learners in schools and classrooms, this advanced technology has not become mainstream yet. In fact, there is evidence that the gap between the technology available to most education settings and the most advanced, forward-looking types of technology remains wide (Vincent-Lancrin, Cobo Romaní and Reimers, 2022[22]), which means that much more can be done to harness its use as a valuable resource to improve the attainment of pupils using EAL.

However, it is important to highlight that, as with all technology, what makes a difference to pupils' educational outcomes is not the technology itself, but how effectively or otherwise it is used in a particular setting to support learning. Regarding Generative AI, the very tools that are potentially beneficial for learners using EAL can instead augment disadvantages and inequality in the hands of uninformed leaders under pressure to adopt quick fixes to solve staffing issues, and of teaching staff who have not been trained on how to use AI tools to best support and accelerate the learning of pupils using EAL. Also, with Generative AI, which is in a state of constant development, there is the added issue that some tools are not sufficiently accurate or fully finetuned yet, so they need to be used with caution, and alongside other existing and well-established tools. A case in point is AI-powered assessment tools designed for English language learning. While these tools can save marking time, they are currently still inaccurate and do not directly relate to curriculum learning. Yet, many schools are rushing to buy expensive English Language AI-driven learning platforms and subscription services which may not be suitable or effective, or are not being used effectively. For example, even though these many of these tools have been designed for out-of-class self-study, they are often being used in mainstream lessons, which means that pupils using EAL are not focusing on curriculum learning while working with these AI-driven tools. Hence, the following points about how Generative AI can be used to improve education need to be read in the light of this word of caution, and the Foundation's response to this question should be read together with the response to question 3 (Concerns and risks) to ensure that important nuances are not overlooked.

The following non-exhaustive list, inspired by a recent review by Kohnke, Moorhouse, and Zou (2023) provides just a few examples of how Generative AI chatbots such as ChatGPT could be used by pupils using EAL, their teachers and other support staff to enhance language development in mainstream curriculum learning (in other words, used as a resource used by teaching staff rather than replacing them) . The examples listed all work within the context for education in the UK where EAL learners have a dual task at school: to learn English (language) and to learn through English.

- **Models** - to create texts in various genres that pupils need to be able to understand and produce in order to access and demonstrate learning in different subjects (e.g. reports on experiments, recounts, monologues, presentations). These texts provide useful models for pupils to analyse and then use as blueprints and scaffolds to create their own texts. Also, to simulate authentic dialogues set in different relevant contexts for speaking and listening practice (for example, classroom interactions in different curriculum subjects). Pupils using EAL can use these to notice and practise useful sentence starters, useful phrases, etc., as Generative AI chatbots can suggest words and expressions that pupils can use in such contexts.
- **Vocabulary building** - to identify the meaning of key words and phrases that pupils need to learn, as Generative AI chatbots can define a word both in English and in the pupils' home language (but see the response to question 3 about less widely spoken languages). It can also identify its part of speech, provide sample sentences and translations offer additional meanings, and then continue the interaction by answering follow-up questions. Also, to prepare vocabulary notes in both English and the pupils' preferred language(s);
- **Accessibility** - for teachers and teaching assistants to adjust the complexity of curriculum texts to make them more suitable for pupils who are new to English or at the early stages of language acquisition;
- **Differentiation** - to generate adapted materials, such as comprehension and expansion questions to accompany reading, listening and viewing tasks;
- **Translation** - to rewrite texts in another language for pupils to translate later;
- **Interactive learning tools** - to design quizzes and games to aid recall and activation of key vocabulary;
- **Feedback on language output** - to correct and explain language mistakes;
- **Pronunciation** - to provide feedback on pronunciation and help pupils work on improving their accent through speech recognition technology;
- **EAL assessment** - to generate assessments that evaluate pupils' English language skills, providing insights into their progress and areas that need further development.
- **Personalised learning** - to create targeted study plans in partnership with the teacher to improve specific aspects of language use (e.g. a vocabulary-building plan to improve vocabulary used in Historical narratives);

Some of the uses mentioned above can also be applied to create a welcoming and inclusive environment for children and their families, particularly to ensure that parents and carers who themselves are new to English or at the early stages of language acquisition, may not be literate in English, and/or may be unfamiliar with the English education system and how it works are not disadvantaged and can be fully engaged in their children's education. For example, Generative AI, when used with oversight from EAL and multilingual staff to ensure accuracy in translation and cultural context, and when used as one more tool, can be deployed:

- to compose clear and concise announcements, based on parents' English language proficiency levels, ensuring important information is comprehensible;
- to adjust the complexity of existing documents, such as school policies and guidelines;
- to translate those documents into various languages, followed by a review of the translations by competent users of those languages (but see the response to question 3);
- to input messages in English and have Generative AI chatbots provide translations in the parents' or carers' home languages;

- to set up a system where parents/carers can ask questions in their own language and Generative AI chatbots can provide responses in English or their language;
- when interpreters or staff who speak parents' home languages are unavailable, to provide real-time translation during virtual meetings to ensure effective communication between school staff and parents/carers;
- to create surveys or forms in multiple languages to gather feedback from parents/carers.

It is important to highlight, though, the central role that human interactions play in creating a welcoming and inclusive environment for families, and that parents or carers who do not speak English may not feel particularly welcomed by translation tools alone.

*What subjects or areas of education do you believe could benefit most from generative AI tools?*

Generative AI tools have the potential to benefit a wide range of subjects and areas across the curriculum. For example, it can assist pupils in generating ideas, structuring texts, improving their writing skills by providing real-time feedback on grammar, style, and coherence, and enabling students to access educational content in their own languages as well as in English. As generative AI tools draw on language corpora and large language models for widely spoken languages, they are well-placed to support the language development of pupils who use EAL as they learn curriculum subjects, as well as Modern Foreign Language learning.

Also, generative AI could benefit teaching staff. In particular, it has the potential to streamline time-consuming tasks such as lesson planning, materials design and adaptation, and automatic marking.

## **Concerns and risks:**

*What are your main concerns about using generative AI in educational settings?*

The Bell Foundation's main concerns regarding the use of generative AI in educational settings are:

- that the adoption of generative AI in schools can further widen inequalities between children and families of different backgrounds if these are more likely to be accessed by socio-economically advantaged education schools or pupils, who also likely benefit from better digital technologies conditions, and better-prepared teachers and school leaders. Research evidence suggests that even for relatively less novel or advanced technologies, such as school-to-parent communication technologies, equity considerations are critical as technology adoption is higher among the most advantaged families (Bergman, 2019[25]).
- that in some schools rather than it being used to enhance teachers and teaching assistants' work in supporting the complex needs of disadvantaged pupils using EAL, it may come to be perceived as a quick and cheap fix and lead to a detrimental reduction in the deployment of teaching and support staff working with these learners. For all learners using EAL, and particularly for those newly arrived pupils who have experienced trauma and displacement and are settling in a new and unfamiliar country and school, building meaningful connections, developing a sense of safety and belonging, and having supportive interactions with caring and knowledgeable human beings is essential. Generative AI lacks emotional intelligence and cannot understand or respond to the emotional needs of children, which is a key aspect of teaching. Perhaps due to

pressures on school budgets, poor practices such as leaving learners unsupported either in a corner or outside the classroom to work with age and/or context inappropriate AI-based apps have become a usual occurrence in some schools, as indicated by anecdotal evidence gathered through our partner schools and the foundation's own observations. The Foundation is concerned that this type of widespread inappropriate use of Generative AI often tends to be implemented with pupils who are new to English or at the early stages of language acquisition, that is, the very pupils who are at the highest risk of underachievement and need the most support. There is a serious risk that with increased adoption of Generative AI in the future, and without robust, evidence-informed principles to guide its use, such practices may become commonplace, inadvertently advance inequalities, and augment the exclusion and disadvantage for pupils using EAL in mainstream classes and schools. The Foundation has observed that these tools are being promoted or pushed at Trust or local authority level. (See the response to question 5 for suggestions about how to mitigate this risk).

- that most schools that buy into AI-powered platforms and apps do not carefully plan and consider its effective deployment or spend sufficient time supporting staff through the challenges of implementation. They have often not done the initial thinking of how, when and for what purposes the tools should be used in their settings. They have also not trained staff properly in how to use generative AI, which means either staff avoid using it, or there is huge variation in use with some ineffective/inappropriate use.
- that overreliance on AI-generated tools in informal or spontaneous withdrawal situations like the one described above might lead to reduced interaction of pupils using EAL with peers who are fluent in English, potentially limiting opportunities for peer learning and friendship amongst pupils who use EAL and First Language English pupils, and ultimately integration;
- that computer programmes used to detect work generated by artificial intelligence to prevent cheating on assessments can discriminate against pupils who use EAL. Research conducted on popular AI text detectors found that these GPT detectors frequently misclassify non-native English writing as AI generated. This significant bias could have a serious impact on pupils using EAL and raises concerns about fairness and robustness. Addressing the biases in these detectors is crucial to prevent the marginalization of these learners in schools and to create a more equitable digital landscape. (Liang et al, 2023)
- that there is significant variation in the amount of content generated by AI and algorithm-based tools in different languages, and in availability of machine translation. For example, some languages, such as Oromo, Fula, Quechua, Wolof, Kirundi, and Mayan languages, are not on Google Translate. This means that the benefits of using such tools will be higher for those pupils who use the most widely spoken languages and lower or null for those who speak the least widely spoken ones. In addition to the poor practices mentioned in the previous bullet points, there are other ways in which its ineffective, unsupervised or uncritical use in the hands of untrained staff in the future could inadvertently disadvantage these learners. Content generated by AI may:
  - perpetuate stereotypes which could negatively impact learners' perceptions of themselves and others;
  - include complex or culturally specific language that may be difficult for pupils using EAL to understand, leading to confusion and hindering their learning;
  - lack cultural sensitivity and fail to address the diverse cultural backgrounds and experiences of these pupils, potentially making them feel misunderstood or excluded;

- lack the nuanced understanding of language and context that teachers have, leading to incorrect or irrelevant responses, misinterpretations or partial comprehension, or inaccurate explanations for grammatical use. Also, AI-powered translation tools might not accurately capture these nuances of language, idiomatic expressions, or cultural subtleties.
- generate misinformation due to its reliance on the quality and accuracy of pre-existing data, which might not always be accurate or up to date.
- not sufficiently adapt to the unique learning needs and levels of proficiency in English of individual learners, potentially resulting in either content that is too easy or too challenging for them.

## **Ethical and legal considerations:**

*If any, what are your views regarding ethics, data privacy and security when using generative AI in education?*

As highlighted in a recent report, regulations surrounding the use of algorithms and AI in education are not yet widespread (OECD, 2023). With a 36% estimated growth expected in the size of the education AI market between 2022 and 2030 (Grand View Research, 2021[41]), the increasing uptake of these new technologies must be matched by new regulatory efforts. Also, currently, little specific regulation exists on the protection of learners in digital environments. While broader regulatory frameworks – such as the GDPR – have implications for education institutions, more guidance and support are needed to empower schools to comply with these regulations.

A concrete example that impacts on pupils using EAL and their families in this respect is the use of AI-powered translation tools to replace translators or interpreters when these are needed to ensure the required precision in communication. Whilst machine translation technology is useful for day-to-day translations of simple information or school-home communication, it is not appropriate for data which is complex and sensitive, as it lacks the cultural context of the two languages being used. However, this is not always observed in practice, partly because the paid-for professional services of a translator or interpreter may be unaffordable for many school budgets, but also because provision of language services is often framed as an additional cost on an overburdened system, rather than as an essential element of it functioning correctly and expediently when necessary.

Further efforts to support research on algorithmic bias in education are also needed, including support for improvements in data collection, particularly on underrepresented demographic groups in current research, such as disadvantaged pupils using EAL.

## **Future predictions and enabling use:**

*What support do education staff, pupils, parents or other stakeholders need to be able to benefit from this technology?*

Education staff must be trained to use generative AI responsibly and carefully and to critically question the implications on privacy and fairness. This requires long-term investment in robust professional development on the responsibilities of schools to avoid unintended consequences of malpractice when using generative AI and to continue to ensure that data is protected when using it, the potential of AI applications for education and awareness of and training on the possible risks.

*What activities would you like to see the Department for Education undertaking to support generative AI tools being used safely and effectively in education?*

The Department for Education should engage education sector stakeholders and experts to:

- develop guidance for Artificial Intelligence in education to ensure that AI systems are designed to respect equity, and diversity and include appropriate safeguards towards this end;
- formulate and disseminate principles and guidelines for the application of AI and algorithm-based tools in education that set standards for trustworthy and innovative AI;
- consider the implications of widespread adoption of this technology in teacher training;
- given the relative newness of generative AI in education and more generally, work is needed through an expert panel over a period of time to consider in more depth the ethical and legal considerations as they emerge, particularly for pupils who are disadvantaged, speak EAL or are from minoritized communities.

Answers submitted via an online form.