

To keep AI grounded in best practices for teaching children, it's essential to prioritize ethical considerations, continually evaluate and refine algorithms to ensure they align with educational goals, and involve educators and child development experts in the design and implementation process.



TRULY HUMAN

Leveraging **AI** to Better Serve Our Children



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Globally, less than 10% of schools are developing uniquely local artificial intelligence (AI) policies and addressing use cases. Policies and guide rails for using AI in education that are in place have rightfully called for us to address the ethical implications and biases that can arise with regard to AI tools and systems.

The landscape of what AI is, how it can be used, and how we can leverage it in education while being truly human in our approach necessitates background knowledge, experimentation, and a focus on curating tools that empower (not power) collective efforts to serve all children.

What Is Artificial Intelligence?

The past few years have been filled with headlines about artificial intelligence. For educators, three key points about AI should be understood:

- AI can be operationally defined as systems that process data and information in ways that resemble intelligent behavior, which includes aspects of reasoning, learning, perception, prediction, planning, or control. Educators must understand this to appreciate AI's role in future learning environments.
- Educators should be familiar with the different types and classifications of AI, such as reactive machines and limited memory AI, as well as AI branches, such as machine learning, neural networks, and natural language processing. This knowledge helps us understand how AI technologies work and their educational applications.
- AI has been used for decades in education, with little oversight or explanation of how these tools can be used. Decades of use have demonstrated that machine learning and natural language processes can provide highly personalized and relevant educational content. This content can help bridge gaps in learning opportunities, especially for under-resourced children.

How Are You Already Using AI?

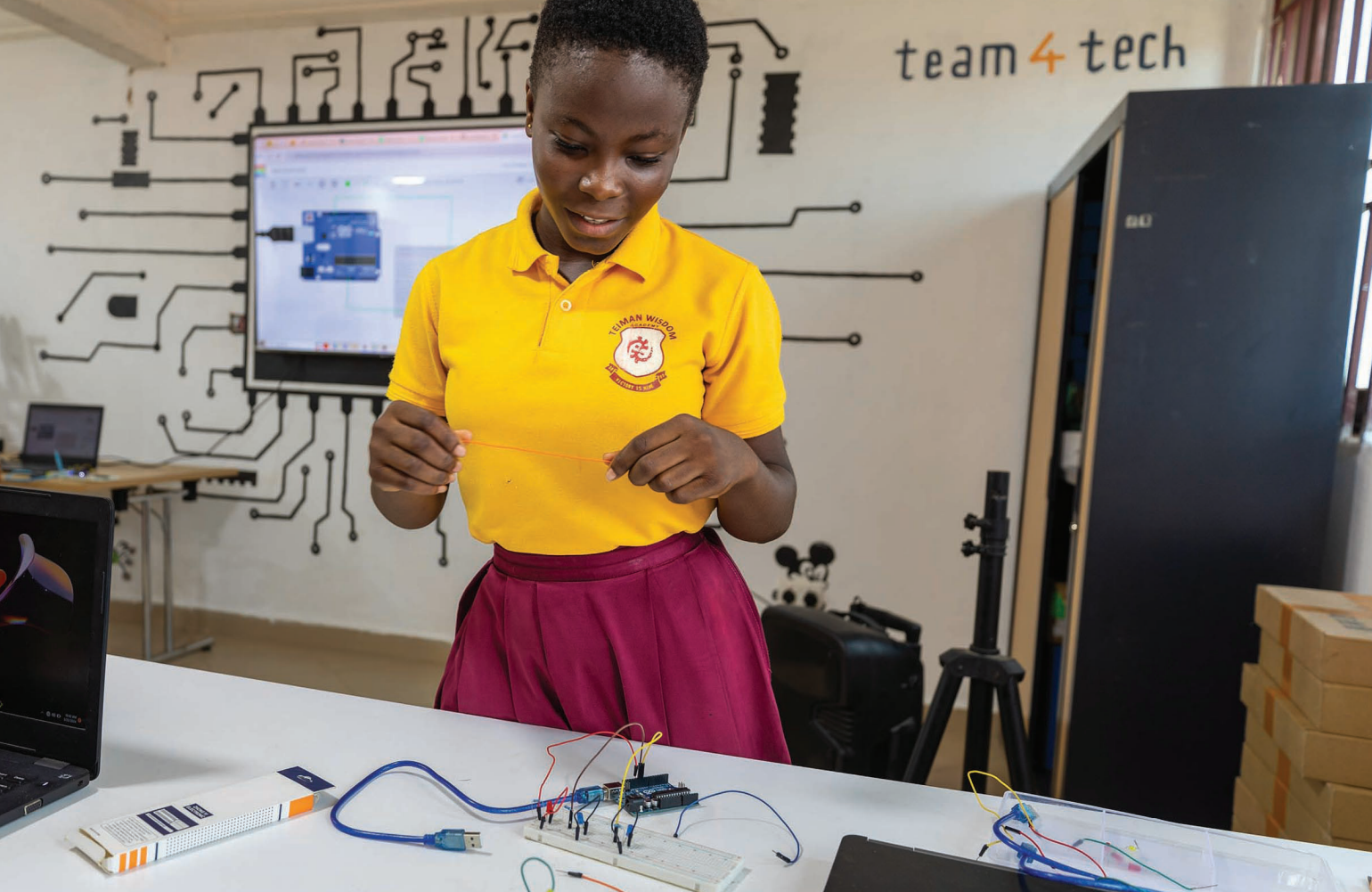
A good starting point for conversations about AI can be identifying how we have been using AI (often without even knowing it). Typical use cases for AI might include (among a long list of others):

- Digital assistants (e.g., Siri, Alexa, and Google Assistant)
- Personalized recommendations for movies, videos, and music such as those provided by streaming services (e.g., Netflix, YouTube, and Spotify)
- Customer service chatbots embedded into websites to help provide immediate responses to queries, guide users through troubleshooting processes, and even assist in shopping experiences
- Navigation tips embedded into systems like Google Maps and Waze that analyze traffic data in real time, suggesting the best routes and estimating arrival times
- Spam filters in email services and suggestions for quick, automated message responses.

What Is Generative AI?

Generative artificial intelligence (Gen-AI) represents a class of tools that can synthesize, extrapolate, and create content. This technology leverages vast networks and countless datasets to generate new outputs. The





efficiency and accuracy of these tools are contingent upon the volume and diversity of the training data, as well as the sophistication of its underlying algorithms.

In education contexts, Gen-AI can be a tool for personalizing learning materials, creating educational content, and providing adaptive learning experiences. For instance, it can synthesize educational content tailored to students' learning styles and proficiencies or generate interactive scenarios for problem-based learning. While Gen-AI holds remarkable potential, it also presents challenges in terms of ethical considerations, data integrity, and the need for critical oversight to ensure that the outputs are accurate, unbiased, and appropriate.

What Are the Use Cases for Gen-AI in Education?

Through our collaborative work at AI-for-Education.org, a global network has identified use cases for Gen-AI in education. In our final documentation, these use cases are easily categorized into key areas of possible education use and include:

- Assessing and reviewing
- Planning and teaching

- Ensuring data quality
- Creating quality teaching and learning materials
- Supporting assessment processes
- Creating positive learning environments
- Developing quality curriculum
- Designing language instruction
- Offering continuous professional development
- Recruiting and training teachers
- Engaging families
- Empowering leaders to use data
- Identifying policies.

These big topical areas are further explored with more detailed examples on the [AI-for-Education.org](https://www.ai-for-education.org) website.¹

What Do Educators Need to Know About Prompts?

Large language models (LLMs) are tools that can generate text quickly using Gen-AI. Many, such as Gemini, ChatGPT, Claude, and others, are now publicly available, both directly and through other software. They have been created using substantial volumes of text, which they use to try to predict what text can help you with your question or task. Their general abilities mean



you can, in theory, use them to answer a broad range of questions related to teaching and learning. They aren't perfect — and should always be used with professional judgment about what they say — but they can dramatically reduce the time you spend on many tasks, providing a great first draft or first answer to help you get started.

Prompts are the questions we write into these models, usually through the web interface or apps. The clearer and more detailed you are with your prompts, the better the output. If you think about how you'd ask a teaching assistant for help — being clear with your goals and setting things out step by step — and craft your prompt accordingly, then you'll be more likely to benefit from the results.

A new guide produced by [AI-for-Education.org](https://ai-for-education.org) presents simple examples of what LLMs can do and strategies you can use to get what you need when using them, particularly through improving your prompts. This guide provides prompts and tactics for improving those prompts. Topics for prompts include:

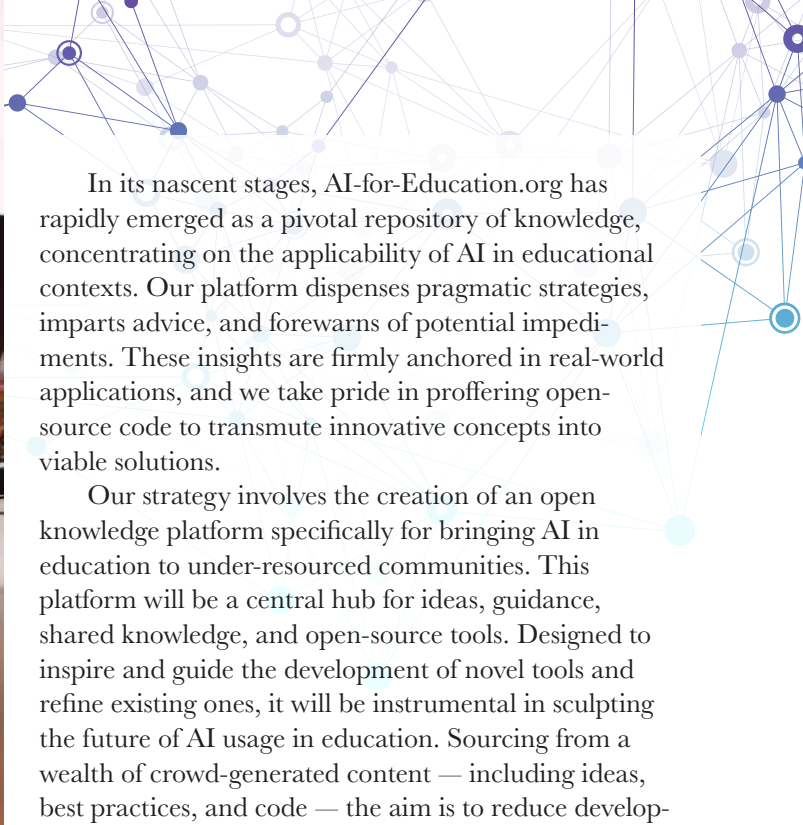
- Answering questions about content
- Generating ideas about learning activities
- Developing educational resources
- Troubleshooting teaching and learning challenges (e.g., some children find it hard to listen to directions).

How Can We Ensure That We Remain Truly Human in Our Work?

With all of the advantages and opportunities that technology provides, the involvement of humans is eternally important in our children's lives. While Gen-AI can save us time, help us brainstorm, develop drafts, and even help clarify the best ways to chunk information into lessons, we know there is much that it cannot do.

Speaking with a group of teachers recently, we took some time to brainstorm how they see themselves as truly irreplaceable and how they can use AI to spend time on what matters most. Here are some highlights from that chat.

- To ensure that we are always “the human at the center,” we need to ensure that we aren't just letting Gen-AI tools do our work. Think of it as the best (and fastest) assistant, who can generate drafts and develop ideas you can take, refine, localize, and implement.
- Teachers carry out so many time-consuming tasks. How can we use Gen-AI tools to save us time in grading, generating feedback, or even drafting directions? If we used AI to do those things, how can we improve learning outcomes with the time we have saved? The new time available to teachers is possibly one of the most exciting parts of Gen-AI in education.
- Teachers are often working in isolation with little support. What would it look like for teachers if they



could use Gen-AI for translation, making materials accessible, or even personalizing assignments for specific children? Teachers wholeheartedly agree that Gen-AI is the best assistant they could hire as it is always there when you need them, is lightning fast, and is constantly updating their training.

- Teachers have the capacity to see beyond the words that Gen-AI tools develop. The outputs of Gen-AI are ideas and suggestions. It takes a skilled teacher to analyze those results for quality and accuracy. Furthermore, trained teachers have the skill to interpret in light of individual student needs, with a deep understanding of context. The teachers recognize that they are the human component necessary for AI to work wonders in education.

More About AI-for-Education.org

AI-for-Education.org is an initiative coalesced by Fab, Inc. and Team4Tech that aims to revolutionize the educational landscape by integrating AI in drastically under-resourced communities, including low- or middle-income countries (LMICs). This initiative is committed to democratizing AI resources, ensuring financial constraints do not impede access to cutting-edge technology.

Our principal mission is to furnish top-tier AI resources tailored to the unique requirements of under-resourced educational environments. Recognizing AI's multifaceted challenges and transformative potential in education, we remain cautiously optimistic and steadfast in our endeavor to effectuate meaningful change.

In its nascent stages, AI-for-Education.org has rapidly emerged as a pivotal repository of knowledge, concentrating on the applicability of AI in educational contexts. Our platform dispenses pragmatic strategies, imparts advice, and forewarns of potential impediments. These insights are firmly anchored in real-world applications, and we take pride in proffering open-source code to transmute innovative concepts into viable solutions.

Our strategy involves the creation of an open knowledge platform specifically for bringing AI in education to under-resourced communities. This platform will be a central hub for ideas, guidance, shared knowledge, and open-source tools. Designed to inspire and guide the development of novel tools and refine existing ones, it will be instrumental in sculpting the future of AI usage in education. Sourcing from a wealth of crowd-generated content — including ideas, best practices, and code — the aim is to reduce development costs, promoting technological innovation and educational enhancement.

Envision a teacher in a resource-limited setting, equipped with a basic smartphone and minimal connectivity, seamlessly integrating AI into their teaching methodology. From class preparation to homework evaluation, AI can offer unparalleled support. Similarly, our platform can be a cornerstone for a local tech innovator in an LMIC, ensuring their product is technologically advanced and pedagogically sound without necessitating prohibitive investments.

AI-for-Education.org catalyzes change, bridging technology and education and serving as a beacon of hope for underprivileged education systems. Our investment in AI for education transcends geographical and financial barriers, fostering an environment where every educator and innovator can harness the power of AI to transform the landscape of education in LMICs.

AI-for-Education.org has received initial funding from the Bill and Melinda Gates Foundation and the Jacobs Foundation. You can learn more about the work at <https://ai-for-education.org>.

Note:

¹ See the full list of ways AI can help education at <https://ai-for-education.org/all-use-cases>.

Disclosure Statement:

The authors are employees of Team4Tech and Fab Inc. and Fab Data.

Effective Prompts for Generative AI Use

We asked ChatGBT to provide some guidelines and recommendations for effective prompts when using generative AI and received the following response:

When using generative AI, such as language models, for various purposes like creative writing, content generation, or problem-solving, crafting effective prompts is essential to guide the AI toward producing relevant and valuable outputs. Here are some guidelines and recommendations for creating effective prompts when using generative AI:

- **Clear and Specific:** Provide clear and specific instructions to the AI about the task or output you expect. Ambiguity in the prompt can lead to undesired results or irrelevant outputs.
- **Contextual Information:** Offer relevant contextual information to the AI, such as background details or constraints, to guide its generation process. This helps the AI understand the context and produce more coherent and relevant outputs.
- **Examples or References:** Include examples or references to guide the AI toward the desired style, tone, or content. Providing samples can help the AI better understand your expectations and produce outputs that align with them.
- **Focused Objectives:** Align the prompt with your specific objectives or goals for using the generative AI. Whether it's storytelling, summarization, or problem-solving, ensure that the prompt serves the intended purpose.
- **Appropriate Length:** Consider the appropriate length of the prompt to convey necessary information without overwhelming the AI. Avoid overly lengthy or convoluted prompts that might confuse the AI.
- **Open-endedness:** Depending on the task, consider leaving some aspects of the prompt open-ended to encourage creativity and flexibility in the

AI's output. This allows the AI to explore different possibilities and generate diverse outputs.

- **Feedback Loop:** Establish a feedback loop to iteratively refine the prompts based on the AI's outputs. Analyze the generated content and adjust the prompts accordingly to improve the quality of future outputs.
- **Ethical Considerations:** Be mindful of ethical considerations when crafting prompts, especially if the generated content might have social, cultural, or ethical implications. Avoid prompts that could lead to biased or harmful outputs.
- **Domain Knowledge:** Provide relevant domain knowledge or domain-specific vocabulary if necessary, especially for specialized topics or fields. This helps the AI generate more accurate and coherent content within a specific domain.
- **Experimentation and Iteration:** Experiment with different types of prompts and iterate based on the results to understand what works best for your specific use case. Not all prompts will yield satisfactory results, so be prepared to adjust and refine them as needed.
- **Consistency:** Maintain consistency in prompts when working on a series of tasks or projects to ensure coherence and continuity in the AI's outputs. Consistent prompts help the AI understand patterns and produce more coherent content over time.
- **Engagement and Creativity:** Encourage engagement and creativity by designing prompts that stimulate curiosity and imagination. Engaging prompts can lead to more interesting and innovative outputs from the AI.

By following these guidelines and recommendations, you can create effective prompts that guide generative AI toward producing relevant, coherent, and valuable outputs tailored to your specific needs and objectives.



For Further Reading

Crafting Ethical AI Landscapes in K-12 Education

By Alexandra Holter, Andrew Rummel, & Holly Skadsem

The journey toward integrating AI into K-12 education ethically is a collaborative endeavor requiring engagement at all levels.
www.eschoolnews.com/digital-learning/2024/04/02/crafting-ethical-ai-landscapes-in-k-12-education/

Using AI to Enhance Universal Design for Learning

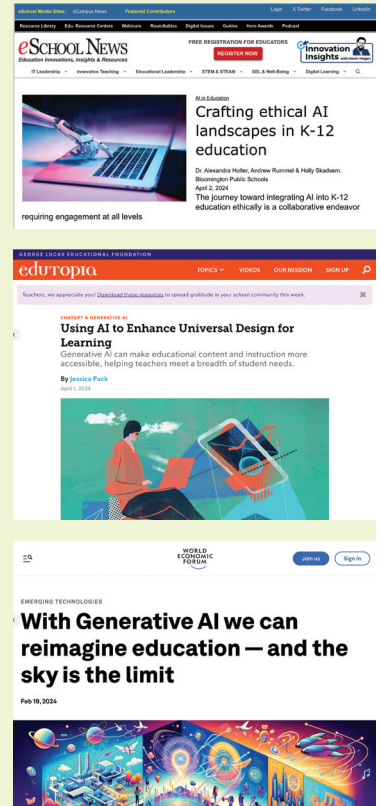
By Jessica Pack

Generative AI can make educational content and instruction more accessible, helping teachers meet a breadth of student needs.
www.edutopia.org/article/using-ai-in-universal-design-for-learning

With Generative AI We Can Reimagine Education — And the Sky Is the Limit

By Oguz A. Acar

There are many opportunities to reimagine how we educate in the age of Generative AI. From helping teachers focus on teaching to allowing students to work on far more ambitious projects, AI has the potential to be a great force for good in education.
www.weforum.org/agenda/2024/02/with-generative-ai-we-can-reimagine-education-and-the-sky-is-the-limit/



Overview on Innovation



CoSN, the professional association for K-12 EdTech leaders, has released the 2024 **CoSN Driving K-12 Innovation report**, which provides insights into the hurdles, accelerators, and tech enablers shaping the educational landscape.

Hurdles (Barriers)

The top three key challenges identified in the report are:

- Attracting and Retaining Educators and IT Professionals
- Ensuring Cybersecurity and Safety Online
- Scaling Innovation and Inertia of Education Systems

Accelerators (Mega-trends)

The top three accelerators, propelling positive change within the education system, identified in the report are:

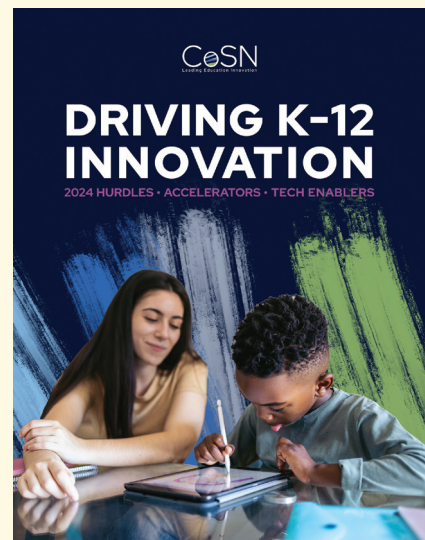
- Changing Attitudes Toward Demonstrating Learning
- Building the Human Capacity of Leaders
- Learner Agency

Tech Enablers (Tools)

Technology can be an enabler of educational innovation.

The key tech enablers that emerged from the report are:

- Generative Artificial Intelligence (AI), Analytics, and Adaptive Technologies
- Rich Digital Ecosystems



Read the Report: <https://www.cosn.org/edtech-topics/driving-k-12-innovation/>