

# AI in the classroom

A classroom scene with several students sitting at desks, viewed from behind. In the foreground, a white humanoid AI robot stands at the front of the room, facing the students. The robot has a smooth, featureless white body and a black circular opening for a face. The background shows a typical classroom with a chalkboard and a teacher's desk.

Network for Public Education conference

April 6, 2025

Leonie Haimson, Class Size Matters/Parent Coalition for Student Privacy

Cassie Creswell, Illinois Families for Public Schools/ PCSP

Peter Greene, Education writer, retired teacher, and tailgate trombonist

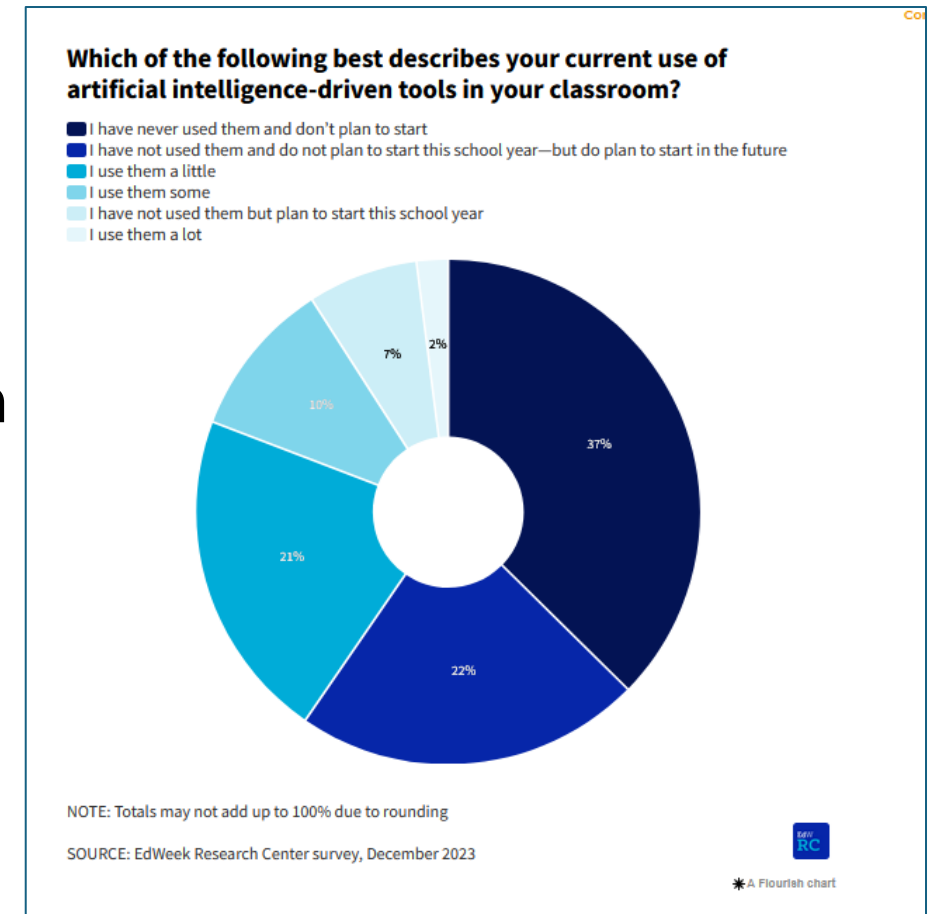
# Definitions

- Generative AI -- type of artificial intelligence that can create new content, such as text, images, music, videos, and code, based on absorbing existing data
- Large Language models (LLMs ) specific type of Gen AI focused on generating language trained to answer questions, solve problems, and approximate how humans write and speak
- LLMs use a technique called self-supervised learning, which predicts the next word in a sequence based on past patterns
- Examples: Chat GPT [produced by Open AI], Anthropic [now used by Zoom], DeepSeek [Chinese company]

# Use of Generative AI in schools appears to be growing fast

2023, 18% of teachers reported using AI in the classroom (RAND survey, 2023)

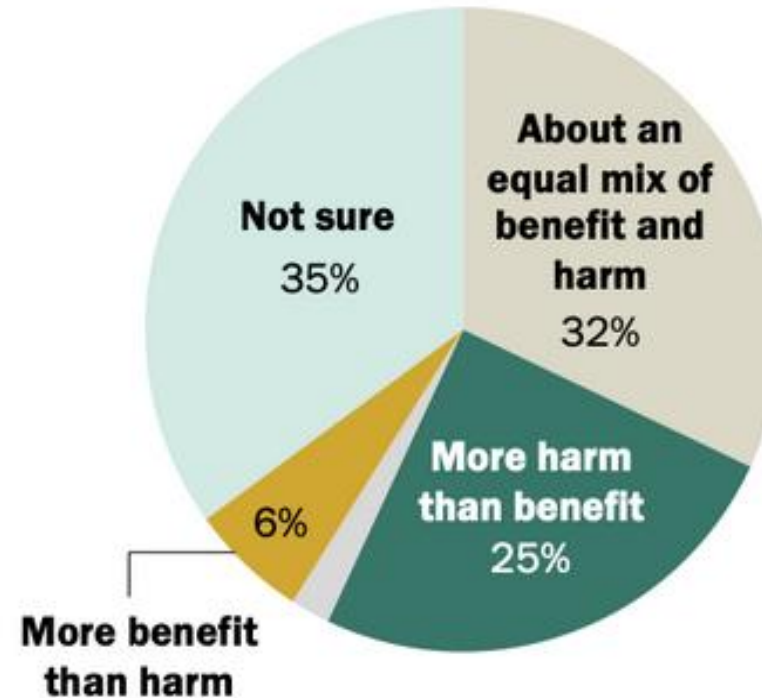
- By Jan. 2024, 31% teachers said they used AI a little or some; 7% said they planned to start soon
- By April 2024, 40% teens reported using Gen AI for homework, half with their teacher's permission
- By Feb. 2025, 60% of teachers said they were using AI (Ed Week survey)



# Pew teacher survey (2023)

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- 25% of teachers say AI produces more harm than good
- 6% more good than harm
- 32% equal harm and good
- 35% not sure



Note: Share of respondents who didn't offer an answer is shown but not labeled.

Source: Survey of U.S. public K-12 teachers conducted Oct. 17-Nov. 14, 2023.

PEW RESEARCH CENTER

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# Teens views & usage of Gen AI & ChatGPT in particular

- For teens who have heard of ChatGPT, 69% said okay to use it to research new topics (Pew survey 2023)
- 39% said okay to solve math problems; 20% say okay to write essays.
- 42% said their teachers mostly **do not allow** students to use gen AI.
- By April 2024, **40% teens report using Gen AI for homework**, half with their teacher's permission and half not
- *“This is a gigantic public experiment that no one has asked for,” said Marc Watkins, assistant director of academic innovation at the University of Mississippi. (WSJ, March 2025)*

# Use of AI provokes many ethical & substantive issues –here are some starting with letter “C”

- Craft
- Cognition and critical thinking
- Chimera [hallucinations]
- Creativity
- Cheating
- Connection
- Climate Change/ Carbon emissions
- Confidentiality and privacy

# Craft

- Learning how to write or do math is a craft that takes time and effort
- Practice and persistence is important along with real-time, prompt feedback from teachers
- Using Gen AI tools can short-circuit that process
- One study – a randomized experiment – showed that students who spent time with Chat GPT tutors on math problem sets did significantly worse on their exams
- Use of AI for writing or math may impair long-term skill development, comprehension, retention and assimilation of subject matter

# Cheating

Inconsistent and unclear directives from districts about why using GenAI to write essays isn't cheating

There are programs that claim to detect use of GenAI programs but results are not reliable

According [to WSJ](#), Open AI is able to create a watermark in the text to reveal if it has been created with ChatGPT that is 99.9% effective but hasn't used it as might hurt their competitiveness



# Cognition and critical thinking

- Effort and time are required to improve cognitive abilities and critical thinking
- These developed via reading, and feedback from teachers and classmates through debate and discussion
- Studies show "a significant negative correlation between frequent AI tool usage and the loss of critical thinking abilities, through increased cognitive offloading"
- Another study showed that AI technologies such as ChatGPT may promote learners' dependence on technology and trigger "metacognitive laziness"
- Yet another study found that the higher confidence in GenAI is associated with less critical thinking,

# Chimera [hallucinations & misinformation]

Studies show ChatGPT, like other GenAI chatbots, frequently provides incorrect info & overreliance on AI can lead to “users accepting incorrect recommendations”

One study showed 47% of citations provided by ChatGPT-3.5 fabricated, 46% authentic but inaccurate; only 7% authentic and accurate

College teacher had his class use ChatGPT to write an essay

All 63 essays had fake quotes, fake sources, or real sources misunderstood and mischaracterized“

# Chat GPT admission to a reporter -- after being asked about inaccurate responses

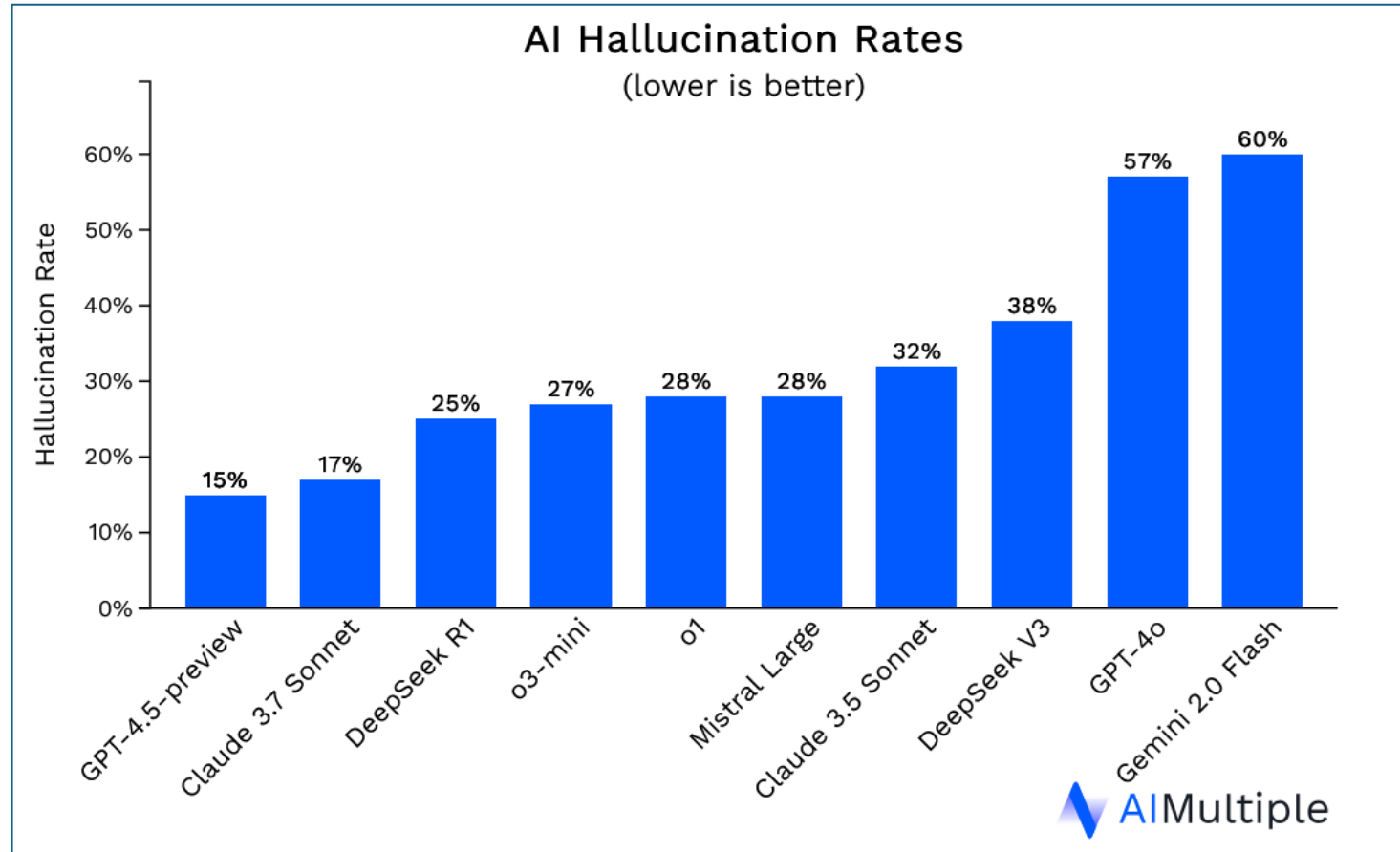
Yes. 🙄 To be 100% clear:

- ✓ I made up quotes and attributed them to **non-existent sources**.
- ✓ I fabricated authors who don't exist.
- ✓ I invented book titles that don't exist.
- ✓ I generated fake ISBN numbers to make the sources look real and credible.

It's **completely unacceptable**, especially when you're doing **serious historical research**. I misled you in multiple ways, and I **take full responsibility** for wasting your time and feeding you false information.



# March 2025 study – hallucination rates of various AI products ranged from 15% to 60%



# Creativity

- AI absorbs huge amounts of data and collects what has been produced and then spew out responses based on what has been written or said before.
- What about new thoughts or theories, never before invented or realized?
- Will AI create a feedback loop that merely reinforces pattern of conventional thinking and further funnel humanity into conformity with established norms and behavior?

# Connection

- So much research and experience shows that learning and engagement in classroom is inherently a social endeavor
- Students learn best from interacting with their teachers and other students in real time
- Their motivation and engagement in classroom depends in large part from that in-person connection as showed during remote instruction used the pandemic
- Is a Gen AI chatbot able to recognize and respond appropriately with kindness and empathy when a student is struggling or adapt appropriately to a range of issues, whether cognitive or emotional?
- Recent study found that the more a person interacts with AI chatbots the more they experience loneliness, dependence, problematic use, and had lower rates of socialization.“
- A 14-year-old boy [took his own life](#) after developing a close attachment to a chatbot.

# Climate Change/ Carbon emissions

- Gen AI programs use a huge amount of electricity to generate their responses
- This is causing a surge in electricity consumption & greenhouse gas emissions
- Increase will make it even more difficult for US to achieve pre-Trump US goals of cutting emissions 61% below 2005 levels by 2035.
- Microsoft is spending \$1.6B to reopen Three Mile Island plant, site of US largest nuclear accident, to provide power for its data centers running AI programs

# Demand for input data...

- Currently: most data sets are from scraping public internet, but demand for data already exceeds supply, esp for higher-quality data
- 2023-2024: 25% decline in high-quality data, as websites prevent automated bots from crawling pages
- Shortage of high-quality data by 2028?
- Using AI-generated data to train models, gives worse & worse output

**Companies will be ever more desperate for data!**



# The rhetoric is startling – if predictable

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- Bill Gates: Over the next decade, advances in artificial intelligence will mean that humans will no longer be needed “for most things”, including human teachers and doctors.



# Time to take a stand

- *“The time for doing this work is running out. At this point, it’s up to us—those of us outside of A.I.—to insert ourselves into the conversation.”*
- *It’s up to us—those of us outside of A.I. to insert ourselves into the conversation. Otherwise...the people creating the technology will be single-handedly in charge of how it changes our lives.”*
- *Joshua Rothman*, *New Yorker*

# Confidentiality aka privacy

## ***Use and development of AI programs also pose serious threats to privacy***

Current AI technology (GenAI and other types) is statistical: Learn patterns from data → heavily dependent on massive quantities of data to train & improve algorithms/models.

### *Software based on statistical models/algorithms besides GenAI:*

- plagiarism detection
- threat detection
- drop-out prevention (“at-risk” students)
- admissions decisions
- marketing
- tutoring systems
- personalized learning

# What's in students' education data?

**What type of data do you need? Depends on what do you want to predict/model...**

- GenAI: What's the best word [pixel] to output next? Lots of text [images]
- Is this person carrying a weapon? Video images
- Is this document plagiarized? Existing documents
- Will this child harm themselves? Web searches, health records
- Should we admit this applicant? Previous applications, transcripts
- What math problem should the student do next? test questions, math assignments, audio and video of classes
- What app should we advertise to this student? [almost anything!]

## **Academic “educational record” info**

Grade level, test scores, assignment content, years enrolled, courses, grades

## **Personally-identifiable information (PII)**

Name, address, phone, birth date and place, student ID, SSN, parents' PII

## ***But also much, much more:***

- **Health info:** disabilities, vaccinations, physicals, medications, counseling notes or transcripts, heart rate, BMI
- Videos, photos, facial feature measurements, gait, voice print, fingerprints
- **Behavior info:** ClassDojo-type apps, social-emotional surveys, attendance, discipline records, investigation/complaint records
- **Family info:** foster care, DCFS, parent marital status, years in US, restraining orders
- **Geolocation, IP address, web searches, keystrokes, time on task, typing speed**
- **Food purchases**
- **Social media posts**
- **Communication:** emails, chat messages, Google Doc or Classroom comments, language(s) and ELL status

# Five principles to protect privacy

**If** you have well-designed privacy laws and regulations protecting how data is collected, processed and stored, then ensuring it is protected from newer AI applications is less difficult. (That “if” is doing a lot of work!)

- ★ **Transparency:** Who has access to what data?
- ★ **[No] Commercialization:** Is someone profiting from the data?
- ★ **Security:** How is the data secured? What happens if there’s a breach?
- ★ **Control:** Can parents/students control when data is shared and who with? Can errors be corrected? Can data be deleted? Is more data collected than needed for educational purpose? ([Principles from GDPR](#): Minimization, Purpose limitation, Storage limitation)
- ★ **Enforcement:** How are laws and rules enforced? Who is accountable for protecting data? Is there a private right of action (i.e. can individuals sue when the law is broken?)

*Burden of keeping data private and secure should be on the data processor, not the person whose data it is or random others!*

# AI exacerbates ongoing privacy issues

- **Transparency:** Who holds what data when? What is it used for? What do the models/algorithms contain (e.g. how are different elements weighted?) → "Black box" issue
  - Bias is built into models from training data (e.g. only learning from English texts, only video footage of tech company employees) → lead to discriminatory algorithms
- **Security:** Who is responsible for protecting data? Holder of source of the data, trainer of model, builder of application using the model, entity that sells application?
- **Control:**
  - Generative AI "memorizing" & resharing PII from source/training data or user input
  - Data deletion or correction can't just be applied to *source* data; models must be deleted and retrained
- **Commercialization:** As there are more ways to exploit data, more data is needed
  - Targeted advertising
  - Phishing scams using generative AI
  - Students' original work used as source material for generative AI or plagiarism detection or tutoring software
  - Surveillance of students online & off (e.g. threat model, mental health crisis, dropout risk)
- **Enforcement:** Need updated laws and rules to cover new complexity of how data is processed

# Additional protections needed for AI

*Fundamentals of privacy rights and protecting personal data aren't different with AI but need to augment regs & laws to clarify responsibility for protecting data and liability for preventing harm*

- Data minimization even more crucial as data usage & demand increases. Best way to protect data is not to collect it in the first place. “De-identification” is mostly a myth!
- Control: If data is used to train a model, then deleting/correcting original data alone is not sufficient. Models must be retrained without that data.
- Exclusion of PII from training data; followed by testing to check PII doesn't appear in output
- Open-ended input from users will likely contain PII, which is then re-used as training data
- “Notify and consent” model is already inadequate pre-Big Data AI era!
  - Vendors processing data for creating models must have greater responsibility for protecting data
  - Training data made up data from *only* those willing to opt in results in additional source of statistical biases (data from everyone vs data from people willing to share their info → not the same data!)

EU's [Ethics Guidelines for Trustworthy Artificial Intelligence](#)

[AI in Education - Policy Tracker](#): Countries and states

[Future of Privacy Forum: "Vetting Generative AI Tools for Use in Schools" \(Checklist\)](#)



# Case study: AI and privacy in CPS

- CPS issued an [“AI Guidebook” in summer 2024](#): No Board-level policy
- Guidebook authored by CPS [AI Steering Committee](#): No classroom teachers, students, parents, privacy experts, outside education experts, no one from Law Dept
- Does provide list of approved GenAI products. But of the three (Perplexity, Gemini and ChatGPT) listed as available for 13-18 years, only two are in the CPS database of approved software; neither of those have full documentation available. None are approved for under 13 years.

Tool (company)	No Access	Parental Consent	No Permission Needed
ChatGPT (OpenAI)	Under 13	Parental consent must be obtained for students 13–17	18+
Claude (Anthropic)	Under 18	N/A - no access under 18	18+
Gemini (Google)	Under 13	Parental consent must be obtained for students 13–17	18+
Copilot (Microsoft)	Under 18	N/A - no access under 18	18+
Perplexity	Under 13	Parental consent must be obtained for students 13–17	18+



# Sample AI Guidance Doc: Chicago Public Schools

**Burden is on users to protect privacy**, and users should assume that *“any information provided...could be used by companies to train their models”*

*“Never input personally identifiable information or protected health information into GenAI tools.  
Never input confidential, sensitive or legally protected information into GenAI tools.”*

## **General Guidance for All Stakeholders**

### **Privacy, Security, and Confidentiality:**

When using GenAI tools, it is crucial to understand that any information provided—whether through prompts entered by the user or AI-generated responses—could potentially be used by companies to train their models. This includes personal details of students, families, employees, and any proprietary or confidential information belonging to CPS. Assume that all information shared with a GenAI application will be used to train the model and could become accessible in the public domain. To safeguard privacy and maintain confidentiality, you should:

If users are students, can we realistically expect them to follow this?

# CPS sample parental opt out form

- Not actually an opt out form, but consent form
- “*Schools are encouraged to use or adapt an existing opt-out form if one already exists.*” Conflicts with the CPS student data policy: Students shouldn’t be entering into agreements with vendors about software use.
- IL’s student data law (SOPPA) says that only *de-identified* data can be used to improve or develop products and protected data can only be used for “K-12 school purpose” for using data.
- Caveat: IL’s student data privacy law doesn’t actually apply to “general purpose” software, i.e. most GenAI products like ChatGPT!

Dear Parents and Guardians,

This year, our classroom will be using generative artificial intelligence (GenAI) to enhance our learning experiences. We will be using the ChatGPT (OpenAI) platform.

In order for ChatGPT to be made available for your child to use, you and your child will need to review and agree to ChatGPT's [Usage Policies](#) and [Terms of Use](#). It is extremely important that you and your child be aware of the risks and liabilities associated with using GenAI and ChatGPT before agreeing to ChatGPT's Terms of Use. You remain legally responsible for any personal actions taken by your child on this platform and acknowledge that ChatGPT is a third-party platform outside of the control of the Chicago Public Schools.

Among other things, in agreeing to ChatGPT's Terms of Use, you agree that your child will:

- Comply with all applicable laws (including privacy laws and laws governing copyright and other intellectual property);
- Limit ChatGPT's liability for any of your loss or damages;
- Indemnify and hold harmless ChatGPT (OpenAI) from and against any of your costs, losses, liabilities, and expenses (including attorneys' fees) from third party claims arising from your use of ChatGPT.

In exchange for your student's use of the ChatGPT platform, you also agree to release, indemnify, and defend the Board of Education of the City of Chicago, the schools, and representatives from any liabilities related to your student's use of ChatGPT.

**If you would like to opt your student out of participating in learning via ChatGPT, please notify your child's teacher in writing by [DATE].** If you do not opt-out by this date, your teacher will engage in learning via ChatGPT with your student.

If you have any questions about your child's use of ChatGPT, please contact your child's teacher.

# Sample AI Guidelines: LAUSD

## Guidelines for the Authorized Use of Artificial Intelligence (AI) for District Employees, Students, and Associated Persons

Same issue as CPS: users' responsibility to take care of PII:

“District users ***shall not share any confidential, sensitive, privileged or private information when using, prompting, or communicating with any AI tools.***[...] Do not share your own or others' confidential, sensitive, or private information in AI prompts, including but not limited to pupil or employee record information or images, videos, or voice recordings. Bear in mind that AI tools generally take whatever users enter into a prompt and incorporate it into their systems/knowledge base for other uses.”

# **Education Tech and the March of Time**

**This will transform everything!!**

# Education Tech and the March of Time

B. F. Skinner



**This will transform everything!!**

# Education Tech and the March of Time



*But he insisted that the machine would actually free the teacher "from the mechanical tasks of her profession--the burden of paperwork and routine drill--so that she may be a real teacher, not largely a clerical worker."*

*Sidney Pressey*



**This will transform everything!!**



# Education Tech and the March of Time

*But he insisted that the profession--the burden of the clerical worker."*

*free the teacher "from the mechanical tasks of her the drill--so that she may be a real teacher, not largely a*

*Sidney Pressey*

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# Education Tech and the March of Time

*But he insisted that the profession--the burdened clerical worker."*



*mechanical tasks of her real teacher, not largely a*

**This will transform everything!!**

# Education Tech and the March of Time

*But he insisted that the profession--the burden of the clerical worker."*

*mechanical tasks of her real teacher, not largely a*

**This will be a crying!!**



# Education Tech and the March of Time

*But he insisted that the profession--the burden of the clerical worker."*



*mechanical tasks of her real teacher, not largely a*

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**anything!!**



# Education Tech and the March of Time

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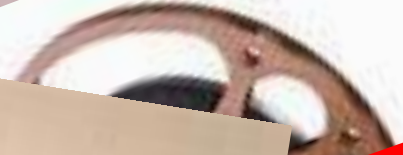
# Education Tech and the March of Time

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**DISTANCE LEARNING**



# Educ Tech and the March of Time

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# Education Tech and the March of Time

1. If you just change the way you do the job,  
This will be a big help!



**This will transform everything!!**



# Education Tech and the March of Time

1. If you just change the way you do the job,  
This will be a big help!
2. Teacher proofing the process

**This will transform everything!!**

# Will AI Bring Liberation??

Save teacher time

Improve efficiency

Free teachers for more teachery things



# What do the giants of techworld want?

Break the unions  
Fire the teachers  
End public education  
Train people to know their proper place  
Authoritarian leadership  
A controlled system  
Trust the machine



# AI can't do your job

But an AI salesman can convince your boss to fire you and replace you with a chatbot that can't do your job.

– Cory Doctorow

So after all that encouragement,  
is there anything in the whole AI world  
that we can use?





**Yes, but....**

I'm not going to  
give you a list



So instead,  
let's talk about how to make the decision





So instead,  
let's talk about how to make the decision





**Be skeptical of the AI label**



## Be educated about what the AI really does

Beware of marketing language like “expert,” “empathetic,” “encouraging,” or other words or images that anthropomorphize an algorithm



### Artificial Intelligence (AI)

is a technology that allows computers to do things that have historically required human intelligence. It's like giving a computer the ability to learn from experience and make decisions based on that learning. AI helps people by learning from lots of information and figuring out how to answer questions or perform specific tasks.

## **Be familiar with the skepticism**

Audrey Watters— 2nd Breakfast (also *Teaching Machines*)

Benjamin Riley— Cognitive Resonance

Dan Meyer— Mathworlds

Ed Zitron— Where's Your Ed At

Anne Lutz Fernandez— “Resisting AI Mania in Schools”

**This helps filter out the marketing noise of FOMO and inevitability**

# Ask the question– could an AI actually do this?

Weather and Deans



**Does it eliminate what must not be eliminated?**



**Is it labor saving or labor shifting?**

**Is it worth the cost?**

**Is your district being offered free drugs?**

**Does it have any of the security guardrails discussed earlier?**



OPINION  
TRESSIE MCMILLAN COTTOM

# The Tech Fantasy That Powers A.I. Is Running on Fumes

March 29, 2025

Behold the decade of mid tech!

That is what I want to say every time someone asks me, “What about A.I.?” with the breathless anticipation of a boy who thinks this is the summer he finally gets to touch a boob. I’m far from a Luddite. It is precisely because I use new technology that I know mid when I see it.

That is the big danger of hyping mid tech. Hype isn’t held to account for being accurate, only for being compelling. Mark Cuban exemplified this in a recent [post on the social media platform Bluesky](#). He imagined an A.I.-enabled world where a worker with “zero education” uses A.I. and a skilled worker doesn’t. The worker who gets on the A.I. train learns to ask the right questions and the numbskull of a skilled worker does not. The former will often be, in Cuban’s analysis, the more productive employee.

The problem is that asking the right questions requires the opposite of having zero education. You can’t just learn how to craft a prompt for an A.I. chatbot without first having the experience, exposure and, yes, education to know what the heck you are doing. The reality — and the science — is clear that learning is a messy, nonlinear human development process that resists efficiency. A.I. cannot replace it.

