

Unlocking AI: A Primer for Educators

THE PROMISING POTENTIAL OF AI

Recent advances in generative artificial intelligence (GenAI) are revolutionizing the way we interact with technology. Across sectors, people are finding ways to leverage AI to increase productivity and improve results. In fact, a fall 2023 report found over half (56%) of all U.S. workers use AI for work.¹ In Tennessee, nurses are using AI to document and record patient encounters, and customer service representatives are using AI to more quickly connect clients to important information.^{2,3}

The education field is no exception to this trend; educators and leaders across the nation are exploring ways AI can transform their work and help students learn. Despite the incredible promise of this new technology, many educators are still at the starting line — nationally, over half of teachers have never used AI.⁴

While traditional software follows rigid patterns and is rules-based, GenAI instead behaves in a much more human manner. Models can be prompted using everyday language and will use a degree of discretion to interpret instructions. As a result, GenAI often behaves in unexpected ways that can surprise a new user.

Tennessee SCORE has heard from educators who recognize the potential of GenAI but aren't sure the best way to start using it themselves. In response, **this memo highlights two tools for teachers who may want to take a first dive into AI. These free and useful tools are a great starting point to experience the possibilities and limitations of AI in its current state.**

EXPLORE LARGE LANGUAGE MODELS WITH CHATGPT-4o

Large language models (LLMs) are text-to-text GenAI models, meaning they take in text as input, and generate text as output. LLMs usually take the form of chatbots, which can be instructed by the user to write something or respond to a question. Not only are LLMs the original GenAI models, but they are also the most versatile of AI tools. For both these reasons, they are a good starting place for any teacher wanting to explore AI. ChatGPT-4o is one of the best LLMs currently available and, conveniently, is accessible for free. ChatGPT-4o emulates a broadly knowledgeable and super-creative conversation partner, and a skilled user can leverage these strengths for productivity gains on a variety of tasks.

What is Generative Artificial Intelligence?

Generative artificial intelligence, often shortened to GenAI, is a class of software that generates text, images, video, audio, or other media. GenAI programs, or models, distinguish themselves from older technologies with their high degree of understanding, creativity, and flexibility. GenAI models can understand complex instructions written in everyday language to produce a seemingly infinite range of possible outputs.

Since a seminal paper from Google in 2017, GenAI has exploded both in capabilities and popularity. Rapid technological innovation has transformed the field from an academic novelty to one that produces practical everyday tools. Today, thousands of AI developers are supporting thousands of AI tools across a wide range of use cases, from conversational chatbots to essential research partners.

Doctors have found LLMs can help inform, but not dictate, diagnostic decisions, and legal professionals have learned to leverage the power of LLMs while making sure everything is fact-checked by lawyers^{5,6} National guidance endorses a similar collaboration for educators.⁷ While LLMs are highly effective at generating many approaches, they are less capable of consistently ensuring those approaches are high quality. **Teachers should combine GenAI's capability to quickly perform large amounts of creative work with their own professional expertise.** Good practice is to delegate the task of creating a list of options to AI, but a teacher should choose the best options from that list, review them, and edit them as necessary. With enough practice collaborating with AI, teachers can become highly competent LLM users, saving time and effort that can be leveraged on higher impact tasks.

Experimenting with ChatGPT-4o

Educators can access ChatGPT-4o at chatgpt.com. It operates like an ordinary chatbot: Enter a prompt in the text box, and ChatGPT will respond.

Example Prompts:

What are three ideas for fun class activities to help 5th graders understand the role of the three branches of U.S. government?

List 20 options for vocabulary words for a 7th-grade class with a common theme of "weather."

Write three possible word problems for 2nd graders to test comparing fractions, using our class pet Smokey the hamster as a character.

Feedback

Sometimes, the first responses from ChatGPT-4o will need adjustments. In these cases, the user can give feedback to ChatGPT, and it will rework its answers. ChatGPT will respond to further iterations of feedback until it produces a satisfactory output.

Example Feedback:

Can you elaborate more on the first option you gave?

I would like these to be vocabulary words that are less scientific, and more likely to be encountered in a 7th-grade reading.

Rewrite these problems so the fractions being compared have different denominators.

EXPLORE TEXT-TO-IMAGE MODELS WITH MICROSOFT DESIGNER IMAGE CREATOR

Text-to-image models are another type of GenAI that has arisen alongside LLMs. Text-to-image models take a prompt describing a picture and, in seconds, generate a matching image. The easiest way to freely experiment with the text-to-image models is the Microsoft Designer Image Creator.

Previously, educators who wanted to use visuals in their educational material faced the option of either a potentially unsuccessful internet search or the laborious task of making a visual from scratch. Now, text-to-image models like Microsoft Designer make it easier to create custom, high-quality, and royalty-free visuals that can be used to improve accessibility and engagement.



An AI-generated image of a hamster reading a book.

Experimenting with Microsoft Designer

Educators can access the text-to-image functionalities of Microsoft Designer at designer.microsoft.com/image-creator by logging in using an individual Microsoft account. Using the image creator is as easy as entering an image description, selecting an image format (square, portrait, or wide), and hitting generate.

Example Prompts:

Two neighboring houses illustrating the difference between a Victorian house and a rustic house.

An illustration of the performance of one of Shakespeare's plays, as it would have been performed in the 17th century.

An illustration of a man who might be called a "macaroni" in the 18th century. Linework illustration. Empty background.

Styles

Image prompts can be further modified by specifying colors, fine details, and artistic styles. Using phrases like **minimalist**, **cartoon**, **2D**, or **monochrome** allows users to add more direction to the final output.

READY FOR MORE? AI RESOURCES FOR FURTHER EXPLORATION

While the applications here represent an excellent starting place, teachers can take additional steps to further explore how AI applications can support and innovate teaching and learning.

- Beyond the general-purpose AI applications elevated in this paper, there are also many more narrowly scoped AI tools. Researching online, talking to other educators, and getting hands-on experience are great ways for teachers to identify the most impactful AI for their practice.
- Communicating with AI has its own learning curve. With deliberate practice, teachers can build their skills crafting the best prompts to become more effective at using AI. Highly competent users can develop an intuition for what types of input result in the best output, where AI excels, and where it falls short. For an in-depth look at ways educators can improve their prompts, [this document from Google](#) lists a variety of prompting strategies.

CLOSING

AI capabilities will continue to grow in exciting and unexpected ways for many years. There is a real opportunity for innovation in education if educators are equipped with knowledge of and experience with AI. But crucially, AI is unlike any technology before and can behave in ways that don't always make sense, so there's no substitute for hands-on exploration. Thankfully, there are a plethora of AI tools that are easily accessible, and educators can start using and learning in just minutes.

The promise of AI in Tennessee hinges on the creativity and professional expertise of our educators, as innovative teachers will think not only about how AI can make current instruction better, but how AI can enable new types of instruction. Tennessee needs bold, innovative educators to explore the frontier of AI, learn how the technology can work for them, and use it to the benefit of our students.

References

- ¹ Majority of US Workers Are Already Using Generative AI Tools — But Company Policies Trail Behind. The Conference Board. (September 2023).
- ² Balasubramanian, Sai. *HCA, One Of The Largest Healthcare Organizations In The World, Is Deploying Generative AI*. Forbes. (August 2023).
- ³ *Unum Group builds custom AI application to search 1.3 terabytes of data with 95% accuracy using Microsoft Azure generative AI solutions*. Microsoft. (May 2024).
- ⁴ Diliberti, Mellissa Kay, Heather L. Schwartz, Sy Doan, Anna Shapiro, Lydia R. Rainey, and Robin J. Lake. *Using Artificial Intelligence Tools in K-12 Classrooms*. RAND Corporation. (April 2024).
- ⁵ Marr, Bernard. *How Generative AI Will Change The Jobs Of Doctors And Healthcare Professionals*. Forbes. (March 2024).
- ⁶ *How Is AI Changing the Legal Profession?* Bloomberg Law. (May 2024).
- ⁷ *Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations*. U.S. Department of Education, Office of Educational Technology. (May 2023).

Continue your Exploration: More AI Tools

SciSpace searches a large body of academic literature, pulling out key insights from multiple papers to help quickly generate a survey view of any question.

MyLens.ai uses GenAI to visualize the facts of a topic in a timeline, mind map, or graph. Try asking it about the characters in a novel or the timeline of a concept through history.

Grammarly is a generative AI built for writing and editing. Beyond generating text, it can also reorder sentences for clarity, catch semantic errors, and edit for tone.