



Opinions: Educators' Thoughts on AI in the Classroom

Editor's Note:

We reached out to HASTI members and asked for their thoughts on artificial intelligence in the classroom. The prompt was purposely broad to encourage varied and creative responses. We want to thank the people who responded to the call. We hope you will agree that this is an important conversation to have, and these authors have provided us with a good place to begin.

Embrace the Change

Dawn Bick, STEM Program Specialist, Girl Scouts of Central Indiana and current HASTI President

Whether you've been in the classroom for less than a year or for more years than you want to count, technology is changing as quickly as it is introduced. Let's embrace the change as willingly as we embrace a new phone with new features. We're not afraid of the phone and learning what the new buttons do. We're excited and eager to learn and teach others. As it should be with new versions of technology, such as AI (Artificial Intelligence).

I openly admit that I was afraid of AI. I had visions of robots teaching my class and my role being diminished. Movies played in my mind of destruction and peril. However, after taking an online class on AI, I've changed my mind. I have used what I learned in that class many times and I have some ideas and suggestions on ways you can navigate this new territory.

Start small. I learned to begin small. Using AI can be as simple as generating a variety of words to make your newsletters and emails more engaging. When I am stuck with another way to express my thoughts, generating an AI thesaurus can remind me of meaningful phrases to use.

Use what is already available. Have you noticed the pre-empted email responses available when you go to reply to an email? Consider using them. They are created based on your history of responses and can often make your correspondence interesting and concise. It saves you time and energy. Our mental capacity is better spent on engaging activities and exciting our students.

Embrace a fresh start. New ideas are sometimes difficult to come up with and daunting to execute. AI can give you a new perspective on a lesson. It can suggest a game or activity that may put a new spin on your lesson. When struggling to find resources to differentiate for students, AI can give ideas to bridge missing content or extend a student's knowledge to new heights.

You may be asking; how do I get started? I like to use Gemini. I don't have to have an account or sign in. I just open the website, type in

"Generate a game to teach the food chain", and I get the following ideas in seconds:

Food Chain Game: "Eat or Be Eaten"

Objective: To create a balanced food chain by correctly matching organisms as predators and prey.

Materials:

- Picture cards of various organisms in a food chain (e.g., plants, herbivores, carnivores)
- Large game board with spaces for each type of organism

Setup:

1. Shuffle the picture cards and place them face down in a pile.
2. Place the game board in the center of the playing area.

Gameplay:

1. Turn-Taking: Players take turns drawing a card from the pile.
2. Card Matching: The player must place the card on the game board in the correct position within the food chain.
 - If the card is a producer (plant), it goes at the bottom of the chain.
 - consumer.



- If the card is a consumer (herbivore or carnivore), it goes above the organism it eats.
3. Correct Placement: If the player places the card correctly, they keep the card.
 4. Incorrect Placement: If the player places the card incorrectly, they return it to the bottom of the pile.
 5. Winning Condition: The first player to create a complete and balanced food chain, from producer to top predator, wins the game.

Additional Tips:

- **Difficulty Levels:** Adjust the game's complexity by including more or fewer organisms or by using more complex food webs.
- **Educational Extension:** After playing the game, discuss the roles of different organisms in the ecosystem and the importance of maintaining a balanced food chain.
- **Creative Variation:** Create a collaborative version where players work together to build a food chain, discussing and debating the correct placement of each organism.

Example Food Chain:

- **Producer:** Grass
- **Primary Consumer:** Grasshopper
- **Secondary Consumer:** Frog
- **Tertiary Consumer:** Snake
- **Quaternary Consumer:** Hawk

By playing this game, children can learn about the interconnectedness of organisms in an ecosystem and the importance of energy flow through the food chain.

Other websites such as Grammarly, Semrush, Figma, and Wordtune can be helpful as well. Images can be found using AI such as Deep AI, Opera, and Open Art.

Our minds and creativity are only limited by the resources we are open to using. I want to encourage and support you in finding AI and other technology as exciting and new. Be as excited about using technology in your classroom as you are when you get a new feature on your phone. And when it doesn't work out the way you expected, be open and honest about it. Be a model for your students about how to be resilient when our efforts don't produce what we intend. These are wonderful learning opportunities for you and your students that don't occur in a textbook and can create a lasting impact.

Thoughts on AI in Education

Kelly Book, Earth-Space Teacher, North Harrison High School

This summer, I attended a Nextech workshop titled "Incorporating AI in your K-12 Classroom". My initial thoughts on AI reflected that of many of my colleagues. All I could think about were those students who used AI to generate essays or responses to online assignments. I recently overheard a student say "I'm just going to 'GPT' it" so that they could get out of writing an essay assignment that they did not understand.

However, the more I learned from the Nextech workshop, the more I realized that AI is used pretty frequently in our daily lives. In the workshop, we discussed how asking Siri a question, using an online translator, and adding a filter to your face on Snapchat are all examples of ways people have unknowingly used AI. Another fact that surprised me was that AI has been around since the 1950s. Alan Turing developed a code breaking machine for the British government during WWII, and John McCarthy conceived the term Artificial Intelligence in 1956 (Haenlein and Kaplan, 2019). I also learned that machine learning is a part of AI and a way to train a computer into recognizing certain features (Chiu, 2024). In the workshop, I got to engage with [Code.org's "AI for Oceans"](#) program, which runs through a lesson of machine learning. There were also other great resources I learned about such as [remove.bg](#), which my students recently utilized on a Canva assignment to remove the background from an image. Some other fun ways Google has to incorporate AI in the classroom are [Quick, Draw](#), [Say What You See](#), and [Teachable Machine](#). < >

I have changed my opinion on AI since I have attended the Nextech workshop. Yes, there will always be those students who use it to cheat on assignments, but those students will always find a way to cheat. There are so many other applications for AI. I asked a couple of students how they use AI to learn, and I got some enlightening responses. Both students essentially said that if they get stuck on a problem or a definition, they will use AI to give them a starting place or a better understanding of the material. It can simplify complex terms or break down problems step by step with explanations. AI might not always have perfect responses, but it can provide students with a starting point. As educators, it will be challenging to keep up with new innovations, but evolving technology such as AI is here to stay. We must find a way to embrace these changes and adjust.



References:

- Chiu, T. (2024). Introduction to Transforming K-12 Education with Artificial Intelligence. Empowering K-12 Education with AI, DOI: 10.4324/9781003498377-1
- Haenlein, M., & Kaplan, A. (2019). A brief history of AI: On the past, present, and future of artificial intelligence. *California Management Review*, 61(4), 5–14. DOI: 10.1177/0008125619864925

Deliberate Use of AI in My Science Classroom

Tina Harris, Bedford-North Lawrence High School

First, I would like to point out that I love computers. I had an Apple IIc, a first gen Macintosh (when they were still referred to by that name), a new computer every time they added 250 KB to the hard drive until things changed to MB, then GB, then TB (my current gaming laptop). I ran the school newspaper and taught kids how to edit photos, use MS Publisher, use digital cameras effectively, shoot short videos – I have been there since the beginning. I was on social media when it was text based IRQ and was familiar with how to navigate MS-DOS. I am not a Luddite. And I do not use AI for anything but spell checking, search engines, and occasionally to check a report to make sure it is original (I do not assign a lot of research anymore). I am currently on the technology committee for my building, and they all wonder why I am there because of my current non-use of AI.

I have reasons for not using AI, some of which might make sense. First, AI still has a LOT of bugs that need to be fixed before it is an effective tool. People with mismatched eyes or seven fingers are just creepy. Second, definitions for science terms that have nothing to do with science and students who are unable or unwilling to evaluate the information provided for them from such a “powerful” source. Third, source materials that reference other AI generated articles that reference non-existent prior sources. These all rank rather high on my reasons for dislike and distrust list.

I remember that we were told, way back in the day, that the use of calculators would make math accessible to more students. This would allow us to work efficiently and cover more material in both math and in science classes. And that actually works for students who understand how math works, the rules for rearranging components of an equation to make it simpler, the fact that an answer should be within a certain range because they can multiply or even add easy numbers to see if their

final answer is close. But for students who have never learned multiplication tables (they understand number relationships, sequences, and patterns) even the simplest science equations for speed or force make absolutely no sense. It’s all Greek to them. Students who learned math without calculators seemed to learn more number theory and it was easier to teach them relationships than the students I see today. I wonder how the use of AI will affect the ability of students to think for themselves verbally? Will it have the same effect as calculators seem to have had numerically? Will they lose the ability to formulate sentences and analyze statements that make sense without the computer to do it for them?

Finally, as should have been obvious in my introduction, I am of an age where I have been told I need to exercise my mind – use it or lose it. I have no problem writing coherent statements that say what I want them to say. I have no problems writing higher level questions. I do not need my computer to plagiarize someone else’s publicly posted homework which may or may not address the topic or skills I want to see my students address. I have my own “database” of information I have collected over the decades to draw from. I am not saying I do not use the internet to look for lesson ideas or an occasional worksheet when I am too busy or too ill. But I do not ask the computer to generate it, and I put sources in the footer when I borrow someone else’s work so others

AI does not encourage educators or student to practice critical thinking skills. Everyone sees it as a tool to make their lives easier. But a hammer is also a tool, and you do not use it to fix every broken item in a house! Both educators and students need to learn how to use this tool responsibly and for the right reasons – not to replace thinking but as a starting place to enhance thinking. And I do not see that happening right now. I see it “hammering” schools in the same way cell phones have – irresponsibly and overwhelmingly. Honestly, I would rather use Wikipedia as a source, at least it references where the information originated.

I believe the crux of the matter with the use of AI is, who is doing the thinking? What are their goals? What is their reliability and validity? And how does that help me to expand my skill set and put conscious thought into the materials or questions being suggested or used? Where and to what am I relinquishing my responsibilities as an educator and teacher? And how can I teach students to think critically using AI as a tool instead of leaning on AI as a crutch to replace deep thought? How do we keep AI from affecting our classes in the same way cell phones have?



I realize the purpose of this conversation is to look at all these questions – how and when do we use AI, how do we teach our students the same? Sadly, we cannot put this genie back into a bottle. And I do not have any answers. I may be putting my head in the sand by not dealing with this. By dumping this AI product on the market, the way technology companies did they are using all of us as guinea pigs. My students just don't see it, no matter how many times I talk to them about the inconsistencies and misinformation they are bringing to my class. It's a new toy to save them from the work of thinking.

My answer to using AI is, don't. Work around it. Fight to educate students on the importance of personal critical thought and creativity before the laziness of using AI overwhelms them and thinks for them – before it becomes a tool of propaganda as it so easily can. And teachers should be aware of the same – it would be easy for someone to control the algorithm in such a way as only certain lessons are available and only certain questions are asked. Look at how social media has done so. Only then would I be willing to use AI in my classroom.

Okay, maybe I am a paranoid Luddite when it comes to this particular innovation. I do not apologize; I think, and I try to teach others to do the same.

Artificial Intelligence in Education

Robyn Embry, Science Teacher, Mitchell High School

Earlier this year the Indiana Learning Lab published a guidance document for educators focused on the use of Artificial Intelligence (AI) in education, providing an easy to unpack resource that is built on the work of experts in the field (Indiana Department of Education, 2024a). The AI Guidance Document is introduced by the Indiana Learning Lab in a 15-minute webinar (Indiana Department of Education, 2024b), which provides an excellent overview of AI and its potential use in education. The five sections of the guidance document can each serve as the start of a conversation on a specific aspect of AI: AI Literacy, Instruction and Learning, Impact, Security, and Resources, each of which is summarized below.

AI Literacy

AI literacy is defined as the “knowledge, skills, and attitudes associated with how AI works, including its principles, concepts, and applications, as well as how to

use AI, such as its limitations, implications, and ethical consideration” (Indiana Department of Education, 2024, p.1). The Digital Promise (n.d.) AI Literacy Framework breaks AI literacy into three parts:

1. Understanding AI: What is it? How is it trained? What are the different types of AI?
2. Using AI: How do we interact with it? How can we use it? How can it solve real world problems?
3. Evaluating AI: How can we be aware of how AI is being used? What information are we sharing? What are the benefits and risks of using AI?

Instruction and Learning

The power of AI can be harnessed to enhance the connection between teachers and students by supporting the work educators do to plan and implement lessons and wielding it as a tool used with and by students. Educators might use AI to create content, design assessments, aid in differentiation, assist with feedback, or enhance personal learning. For students, AI might spark creativity, be used as a one-to-one tutor, help with collaborative processes, provide personalized communication, or give feedback. These possibilities presented by AI are generalized into three categories according to the primary way they enhance work done by educators and students: personalized learning, time, and feedback. These three categories are applicable to students as well as educators.

Impact

The impact of AI is an ongoing discussion. Regardless of the paths students take after leaving the k-12 educational setting, they will be interacting in some capacity with different forms of AI. The AI Guidance Document provides examples of how educators and students can apply AI technology in their lives and careers in a healthy and ethical way.

Security

Security considerations for the use of AI in policy and practice is increasingly vital due to the potential for cybersecurity breaches. Educators are encouraged to implement practices such as ensuring that inputs into public facing AI tools are free from personal identifiable information, verifying that students are using AI tools approved for their age range, and engaging parents and caregivers in learning how to talk with students of all ages about safely using AI tools.



Resources

The AI Guidance Document provides links to organizations that are leading conversations about AI in education and resources that have been created to support educators in the rapidly changing environment that surrounds and encompasses AI. The Indiana Learning Lab has additional resources, webinars, and ideas to assist educators who are using AI to enhance learning.

References

- Digital Promise. (n.d.). AI literacy. <https://digitalpromise.org/initiative/artificial-intelligence-in-education/ai-literacy/>
- Indiana Department of Education. (2024a). AI guidance document. https://drive.google.com/file/d/1WidieDOcMV_Qjpz6g2DzEL4HQfxP7UFr/view
- Indiana Department of Education. (2024b). Day of AI: Artificial intelligence (AI) guidance. <https://inlearninglab.com/resources/day-of-ai-artificial-intelligence-ai-guidance>

Pre-service Teacher Reflections on AI

Shelly Engle, Director of Teacher Education & Assistant Professor of Education- Taylor University

In a teacher education course, Educational Technology in Elementary Education, preservice teachers complete a module on Artificial Education in the Classroom as a part of their curriculum. An introductory assignment asks these four questions for reflection after a teaching session on using AI in the classroom as a teacher:

- **What do you know about AI in Education?**
- **What has been your exposure to using ChatGPT or other AI?**
- **What are you concerned most about?**
- **What are you most excited about?**

Provided below is a summary of their assignment responses as compiled by ChatGPT (OpenAI, 2024).

- **What do you know about AI in Education?**
Most respondents acknowledge having limited knowledge or experience with AI in education. They are aware of its potential as a tool for lesson planning, idea generation, and simplifying tasks, but it is often viewed through a negative lens, particularly as a means for cheating or unethical behavior. Many associate AI with restrictions set by teachers or schools.
- **What has been your exposure to using ChatGPT or other AI?**
Exposure ranges from minimal to moderate, with most respondents using AI for brainstorming, generating ideas, or simplifying information. Few have explored advanced functionalities. Many students mention hesitation or avoidance due to fear of misuse or unclear guidelines.
- **What are you concerned most about?**
Common concerns include:
 - AI being misused by students for cheating or avoiding learning.
 - Over-reliance on AI leading to a loss of critical thinking and creativity.
 - Ethical and reliability issues, such as inaccuracies or the overwhelming amount of data AI provides.
 - Broader societal implications, like job displacement and reduced human effort in creative tasks.
- **What are you most excited about?**
Respondents are excited about AI's potential to:
 - Enhance creativity and lesson planning.
 - Save time on mundane tasks, allowing teachers to focus on instruction.
 - Generate new, engaging educational activities and accommodations.
 - Foster collaboration and communication, especially for language learners or special needs students.
 - Expand learning opportunities and introduce innovative ways to engage students.

References

- OpenAI. (2024). ChatGPT (December 5 version) [Large language model]. <https://chat.openai.com>.



Using Generative AI to Reimagine the Scientist: A Case Study in Preservice Science Education

Terri Hebert, Associate Professor, Science Education, Indiana University South Bend

In a senior-level science methods course for pre-service educators, the Adobe Express text-to-image AI feature has been integrated into an adaptation of the classic Draw-a-Scientist Test (DAST). Originally developed in 1983 to explore children's perceptions of scientists, DAST often revealed stereotypical images of white men in lab coats and pocket protectors. This course-based iteration aims to help adult learners document their transformation as they begin to see themselves as scientists. By using AI to create their depictions of scientists, students engage in a novel process that transcends artistic skill, relying instead on descriptive language to guide the generative technology. The exercise is conducted twice – once at the start of the semester and again at its conclusion – allowing for a visual and conceptual comparison of their evolving perceptions.

One of the most striking findings of this activity is the removal of artistic limitations. Students no longer dismiss their efforts with "I'm not an artist," as the AI

creates images based on their written or verbal descriptions. This democratization of expression lets them focus on the essence of their ideas rather than the medium. At the semester's outset, many students provided stereotypical descriptions, which the AI translated into traditional scientist imagery. However, by the semester's end, their descriptions and the AI-generated images began to reflect a broader and more personal understanding of what it means to be a scientist. Importantly, this shift began earlier than in traditional DAST studies and documented nuanced changes throughout the semester, thanks to the AI's ability to generate precise visualizations.

After three semesters of incorporating this activity, consistent trends have emerged, with one noteworthy exception. In the most recent iteration, the students' final images prominently featured elements of a nature-based, outdoor approach to science – aligning with the semester's emphasis on experiential, field-based scientific practices. This outcome suggests that the integration of generative AI not only captures but also amplifies the pedagogical focus of the course. By making the invisible process of identity transformation visible and tangible, this innovative use of technology offers a powerful tool for fostering self-identification as scientists among future educators.