The Benefits of Generative AI in Education

Duolingo's mission is to develop the best education in the world and make it universally available. Generative AI, by allowing humans to create more and better content, helps us achieve our mission much faster. Therefore, we support a legal framework that advances innovation in generative AI and allows generative AI to be used for educational purposes.

Some specific ways in which we use generative AI to improve education include:

- Generating and personalizing course content.

Generative AI helps us create customized learning content quickly, including both specific exercises and unique learning paths. This customized content can be specific to an individual learner's needs, preferences, proficiency, and goals, while meeting our strict pedagogy bar. By allowing us to create tailored learning materials at scale, generative AI ensures that our learners have access to the most suitable materials for their needs and receive appropriate challenges and reinforcement.

Generative AI also allows us to create learning materials in multiple languages and formats, making education more accessible to diverse populations, including learners with specific learning needs, difficulties, or learning styles. For instance, two new features we are creating with the help of generative AI are DuoRadio, which will allow language learners to improve their listening skills through dynamic, podcast-style audio lessons, and Adventures, a mini-game where more visual learners will be able to test their language skills in interactive scenarios.

And generative AI allows us to teach more new subjects. Recently, we have added courses in math and music, in addition to our over 40 languages. Ultimately, we envision our math course being able to teach people practical numeracy skills such as simple calculations and word problems. Generative AI helps our content creators to create more content for these courses.

- AI-powered tutoring features.

One-on-one tutoring is the gold standard for education. Unfortunately, it is not affordable or accessible for the vast majority of people in the world. But generative AI allows us to replicate some of the benefits of one-on-one tutoring in a scalable way that can reach far more people. For example, Duolingo has recently launched two features for advanced language learners in some courses: Roleplay and Explain My Answer.

The Roleplay feature allows learners to practice real-world conversation skills in the language they are learning with a chatbot powered by generative AI. This feature guides learners through various scenarios such as discussing vacation plans, ordering coffee, or shopping with a friend. Learners can receive real-time feedback on their responses and tips for future conversations.

The Explain My Answer feature offers learners the chance to learn more about each of their responses in a lesson, and why it was correct or incorrect. Learners can enter a chat powered by generative AI to get a simple explanation for why their answer was right or wrong, and ask for examples or further clarification.

We are continually improving these features and rolling them out to more languages and learners. As generative AI improves, our hope is that these and similar features will allow us to deliver a similar quality education as a human tutor to a far larger number of people. Our goal is not to replace human educators, but to make higher-quality personalized education accessible to those who cannot afford human tutors.

- The Duolingo English Test (DET)

For millions of people around the world — particularly aspiring international students — the path to a better life is blocked by an English language test that costs hundreds of dollars and is otherwise inaccessible. This is an experience familiar to almost every immigrant, including many of us at Duolingo — even our co-founder and CEO.

To reduce these barriers, Duolingo created the Duolingo English Test, the first fully online English proficiency exam, which is now accepted by over 4,500 institutions and costs only a small fraction of what traditional exams cost. Through the DET, we aim to ensure that the ability to travel to or pay for an English test is never the barrier to someone's chances at a better life. Generative AI plays a key role in ensuring that the DET remains affordable, reliable, and secure, by allowing us to generate high-quality test items at scale. The DET has even published a set of Responsible AI Standards to guide our use of AI.

Among other things, generative AI can reduce bias and improve fairness. As outlined in our Responsible AI Standards, we reduce bias by investing significant effort in curating diverse, unbiased, and high-quality data, including both publicly available content retrieved from the internet and specialized data that we license from sources such as universities. Additionally, a diverse pool of human experts from varied cultural and linguistic backgrounds reviews our AI models and their outputs to ensure that they are appropriate and unbiased. Through these efforts, we are better able to eliminate construct-irrelevant barriers and ensure that cultural and linguistic factors do not impede accessibility and inclusion for test-takers.

Generative AI also improves test security. Traditional tests are vulnerable to cheating because the number of test items is limited, meaning there is a risk that cheaters could gain unfair access to test items, such as through acquiring leaked items or taking the test multiple times. However, with generative AI, the DET is able to create a large number of test items and cycle through these frequently, making it much harder for someone to cheat using leaked or memorized test items. Ultimately, better security makes DET scores more credible and helpful to test-takers and to institutions who evaluate test scores.

The Need for Legal Certainty Around AI

To fully take advantage of these benefits, however, we believe that legal certainty regarding the use of generative AI for educational purposes, including commercial educational purposes, is important.

We believe that no licenses should be required to use material that is already freely available online to train AI models for educational purposes. Such use is transformative and fair use because it has an entirely different purpose and character from the original works, and does not

compete with the original works. Moreover, billions of people located around the world publish content online, and it would be impractical to obtain a license from all of them or cover them all with a collective licensing scheme. And attempting to create such a scheme could hinder many ethical AI goals. For instance, in order to minimize bias in our content, we seek to acquire high-quality and diverse data reflecting a variety of languages and linguistic styles. If certain types of data were difficult or impossible to use due to licensing requirements, it would be harder for us to teach those languages or styles. However, authors of works that are not already freely available can limit the use of their works to train AI through contract when distributing their works — for instance, Duolingo licenses certain non-public corpora of academic works, and the use of those works to train AI is a matter of contract between Duolingo and the academic institution that owns them.

We believe that any liability for copyright infringement based on AI-generated outputs should be governed by the existing substantial similarity test. Output generated by an AI trained on copyrighted materials should not automatically be considered infringing — just as a work by a human author would not be considered infringing merely because the human author had learned how to write through reading copyrighted works. A user could in theory intentionally use generative AI to create infringing outputs, such as by asking the AI model to reproduce a copyrighted work, but the substantial similarity test is sufficient to cover those cases. In Duolingo's case, however, we do not use generative AI to reproduce copyrighted works or create works substantially similar to copyrighted works. Instead, the outputs we generate are not infringing because they are short educational exercises and assessment items, which are completely different from any of the works used in training and cannot substitute for them.

We oppose a broad requirement to label AI-generated outputs. While such labeling may be appropriate for certain specific use cases, such labeling is impractical for the type of educational and assessment uses we use generative AI for. The majority of our learners use Duolingo on mobile devices where space is at a premium. Adding AI disclosures would be unnecessary and distract from the educational use of the space.

Finally, we support efforts to improve access to generative AI around the world. The use of generative AI in education may exacerbate the digital divide if access to these advanced tools and resources is not equitably distributed. Ensuring that students from diverse backgrounds and with varying levels of technological access can benefit from generative AI is a critical concern.