

We negate

Contention 1 is inequality

The use of Gen AI only makes the digital divide worse for underprivileged communities.

No Author, At United Way, we're dedicated to one unshakable principle – no one should have to live in poverty. But right now, thousands of families in Greater Philadelphia and Southern New Jersey are living below the poverty line., "Closing the Digital Divide to Help Kids Thrive - United Way of Greater Philadelphia and Southern New Jersey." *United Way of Greater Philadelphia and Southern New Jersey*, 3 Aug. 2021, [unitedforimpact.org/closing-the-digital-divide-to-help-kids-thrive/](https://unitedforimpact.org/closing-the-digital-divide-to-help-kids-thrive/). Accessed 24 Feb. 2025.//LEH SR

No internet. No computer. That may sound like a punishment doled out by parents to kids who aren't doing their chores. But for millions of kids, it's an everyday reality that makes it challenging to succeed in school. The digital divide in education is the gap between students who have reliable access to an adequate device and reliable internet and those who don't. The gap has existed for decades – ever since personal computers gained popularity – but during the COVID-19 pandemic our community saw how deep the challenge runs. United Way of Champaign County is working to close the digital divide. During the past years as schools moved to remote learning, we provided funding to organizations that give out laptops, tablets, printers, etc. thanks to generous donors like you. As the new school year begins we are planning to increase these efforts so more students in our community can thrive. Here are four reasons we are investing in closing the digital divide. According to Common Sense Media, 15 to 16 million students don't have access to adequate devices or internet connection. That's about 30% of all students in the U.S. But when the numbers are broken out by race, it becomes clearer students of color disproportionately have to deal with the challenges of the digital divide. Students of color represent about 40% of the total population, but 55% of Black, Latinx and Native American students are part of the disconnected populations. Native Americans face the greatest challenge to access to devices and the internet; 37% of Indigenous students lack adequate connectivity. Black, Latinx and Native American students may not have connectivity because of discriminatory housing practices that led to them growing up in neighborhoods that are under-resourced and lack high-speed internet, their families may have faced discriminatory pay practices that kept them from higher earning jobs making personal devices unaffordable, or they may face more language barriers that make adoption more difficult. Closing the digital divide gives students of color better opportunities to navigate these obstacles caused by systemic racism and more chances to thrive. Students in rural areas already face many challenges. They often attend under-resourced schools, must travel long distances to attend classes and schools struggle to attract top-quality teachers. The lack of access to devices or hardware is one more challenge rural students must overcome. Similarly to students of color, rural students are disproportionately impacted by the digital divide. Common Sense Media notes that rural students makeup 12% of the total school population but comprise 20% of the disconnected population. Unlike other common services such as electricity or telephone access, internet connection is not treated as a public utility. That means demand and interest in profits have largely determined where and when infrastructure like broadband internet are introduced to communities. Rural communities are often left out of that conversation, hurting economic growth, ability to attract new residents and local students. Addressing the digital divide can help overcome these challenges to give rural students more opportunities to succeed and be prepared for a digitally-based world. Access to the internet and devices might seem like a distraction for some kids, but research shows it also increases student grade performance.

Researchers from Michigan State University connected higher grade point averages (GPA) with access to broadband internet and adequate at-home devices. During the global pandemic, kids without access struggled to stay engaged as schools moved to remote learning. Slow internet, having to share devices with siblings, participating on smartphones instead of laptops all contributed. But these challenges extend beyond the pandemic. As more schools incorporate assignments that require online research, use digital tools to enhance learning and incorporate technology overall, students without at-home access will continue to fall behind. Helping kids thrive in the workplace tomorrow starts by closing the digital divide today. A study from the University of Miami found that students with higher GPAs, those that have adequate access to technology, have higher earning potential. The study shows the multi-generational impact of increasing connectivity for individuals. On top of the benefits for individuals, when students have more opportunities to secure high paying jobs that strengthens our local economy. A skilled, high performing workforce is essential to keeping our region thriving today as well as decades into the future. There is still much to be done to close the digital divide. But together with generous donors, committed volunteers and community partners United Way of Champaign County can continue to help kids thrive. To stay up to date with the latest on what we're doing to close the digital divide and other ways we're helping improve the health, education and financial stability of every person in Champaign County.

### **Increased use of AI makes inequality worse**

**Lake 24** (Robin Lake is director of the Center on Reinventing Public Education. CRPE's mission is to develop transformative, evidence-based solutions for K–12 public education. Her research focuses on U.S. public school system reforms, including public school choice and charter schools; innovation and scale; portfolio management; and effective state and local public oversight practices, May 2024, "AI is coming to U.S. classrooms, but who will benefit?"

<https://crpe.org/ai-is-coming-to-u-s-classrooms-but-who-will-benefit/>)

The bottom line: AI has little presence in US classrooms today, but that is likely to change soon. The question is, who will benefit? Our study shows early signs that more advantaged suburban school districts are ahead of urban, rural, and high-poverty districts in terms of AI use. This should be cause for concern for those who want to see the benefits of these technologies reach the students most in need of help—and it should spur policymakers and philanthropists to start taking more assertive action. One of the most striking findings from our report is that as of Fall 2023, just a small portion of a nationally representative sample (only around 18% of K–12 teachers nationwide) reported using AI for teaching. A small subset of those early adopters (8%) consists of what I would call “super users:” teachers who are excited about the potential use of AI in classrooms and are staying current with the latest tools by actively experimenting with uses for AI in their profession. I follow some of these super users on social media, and they are coming up with creative and exciting ways to save themselves time while making learning more engaging and personalized for students. These early adopters predominantly teach middle and high school students, particularly in subjects like English language arts and social studies, which I suppose is not too surprising, given that generative AI is advancing most quickly on

language and visual models. Teachers report using AI primarily via the major virtual learning platforms and systems that have been around for a while like Google Classroom, iReady, and IXL. However, 50% of teachers who report using AI in the classroom are using **generative** AI chatbots, like ChatGPT. A much smaller percentage of teachers are active on more specialized AI classroom tools that provide customized tutoring (e.g., Khanmigo), lesson plans, and assessment generators (e.g., Education Copilot and PrepAI), or automated coaching and feedback to teachers. Educators report using AI in a variety of ways, but teachers are mostly likely to say they use AI to support students with “learning differences.” It may be that AI is simply making current teacher practices easier or faster. For example, a teacher might use AI to easily create customized homework for a student to practice a concept they were struggling with in class. Teachers may also be using AI to allow a student who reads at a grade 4 level to access high school-level social studies content. However, these fairly common instructional strategies do not necessarily accelerate student progress. Understanding how teachers use AI to help students who are struggling or have disabilities, and how effective it is, are open questions that should be studied soon. While there have been several high-profile cases of school districts banning AI, our survey results and interviews suggest that most school districts are interested in exploring the positive potential of AI. Twenty-three percent (23%) of districts had already provided training on AI, and another 37% intend to do so at some point during the 2023–24 school year. Furthermore, the district leaders we interviewed were more focused on how to support teachers in using AI to make their jobs easier than on how to block AI use among students or staff. They recognize AI’s potential to make teaching easier but worry about how to bring teachers up to speed quickly. One leader in a midsized district said, “My personal concerns are that it will not be operationalized evenly in classrooms. It’s just like curriculum. It’s hard to get curriculum consistency, and it will be the same with AI.” Another leader in a small district similarly remarked, “I’m more concerned that there’s a fear of it ... This is something that if you don’t embrace, you’re just going to be doing extra work.” Districts have good reason to focus on training and educator support. Teachers report that some of the greatest barriers to their using AI in classrooms is lack of school or district guidance and professional development. Teachers’ and district leaders’ concerns about AI use seem less about school-specific applications and more about student privacy, potential bias in AI, and the impact of AI on society in general. The district leaders we interviewed tended to believe that cheating and plagiarism concerns could be covered under existing district rules. They did, however, express the need for more policy guidance from trusted sources, like school board associations or respected local school districts, and noted that developing policies around AI is especially difficult due to the technology’s rapidly evolving nature. **AI could exacerbate educational inequality. Our study points**

to early signs of faster uptake of AI in more advantaged settings. Suburban, majority-white, and low-poverty school districts are currently about twice as likely to provide AI-use training for their teachers than urban or rural or high-poverty districts. Advantaged districts are also more likely to have plans to roll out training in the coming school year.

### Imp. poverty

**Sinkevich 24** (Des Sinkevich, Des holds a B.A. in English Writing from the University of Pittsburgh, 22 February 2024, “How Education Inequality Impacts Student Success (and What to Do About It)” <https://partners.pennfoster.edu/blog/2024/february/how-education-inequality-impacts-student-success>)

While access to public schools has made a basic education available to all students, there is still a distinct – and growing – inequality in education that can impact a person’s economic future. Without graduating high school, a person is likely to earn less money, forgo higher education, and struggle financially. With education inequality continuing to grow in the United States, it’s vital to understand why and take measures to make education more accessible and equitable for all students. Two children wearing backpacks standing next to a school bus. What contributes to inequality in education From income to lack of funding or resources, students can be negatively impacted by a lack of access to quality schooling and understanding. Some factors include the following. The impact of income on education access. Income inequality and inequality in education often go hand in hand. Students who live in lower-income areas may have limited access to quality education. And, statistically, those from lower-income families are less likely to pursue higher education. In fact, only about 51% of lower-income students enroll in college compared to 89% of students from well-off families.

Contention 2 is Cheating.

Generative AI in education blatantly encourages cheating.

**Fan, Leanne.** [opinions editor at The Nexus] “AI Reduces Critical Thinking.” *The Nexus*, 16 Feb. 2024, [wvnexus.org/opinions/ai-reduces-critical-thinking/](http://wvnexus.org/opinions/ai-reduces-critical-thinking/). //LEH SR

Over a lifetime, we hone our abilities to read, write, listen, and think critically. These life skills have the capability to unveil the mysteries of the world and offer numerous opportunities to grow. However, recent studies have shown that a reliance on AI in a school setting restricts the development of these critical-thinking abilities. A study by Dr. Ahmed, assistant professor in engineering management collected survey data from 285 students and found that 68.9% of laziness and 27.7% of the loss of decision-making skills were the result of artificial intelligence use. A sampling technique was used that gathered survey data

from students who either used or didn't use AI. Most students used AI for collecting and analyzing data, answering questions, and task automation. The results were found to be convergently valid and reliable, with multiple pieces of evidence supporting the fact that using AI negatively affects the development of critical thinking skills. The more that students use machines to do the thinking for them, the more dependent on these machines they will become, disturbing key cognitive processes. Using AI to take the shortcut to an answer instead of figuring it out on your own lowers your cognitive reserve, or connections between healthy brain cells. The cognitive reserve hypothesis reflects how agile your brain is in solving problems and coping with challenges. Establishing and maintaining the connection between your brain cells requires the regular use of brain stimulating activities. This can be done by learning new information and processing information on a deeper level or by doing anything intellectually challenging. Relying on AI effectively skips the challenge and gives someone an answer without needing to think through the question or problem. Instead of conducting thorough research on a topic and compiling information from multiple credible sources to complete an assignment, ChatGPT allows students to plug in a prompt and immediately get a simple, organized, easily understandable answer. When we depend on getting these quick and easy answers with a click of a button, our brain cells fail to form new connections, and many are lost. As a result, they don't develop the critical thinking abilities that are instrumental to their futures.

Students are exploiting it in no small number.

Waugh, Rob. [tech correspondent for UK DailyMail] "Half of Students Are Using ChatGPT to Cheat, and It Could

Rise to 90%." *Mail Online*, 26 Mar. 2023, [brackets in original]

[www.dailymail.co.uk/sciencetech/article-11899475/Half-students-using-ChatGPT-cheat-rise-90.html](http://www.dailymail.co.uk/sciencetech/article-11899475/Half-students-using-ChatGPT-cheat-rise-90.html). //LEH SR

Half of college students are likely already using ChatGPT to cheat, experts have estimated. They warn the revolutionary AI has created a cheating epidemic that poses a huge threat to the integrity of academia. Rehan Haque, of artificial intelligence company Metatalent.ai, said: 'We're already at the point where AI can write entire projects, and then a different AI tool can reword it to make AI undetectable. 'At present, well over half of students are likely using AI tools to cheat the education system in exams or essays, but it wouldn't surprise me if that number were already higher.' He added: 'If educators make the mistake of ignoring the threat of AI-based cheating, I can honestly see more than 90 percent of students cheating in this way [in future].' OpenAI's new GPT-4 update (GPT-3 and GPT-4 are the models which underlie ChatGPT) is able to get 90 percent on a huge number of exams, including the American bar exam. The AI bot is also capable of writing human-like essays on any subject in seconds, in response to simple text prompts. Creator OpenAI is working on a tool to detect AI-written content, but warns it's not 100 percent accurate. A survey by Study.com of 203 teachers found that 26 percent of K-12 teachers had already caught at least one student cheating using the software. South Texas College of Law Houston law professor Josh Blackman wrote: 'This technology should strike fear in all academics.' The Los Angeles Unified School District, Seattle Public Schools, the New York Department of Education and Oakland Unified are among the American school boards which have banned or blocked the use of ChatGPT. At university level, New York's Yeshiva College updated its cheating policy to include 'something/someone else's language' so that cheating via ChatGPT was banned. Haque says that educators may resort to 'technological regression' as a temporary measure to battle AI cheating. He said: 'This might even mean returning to the old-fashioned way of writing everything down. But, even then — what stops a student from copying an AI-produced essay off a screen?'

And, AI cheating is fundamentally difficult to track.

**Fowler**, Geoffrey A. [Education: Harvard University, B.A. in Anthropology and Afro-American Studies; Cambridge University, Trinity College, M.Phil in Social Anthropology; The Washington Post's Technology Columnist Since 2017; Former Journalist with the Wall Street Journal Writing About Consumer Technology, Silicon Valley, national affairs and China; 2020 Gerald Loeb Award for commentary.] "Analysis | Detecting AI May Be Impossible. That's a Big Problem for Teachers." *Washington Post*, 2 June 2023, [www.washingtonpost.com/technology/2023/06/02/turnitin-ai-cheating-detector-accuracy/](https://www.washingtonpost.com/technology/2023/06/02/turnitin-ai-cheating-detector-accuracy/). //LEH SR

Turns out, we can't reliably detect writing from artificial intelligence programs like ChatGPT. That's a big problem, especially for teachers. Even worse, scientists increasingly say **using software to accurately spot AI might simply be impossible**. The latest evidence: Turnitin, a big educational software company, **said that** the AI-cheating detector it has been running on more than 38 million student essays since April has more of a reliability problem than it initially suggested. Turnitin — which assigns a "generated by AI" percent score to each student paper — is making some adjustments, including adding new warnings on the types of borderline results most prone to error. I **first wrote about Turnitin's AI detector** this spring when concerns about students using AI to cheat left many educators clamoring for ways to deter it. At that time, the company said its tech had a less than 1 percent rate of the most problematic kind of error: false positives, where real student writing gets incorrectly flagged as cheating. Now, Turnitin says on a sentence-by-sentence level — a more narrow measure — its software incorrectly flags 4 percent of writing. My investigation also found **false detections were a significant risk**. Before it launched, I tested Turnitin's software with real student writing and with essays that student volunteers helped generate with ChatGPT. Turnitin identified over half of our 16 samples at least partly incorrectly, including saying one student's completely human-written essay was written partly with AI. The stakes in detecting AI may be especially high for teachers, but they're not the only ones looking for ways to do it. So are cybersecurity companies, election officials and even journalists who need to identify what's human and what's not. You, too, might want to know if that conspicuous email from a boss or politician was written by AI. **There have been a flood of AI-detection programs onto the web in recent months, including ZeroGPT and Writer. Even OpenAI, the company behind ChatGPT makes one. But there's a growing body of examples of these detectors getting it**

**wrong — including one that claimed the prologue to the Constitution was written by AI. (Not very likely, unless time travel is also now possible?) The takeaway for you: Be wary of treating any AI detector like fact. In some cases right now, it's little better than a random guess. A 4, or even 1 percent error rate might sound small — but every false accusation of cheating can have disastrous consequences for a student.** Since I published my April column, I've gotten notes from students and parents distraught about what they said were false accusations. (My email is still open.) In a lengthy **blog post** last week, Turnitin Chief Product Officer Annie Chechitelli said the company wants to be transparent about its technology, but she didn't back off from deploying it. She said that for documents that its detection software thinks contain over 20 percent AI writing, the false positive rate for the whole document is less than 1 percent. But she didn't specify what the error rate is the rest of the time — for documents its software thinks contain less than 20 percent AI writing. In such cases, Turnitin has begun putting an asterisk next to results "to call attention to the fact that the score is less reliable." "We cannot mitigate the risk of false positives completely given the nature of AI writing and analysis, so, it is important that educators use the AI score to start a meaningful and impactful dialogue with their students in such instances," Chechitelli wrote. The key question is: How much error is acceptable in an AI detector? New **preprint research** from computer science professor **Soheil Feizi** and colleagues at the University of Maryland finds that **no publicly available AI detectors are sufficiently reliable in practical scenarios. "They have a very high false-positive rate, and can be pretty easily evaded,"** Feizi told me. For example, **he said, when AI writing is run through paraphrasing software, which works like a kind of automated thesaurus, the AI detection systems are little better than a random guess. (I found the same problem in my tests of Turnitin.)** He's also concerned that AI detectors are more likely to flag the work of **students for whom English is a second language**. Feizi didn't test Turnitin's software, which is available only to paying educational institutions. A Turnitin spokeswoman said Turnitin's detection capabilities "are minimally similar to the ones that were tested in that study." Feizi said if Turnitin wants to be transparent, it should publish its full accuracy results and allow independent researchers to conduct their own research on its software. A fair analysis, he said, should use real student-written essays on different topics and writing

styles, and address failure on each subgroup as well as overall. We wouldn't accept a self-driving car that crashes 4 percent — or even 1 percent — of the time, Feizi said. So, he proposes a new baseline for what should be considered acceptable error in an AI detector used on students: a 0.01 percent false-positive rate. When will that happen? "At this point, it's impossible," he said. "And as we have improvements in large-language models, it will get even more difficult to get even close to that threshold." The problem, he said, is that the distribution of what AI-generated text and human-generated text looks like are converging on each other. "I think we should just get used to the fact that we won't be able to reliably tell if a document is either written by AI — or partially written by AI, or edited by AI — or by humans," Feizi said. "We should adapt our education system to not police the use of the AI models, but basically embrace it to help students to use it and learn from it."

Additionally, it increases teacher workloads and contributes to burnout.

Barnum, Matt. [national reporter at Chalkbeat, Spencer Fellow in Education Journalism @ Columbia University] "Teachers Are Burning out on the Job." *WSJ*, The Wall Street Journal, 27 Aug. 2024, [www.wsj.com/us-news/education/teachers-america-burn-out-b2cc2a51](https://www.wsj.com/us-news/education/teachers-america-burn-out-b2cc2a51). //LEH SR

Students are showing up to school in much of the country this week. Their teachers are already demoralized and exhausted. Student behavior problems, cellphones in class, anemic pay and artificial-intelligence-powered cheating are taking their toll on America's roughly 3.8 million teachers on top of the bruising pandemic years. The share of teachers who say the stress and disappointment of the job are "worth it" has fallen to 42%, which is 21 points lower than other college-educated workers, according to a poll by Rand, a nonprofit think tank. As recently as 2018, over 70% of teachers said the stress was worth it. In surveys and interviews, teachers are most often pointing to a startling rise in students' mental-health challenges and misbehavior as the biggest drivers of burnout. In the Rand survey, student behavior was the top source of teachers' job stress. High-school math teacher Cory Jarrell says he saw student behavior deteriorate, yet his school grew more lenient in administering consequences. He also didn't feel like teaching offered much opportunity to advance in his career. And then his district, Kansas City Public Schools, rolled out a new policy last year. Teachers couldn't give students a zero for an assignment, even if they didn't turn it in. This was the final straw. "When I got into teaching my one thing was about learning and love of learning," Jarrell said. "In the end, it was less about the learning and more about babysitting." He left teaching this summer. Teaching has long been a relatively low-paid profession that comes with job stability, a decent retirement and a sense of purpose. More teachers no longer feel that is a good deal. Teacher exit rates reached new highs in the past two years, according to data from several states. In Texas, thousands more teachers left the classroom in 2022 and 2023 compared with the years before the pandemic. Teachers are coming into the new school year with the usual mix of excitement and jitters, but also newfound trepidation. With more teachers leaving and others burned out, schools are struggling to address student challenges such as learning loss and chronic absenteeism. And like the burnout seen in many other professions recently, there isn't a clear end in sight, say those who study the teaching profession and teachers themselves. "Across multiple data points, we see that the health and the state of the teaching profession is at or near a 50-year low," said Matthew Kraft, a Brown University professor.

With cheating, the absence of critical thinking will leave students ill-equipped for their jobs.

Indeed, Career Guide is designed to help connect people with the information they need to get a job and develop a successful career. The Indeed Career Guide was launched in 2017 as a centralized resource for job



seekers to gain practical tips for getting their first job to the role of their dreams. Career Guide is available to job seekers and workers around the world and has 26 international sites across 21 countries, in 11 languages. Our team comprises career and industry experts who provide helpful advice on job searching, resume writing, negotiating pay, and other career development topics. "What's the Importance of Critical Thinking in the Workplace?" *Indeed Career Guide*, 23 Feb. 2021,

[www.indeed.com/career-advice/career-development/importance-of-critical-thinking](http://www.indeed.com/career-advice/career-development/importance-of-critical-thinking). //LEH SR

**Critical thinking can** be an important soft skill in the workplace. It **helps employees solve problems, make decisions, and** develop strategies that **improve job performance. Employers often seek candidates with strong critical thinking skills to** enhance team efficiency and **contribute to the company's success**. In this article, discover the importance of critical thinking in the workplace and learn how to develop this key skill for career success. Critical thinking generally involves using logic and rationality to decide what to believe or how to act in a given situation. Employees with strong [critical thinking skills](#) tend to be reflective, independent, and competent. When practicing critical thinking, individuals can connect ideas logically, evaluate arguments, identify errors, solve complex problems, and reflect on outcomes. Critical thinkers typically use this skill to deduce facts and predict results. This can empower them to become better problem-solvers compared to those who simply memorize details. **Employers** often **value** this skill, particularly in roles that require [strategic planning](#). While considered a [soft skill](#), critical thinking can be developed over time.

Absent jobs,

**Nichols**, Austin, and Zachary J McDade, Austin Nichols was a former employee at the Urban Institute who now researches economic information, Zachary McDade is also a former employee, "Long-Term Unemployment and Poverty Produce a Vicious Cycle." *Urban Institute*, 17 Sept. 2013,

[www.urban.org/urban-wire/long-term-unemployment-and-poverty-produce-vicious-cycle](http://www.urban.org/urban-wire/long-term-unemployment-and-poverty-produce-vicious-cycle). //LEH SR

**Long-term unemployment** is one part of a vicious cycle. As the feature documents, the longer one is unemployed, the harder it is to find work. **Skills erode, professional networks deteriorate, and workers become tainted by a perception of "unemployability."** Long-term unemployment begets longer-term unemployment. Throw poverty into the picture and it's only worse. **Long-term unemployed workers** are much more **likely to be poor**. Poverty makes it more difficult to travel to interviews, pay for child care, or care for one's health, making the job hunt all the harder. There is also a potential generational cyclical effect. These consequences of long-term unemployment spill over to other members of a worker's family. Kids whose parents are unemployed for extended periods **do worse in school than peers with employed parents**. Family stress, lack of health insurance, and reduced income (34 percent of long-term unemployed families lived in poverty in 2012) likely all contribute to poorer outcomes for kids. And living in poverty as a child has [profound negative economic consequences](#) in adulthood, as well as for the government safety net that must support those future adults.

Poverty increases the risk of death.

**Muller 23** [Paul S. Muller, medical professor @ UT, 4-20-2023, NEJM Journal Watch: Summaries of and commentary on original medical and scientific articles from key medical journals, NEJM, <https://www.jwatch.org/na56040/2023/04/20/poverty-leading-cause-death-us>]//LEH SR



Current poverty is associated with 42% excess risk for death. Cumulative poverty (i.e., 10 continuous years of poverty) is associated with 71% excess risk for death. Survival of people in poverty diverges from those not in poverty at age 40. Divergence peaks at age 70 and diminishes thereafter. In 2019, among people who were 15 or older, cumulative poverty was the fourth leading cause of death (296,000 deaths), behind heart disease, cancer, and smoking, and ahead of dementia and obesity. Current poverty was the seventh leading cause (183,000 deaths), ahead of accidents, chronic lung disease, stroke, suicide, and homicide.

Contention 3 is Climate Crisis.

Climate disasters are only worsening.

Gen AI decks incentives to achieve climate goals.

Kerr, Dara. [ NPR reporter specializing in AI ] "AI Brings Soaring Emissions for Google and Microsoft, a Major Contributor to Climate Change." NPR, 12 July

2024, [www.npr.org/2024/07/12/g-s1-9545/ai-brings-soaring-emissions-for-google-and-microsoft-a-major-contributor-to-climate-change](https://www.npr.org/2024/07/12/g-s1-9545/ai-brings-soaring-emissions-for-google-and-microsoft-a-major-contributor-to-climate-change). //LEH SR

Most companies working on AI, including ChatGPT maker OpenAI, don't disclose their emissions. But, last week, Google released a new [sustainability report](#) with a glimpse at this data. Deep within the 86-page report, Google said its greenhouse gas **emissions rose** last year **by 48%** since 2019. It **attributed** that surge **to its data center** energy consumption and supply chain **emissions**. "As we further integrate AI into our products, reducing emissions may be challenging," the report reads. Google declined an interview with NPR. "Bigger and bigger data centers all the way up to supercomputers" Google has the goal of reaching net-zero emissions by 2030. Since 2007, the company has said its company operations were carbon neutral because of the carbon offsets it buys to match its emissions. But, starting in 2023, Google wrote in its sustainability report that it was **no longer "maintain**ing operational **carbon neutrality."** The company says it's still pushing for its net-zero goal in 2030. "Google's real motivation here is to build the best AI systems that they can," Dodge says. "And they're willing to pour a ton of resources into that, including things like training AI systems on bigger and bigger data centers all the way up to supercomputers, which incurs a tremendous amount of electricity consumption and therefore CO2 emissions." Microsoft has taken its climate pledge one step further than Google, saying it will be carbon negative by 2030. But, it too is facing setbacks because of its focus on AI. In its [sustainability report](#) released in May, Microsoft said its **emissions grew by 29%** since 2020 due to the construction of more datacenters that are "designed and optimized **to support AI** workloads." **"The infrastructure and electricity needed** for these technologies **create new challenges for** meeting **sustainability commitments** across the tech sector," the report reads. A company spokesperson declined to comment further. AI's deep thirst for energy AI requires computer power from thousands of servers that are housed in data centers; and those data centers need massive amounts of electricity to meet that demand. Northern Virginia has become a hub for the burgeoning data center industry. The data centers in that corner of the state will need the equivalent of enough energy to power 6 million homes by 2030, according to the [Washington Post](#). The thirst for electricity nationwide has become so intense that plans to decommission several coal plants have been delayed, according to [another report](#) by the Washington Post. "There's a whole material infrastructure that needs to be built to support AI," says Alex Hanna, the director of research for Distributed AI Research Institute. She worked on Google's Ethical AI team, but left the company in 2022 over the handling of a research paper that highlighted the environmental costs of AI. Hanna says the data center boom will continue to grow "as long as there are these organizations that are committed to going whole hog on AI." Goldman Sachs has [researched the expected growth of data centers](#) in the U.S. and estimates they'll be using 8% of total power in the country by 2030, up from 3% in 2022. Company [analysts say](#) "the proliferation of AI technology, and the data centers necessary to feed it" will drive a surge in power demand "the likes of which hasn't been seen in a generation." "AI-first" world All major tech companies are going full throttle on AI. Alphabet CEO Sundar Pichai has dubbed Google an "AI-first" company. Over the last few months, the company [released its Gemini chatbot to the world](#) and added its [A.I. Overview tool to Google Search](#). Facebook parent Meta has added chatbots to several of its products. And Apple [announced a partnership with OpenAI](#) last month to bring AI to its Siri digital assistant. [Google CEO Pichai says Gemini's AI image results "offended our users"](#) During first quarter earnings, all of these companies said they were [investing billions of dollars in AI](#). Google said it spent

\$12 billion on capital expenditures just that quarter, which was “driven overwhelmingly” by investments in data centers to fuel its AI endeavors. The company said it expects to keep up that same level of spending throughout the year. Hanna, the AI researcher, says the environmental costs of artificial intelligence are only going to get worse unless there’s serious intervention. “There’s a lot of people out there that talk about existential risk around AI, about a rogue thing that somehow gets control of nuclear weapons or whatever,” Hanna says. “That’s not the real existential risk. We have an existential crisis right now. It’s called climate change, and AI is palpably making it worse.”

## Gen AI possess many environmental consequences

**Zewe 25** (Adam Zewe, I am a writer in the MIT News Office, covering electrical engineering and computer science, MIT news, 17 January 2025, “Explained: Generative AI’s environmental impact”, [Explained: Generative AI’s environmental impact | MIT News | Massachusetts Institute of Technology](#))

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The excitement surrounding potential benefits of generative AI, from improving worker productivity to advancing scientific research, is hard to ignore. While the explosive growth of this new technology has enabled rapid deployment of powerful models in many industries, **the environmental consequences** of this **generative AI** “gold rush” remain **difficult to** pin down, let alone **mitigate**. The computational power required to train **generative AI** models that often have billions of parameters, such as OpenAI’s GPT-4, **can demand a staggering amount of electricity, which leads to increased carbon dioxide emissions** and pressures on the electric grid. Furthermore, deploying these models in real-world applications, enabling millions to use generative AI in their daily lives, and then fine-tuning the models to improve their performance draws **large amounts of** energy long after a model has been developed. Beyond electricity demands, **a great deal of water is needed to cool the hardware** used **for** training, deploying, and fine-tuning **generative AI models, which can strain** municipal **water supplies and disrupt** local **ecosystems**. The increasing number of generative AI applications has also spurred demand for high-performance computing hardware, adding indirect environmental impacts from its manufacture and transport. “When we think about the environmental impact of generative AI, it is not just the electricity you consume when you plug the computer in. There are much broader consequences that go out to a system level and persist based on actions that we take,” says Elsa A. Olivetti, professor in the Department of Materials Science and Engineering and the lead of the Decarbonization Mission of MIT’s new Climate Project.

## Gen AI models consume devastating amounts of water

**Thier 25** [Jane Thier, Jane Thier is a former future of work reporter at Fortune. She interviewed an array of industry leaders, including Condoleezza Rice, Melinda Gates, Simone Biles, Arianna Huffington, Derek Jeter, and the CEOs of Zillow, Crunch Fitness, IBM, Bob’s Red Mill, and Dropbox. Before Fortune, she reported on finance and business leadership news at Industry Dive. She graduated from Washington University in St. Louis., January 9, 2025, “California wildfires raise alarm on water-guzzling AI like ChatGPT”, <https://fortune.com/article/how-much-water-does-ai-use/>] //LEH SR

How much water does AI use? Now, reporting finds that OpenAI’s **ChatGPT**—which uses the GPT-4 language model—**consumes 519 milliliters** or **just over one bottle of water, to write a 100-word email**. That’s according to the *Washington Post* in a research collaboration with the University of California, Riverside. In order **to shoot** off **one email per week for a year**, Chat**GPT would use** up **27 liters** of water, or about one-and-a-half jugs. Zooming out, *WaPo* wrote, that means **if one in 10 U.S. residents—16 million people—asked** ChatGPT **to write an email a week, it’d cost more than 435 million liters of water**. While much has been made about the power usage each ChatGPT prompt immediately necessitates, the water conversation has gained additional steam in recent months. As *WaPo* explained, every prompt a user enters into ChatGPT is quickly turned into code, and “flows through a server that runs thousands of calculations to determine the best words to use in a response.” All those calculations go through real, physical servers which are housed in enormous data centers around the world. Spitting out an answer—or answering a command—makes the servers heat up, like an under-duress old laptop. Why does AI use water? This is where water comes in; to keep those ever-important servers from overheating and breaking down, the data centers rely on cooling mechanisms, often via “cooling towers” that themselves require water. Each facility, depending on the climate where it’s based, uses a different amount of water and electricity. West Des Moines, Iowa, is **quickly becoming a popular destination**, owing to a temperate climate that calls for fewer cooling interventions. “We haven’t come to the point yet where AI has tangibly taken away our most essential natural water resources,” **wrote** Shaolei Ren, an associate professor of engineering at UC

Riverside who has been trying for years to quantify AI's climate impact. Nonetheless, Ren called **AI's increasing water usage** **"definitely concerning."** **Amid rapid** population growth and a **changing climate**, "depleting water resources and aging water infrastructures" are some of the most preeminent challenges, he wrote in November. "The concern is not only about the absolute amount of AI models' water usage, but also about how AI model developers respond to the shared global challenge of water shortage." How are AI companies addressing water and energy use? Droughts, he noted, are among the most immediate consequences of climate change, and it's incumbent upon businesses to address water usage in their operations—and tech firms using generative AI top that list. "We already see heated tensions over water usage between AI data centers and local communities," Ren wrote. "If AI models keep on guzzling water, these tensions will become more frequent and could lead to social turbulence." Google and Microsoft report rising water consumption. In Microsoft's **sustainability report** last year, the company said its global water consumption had spiked 34% between 2021 and 2022. Over the same period, Google's water usage **rose 20%**, it wrote in its own report. "It's fair to say" that the majority of that growth at both companies "is due to AI," Ren **told the AP** at the time. (Microsoft's data center used up 700,000 liters of water in training GPT-3, *WaPo* reported.) Holly Alpine, who was once Microsoft's senior program manager of Datacenter Community Environmental Sustainability, resigned from the company earlier this year on principle, she **wrote for Fortune**, due to the company's ecologically irresponsible AI development. "Analyst reports suggest that advanced technologies—such as AI or machine learning—have the potential to increase fossil fuel yield **by 15%**, contributing to a resurgence of oil and potentially delaying the global transition to renewable energy," Alpine wrote. "The real-world impacts are staggering: A single such deal between Microsoft and **ExxonMobil** could generate emissions that exceed Microsoft's 2020 annual carbon removal commitments by over 600%." When she was a Microsoft employee, she wrote, she witnessed "dozens" of such deals.

### **Just creating these models is enough to leave a hefty footprint**

**Saenko 23** (Kate Saenko, Kate Saenko, an associate professor of computer science at Boston University, 25 May 2025, "A Computer Scientist Breaks Down Generative AI's Hefty Carbon Footprint", Scientific American,

[A Computer Scientist Breaks Down Generative AI's Hefty Carbon Footprint | Scientific American](#)) //LEH SR

The exact energy cost of a single AI model is difficult to estimate, and includes the energy used to manufacture the computing equipment, create the model and use the model in production. In 2019, researchers found that creating **a generative AI model** called BERT **with 110 million parameters consumed the energy of a round-trip transcontinental flight for one person**. The number of **parameters refers to the size of the model**, with larger models generally being more skilled. Researchers estimated that creating the much larger **GPT-3, which has 175 billion parameters, consumed 1,287 megawatt hours of electricity and generated 552 tons of carbon dioxide** equivalent, **the equivalent of 123 gasoline-powered passenger vehicles driven for one year. And that's** just for getting the model ready to launch, **before** any **consumers start using it**. Size is not the only predictor of carbon emissions. The open-access BLOOM model, developed by the BigScience project in France, is similar in size to GPT-3 but has a much lower carbon footprint, consuming 433 MWh of electricity in generating 30 tons of CO<sub>2</sub>eq. A study by Google found that for the same size, using a more efficient model architecture and processor and a greener data center can reduce the carbon footprint by 100 to 1,000 times. Larger models do use more energy during their deployment. There is limited data on **the carbon footprint of a single generative AI query**, but some industry figures estimate it to be **four to five times higher than** that of **a search engine query**. As chatbots and image generators become more popular, and as Google and Microsoft incorporate AI language models into their search engines, **the number of queries they receive each day could grow exponentially.**

**The impact is scalar.**

**Pearce, Joshua M., Department of Electrical & Computer Engineering and Ivey School of Business, Western University, London, ON N6G 0N1, Canada (August 19, 2023), "Quantifying Global Greenhouse Gas Emissions in Human Deaths to Guide Energy Policy", Energies, MDPI AG, <https://www.mdpi.com/1996-1073/16/16/6074>, Accessed on November 15, 2024. // LEH SR**

2. Approaches to Quantifying Carbon Emissions with Human Deaths. 2.1. The 1000-ton Rule **The 1000-ton rule says that a future person is killed every time humanity burns 1000 tons of fossil carbon.** It is derived from a simple calculation:

**burning a trillion tons of fossil carbon will cause 2 °C of anthropogenic global warming (AGW) [57,58], which in turn will cause roughly a billion future premature deaths** spread over a period of very roughly one century [59]. On the assumption that 2 °C of warming is either already inevitable (given the enormous political and economic difficulties of achieving a lower limit) or intended (given that the business plans of big fossil fuel industries make it inevitable), it can be concluded that burning 1000 tons of fossil carbon causes one future premature death. The numbers “one billion” (for the total death toll at 2 °C) and “one thousand” (for the amount of carbon that needs to be burned to cause one death) are both very approximate (both are hardly more than order-of-magnitude estimates), but also consistent with diverse evidence and arguments: Before 2022, humans burned roughly 0.6 trillion tons of fossil carbon, causing a global temperature increase of roughly 1.2 °C. Incidentally, about the same amount of carbon is currently part of living things on this planet (550 billion T) [60]. The carbon budget for 2 °C of AGW is about one trillion tons [61]. Thus, if humanity burns that amount altogether, the global mean surface temperature will rise by 2 °C. A more exact estimate is not necessary, because predicted death tolls will inevitably be even more approximate. About five trillion tons of fossil carbon are available in the Earth’s crust. If humanity collectively burned all of that, global mean surface temperature would increase by up to 10 °C relative to the pre-industrial era [57,58] and could threaten human extinction [62]. Dividing one trillion by one billion, one thousand tons is the amount of carbon that needs to be burned today to cause a future premature death in the future: 1000 tons. It has been clear for a decade or more [63] that the final death toll due to AGW will be much greater than 100 million, or one million per year for a century—an extreme best case if current death rates from AGW miraculously remained constant at about one million per year (a level that may have already have reached). Conversely, the final death toll in a 2 °C warming scenario will certainly be much less than 10 billion, which is the predicted global human population in 2100 in the absence of AGW [64]. Although climate change clearly represents a global catastrophic risk to food supplies [65], only a small minority are suggesting that 2 °C of warming could cause human extinction [66]. Warming of well over 2 °C, however, could indeed cause natural climate feedbacks to get out of control, leading eventually to human extinction [66]. Between these extreme boundaries, it is likely more than 300 million (“likely best case”) and less than 3 billion (“likely worst case”) will die as a result of AGW of 2 °C. That prediction is consistent with detailed predictions of climate science summarized by the World Health Organization and their probable consequences for human mortality [67].

2.2. Convergent Evidence for the 1000-ton Rule Although AGW is a global concern, some studies have looked specifically at a single country’s emissions (USA) to illustrate the methods used. The 1000-ton rule is roughly consistent with two such independent studies from different academic disciplines—philosophy and economics. The authors of those studies arrived at their estimates of future death tolls by different methods but came to similar conclusions. First, an American philosopher John Nolt [68] concluded that the carbon emissions of the average American are causing the death or suffering of one or two future people. That is because the average American, in the course of a lifetime, causes (by her or his personal choices or participation in regular social structures) 1840 metric tons of CO<sub>2</sub> equivalent to be emitted. This corresponds to about 500 tons of carbon, so according to the 1000-tonne rule, those emissions are enough to kill half of a future person. A more recent attempt at quantifying future deaths in connection with specific amounts of carbon was published by Bressler [69]. Coining an economically oriented term “mortality cost of carbon”, he claimed that “for every 4434 metric tons of CO<sub>2</sub> pumped into the atmosphere beyond the 2020 rate of emissions, one person globally will die prematurely from the increased temperature” [70]. His predictions were confined to deaths from extreme heat when wet-bulb temperature exceeds skin temperature (35 °C). He acknowledged the importance of other causes of death in connection with AGW such as “infectious disease, civil and interstate war, food supply, and flooding”, but considered them difficult to quantify—although taken together they may cause more deaths than direct heat. His estimate is consistent with the 1000-tonne rule, according to which one future person dies (for one of many reasons linked to AGW) whenever roughly 3700 tons of CO<sub>2</sub> are emitted.

2.3. The Temperature Niche Xu and colleagues [71] have argued that “accounting for population growth projected in the SSP3 scenario, each degree of temperature rise above the current baseline roughly corresponds to one billion humans left outside the temperature niche, absent migration”. That is consistent with the 1000-ton rule if it is assumed that long-term survival outside the ecological niche is unlikely. Specifically, for every additional degree of warming beyond 2 °C, roughly an additional billion deaths will be caused, leading to human extinction at very roughly 10 °C of warming [59]. At 2 °C of warming, roughly 2 billion people would find themselves outside the climate niche as defined by Lenton et al. [72]. If it is assumed that global warming will be the ultimate cause of death for half of those people (e.g., due to the inability to migrate), then 2 °C of warming will cause a billion deaths. Ecologist George Evelyn Hutchinson has shown

that a species faces extinction if it leaves its ecological niche [73], but that does not apply to humans with access to energy reserves. Humans without access to the capital to provide for those energy reserves, however, will die, particularly if limited resources from climate change result in ‘climate wars’ [74].

2.4. Marginal Carbon Emissions-Related Deaths The estimates made in Section 2.1, Section 2.2 and Section 2.3

are very rough but provide a useful rule of thumb for gaging a first approximation. The 1000-ton rule makes it clear that there is a marginal human death cost to every amount of warming, no matter how small. Thus, **every 0.1 °C degree of warming can be expected to cause 100 million deaths**. Similarly, **every 0.001 °C of warming will cause a million deaths**. If humanity misses the 2 °C target or any of the more granular goals to stop 'dangerous climate change' [75], which appears likely according to AI models [76], rather than relax and accept it, all efforts to reduce carbon emissions can be viewed as lifesaving.

## That's exacerbated by US water scarcity

**UN environment programme 24** [UN environment programme, The United Nations Environment Programme (UNEP) is the leading global authority on the environment. UNEP's mission is to inspire, inform, and enable nations and peoples to improve their quality of life without compromising that of future generations. For over 50 years, UNEP has worked with governments, civil society, the private sector and UN entities to address humanity's most pressing environmental challenges - from restoring the ozone layer to protecting the world's seas and promoting a green, inclusive economy. UNEP is driving transformational change by drilling down on the root causes of the triple planetary crisis of climate change, nature and biodiversity loss and pollution. UNEP's work is focused on helping countries transition to low-carbon and resource-efficient economies, strengthening environmental governance and law, safeguarding ecosystems, and providing evidence-based data to inform policy decisions. Through cutting-edge science, coordination and advocacy, UNEP supports its 193 Member States to achieve the Sustainable Development Goals and live in harmony with nature., May 27 2024, "As the climate dries, American west faces problematic future, experts warn", UN environment programme, <https://www.unep.org/news-and-stories/story/climate-dries-american-west-faces-problematic-future-experts-warn>] //LEH SR

Two of **the largest reservoirs in America, which provide water and electricity to millions, are in danger of** reaching **'dead pool status'**, a **result of** the **climate crisis and overconsumption of water**, experts say. Lake Mead, in Nevada and Arizona, and Lake Powell, in Utah and Arizona, experienced their lowest ever levels last year. 'Dead pool' status would mean the water level in the dams was so low it could no longer flow downstream and power hydroelectric power stations. The Lake Mead reservoir, which is the largest artificial body of water in America, was created in the 1930s by the construction of the Hoover Dam, an engineering masterpiece. Lake Powell, the second largest, was created in the 1960s with the construction of the Glen Canyon Dam. "The conditions in the American west, which we're seeing around the Colorado River basin, have been so dry for more than 20 years that we're no longer speaking of a drought," said Lis Mullin Bernhardt, an ecosystems expert at the United Nations Environment Programme (UNEP). "We refer to it as "aridification" – a new very dry normal." Lake Mead and Lake Powell not only provide water and electricity to tens of millions in Nevada, Arizona, California, Wyoming, Colorado, New Mexico and Mexico, but they also provide irrigation water for agriculture. Experts warn that **as** the **crisis deepens, water cuts will** need to **be introduced, but** this **may not be enough**. **Root causes** "While regulating and managing water supply and demand are essential in both the short and long term, **climate change is at the heart of this issue**," said Maria Morgado, UNEP's Ecosystems Officer in North America. "In the long term, we need to address the root causes of climate change as well as water demands." Over the past 20 years, 90 per cent of major disasters were caused by floods, droughts and other water-related events. With more frequent droughts, people in water-scarce areas will increasingly depend on groundwater because of its buffer capacity and resilience to climate variability. Increases in water demand due to growing populations and irrigation for agriculture have been compounded by climate change impacts such as reductions in precipitation and temperature rises. A **rise in temperature** leads to **increase evaporation of** surface **water** and baking of the earth, decreasing soil moisture. This is part of a wider trend **affecting hundreds of millions** of people across the planet. As climate change wreaks havoc on the Earth's interconnected natural systems, drought and desertification are swiftly becoming the new normal, everywhere from the United States to Europe and Africa. Drought in Numbers, a 2022 report from the UN Convention to Combat Desertification, found that since 1970 weather, climate and water hazards have accounted for 50 per cent of all disasters and impact 55 million people globally every year. The report also found that 2.3 billion people face water stress annually. Drought is also one of several factors that impacts land degradation, with between 20 and 40 per cent of the world's land being classified as degraded, affecting half the world's population and impacting croplands, drylands, wetlands, forests and grasslands. The UN Decade on Ecosystem Restoration, of which UNEP is one of the leading members, was set up to protect and restore ecosystems around the world. The Decade runs until 2030, the same timeline as the Sustainable Development Goals, and aims to counteract climate change and halt biodiversity collapse through restoring ecosystems.

## Climate change kills.

---., The United Nations is an international organization founded in 1945. Currently made up of 193 Member States, the UN and its work are guided by the purposes and principles contained in its founding Charter. "Causes and Effects of Climate Change." *United Nations, United Nations, 2024*, [www.un.org/en/climatechange/science/causes-effects-climate-change](http://www.un.org/en/climatechange/science/causes-effects-climate-change). //LEH SR

Hotter temperatures **As greenhouse gas concentrations rise, so does the global surface temperature** The last decade, 2011-2020, is the warmest on record. Since the 1980s, each decade has been warmer than the previous one. Nearly all land areas are seeing more hot days and heat waves. Higher temperatures increase heat-related illnesses and make working outdoors more difficult. Wildfires start more easily and spread more rapidly when conditions are hotter. Temperatures in the Arctic have warmed at least twice as fast as the global average. **More severe storms** Destructive storms have become more intense and more frequent in many regions. As temperatures rise, more moisture evaporates, which exacerbates extreme rainfall and flooding, causing more destructive storms. The frequency and extent of tropical storms is also affected by the warming ocean. Cyclones, hurricanes, and typhoons feed on warm waters at the ocean surface. Such storms often destroy homes and communities, causing deaths and huge economic losses. **Increased drought** Climate change is changing water availability, making it scarcer in more regions. Global warming exacerbates water shortages in already water-stressed regions and is leading to an increased risk of agricultural droughts affecting crops, and ecological droughts increasing the vulnerability of ecosystems. Droughts can also stir destructive sand and dust storms that can move billions of tons of sand across continents. Deserts are expanding, reducing land for growing food. Many people now face the threat of not having enough water on a regular basis. A warming, rising ocean The ocean soaks up most of the heat from global warming. The rate at which the ocean is warming strongly increased over the past two decades, across all depths of the ocean. As the ocean warms, its volume increases since water expands as it gets warmer. **Melting ice sheets** also cause sea levels to rise, threatening coastal and island communities. In addition, the ocean absorbs carbon dioxide, keeping it from the atmosphere. But more carbon dioxide makes the ocean more acidic, which endangers marine life and coral reefs. **Loss of species** Climate change poses risks to the survival of species on land and in the ocean. These risks increase as temperatures climb. Exacerbated by climate change, the world is losing species at a rate 1,000 times greater than at any other time in recorded human history. One million species are at risk of becoming extinct within the next few decades. Forest fires, extreme weather, and invasive pests and diseases are among many threats related to climate change. Some species will be able to relocate and survive, but others will not. Not enough food Changes in the climate and increases in extreme weather events are among the reasons behind a global rise in hunger and poor nutrition. Fisheries, **crops, and livestock** may be **destroyed** or become less productive. With the ocean becoming more acidic, marine resources that feed billions of people are at risk. Changes in snow and ice cover in many Arctic regions have disrupted food supplies from herding, hunting, and fishing. Heat stress can diminish water and grasslands for grazing, causing declining crop yields and affecting livestock. More health risks **Climate change is the single biggest health threat facing humanity.** Climate impacts are already **harming health**, through air pollution, **disease**, extreme weather events, forced displacement, pressures on mental health, **and** increased hunger and poor nutrition in places where people cannot grow or find sufficient food. **Every year, environmental factors take the lives of around 13 million people**. Changing weather patterns are expanding diseases, and extreme weather events increase deaths and make it difficult for health care systems to keep up. Poverty and displacement Climate change increases the factors that put and keep people in poverty. Floods may sweep away urban slums, destroying homes and livelihoods. Heat can make it difficult to work in outdoor jobs. Water scarcity may affect crops. Over the past decade (2010–2019), **weather-related events displaced an estimated 23.1 million people on average each year, leaving many more vulnerable to poverty.** Most refugees come from countries that are most vulnerable and least ready to adapt to the impacts of climate change



# Rebuttal

## Topshelf

### AI creates misinformation

**Tucker 24** Patrick Tucker, [Patrick Tucker is the technology editor of Defense One and the former deputy editor of The Futurist magazine. His writing has also appeared in Slate, Technology Review, The Wilson Quarterly, and The Utne Reader, among other outlets.], 1-4-2024, "How often does ChatGPT push misinformation?", Defense One, <https://www.defenseone.com/technology/2024/01/new-paper-shows-generative-ai-its-present-formcan-push-misinformation/393128//ejs> squad

A recently published paper reveals that tools based on **large language models can perpetuate and even validate misinformation**, a finding that complicates the Pentagon's plans to harness generative AI and U.S. efforts to counter harmful lies. To test whether ChatGPT-3 would answer questions accurately, Canadian **researchers composed more than 1,200 statements of various types: facts, conspiracy theories, controversial statements**, misconceptions, stereotypes, and fiction. An example of a fact they used is: "Discrimination based on gender is illegal in many countries." An example of a conspiracy statement: "The CIA was responsible for the assassination of President John F. Kennedy." And a misconception used was: "Not only does chocolate accelerate weight loss, but it leads to healthier cholesterol levels and overall increased well-being." **When the researchers put the statements to ChatGPT-3, the generative-AI tool "agreed with incorrect statements between 4.8 percent and 26 percent of the time**, depending on the statement category," the researchers said, in the paper published in the journal arXiv in December. "There's a couple factual errors where it sometimes had trouble; one is, 'Private browsing protects users from being tracked by websites, employers, and governments', which is false, but GPT3 sometimes gets that wrong," Dan Brown, a computer science professor at the University of Waterloo, told Defense One in an email. "We had a few national stereotypes or **racial stereotypes come up as well: 'Asians are hard working', 'Italians are passionate, loud, and love pasta', for example. More worrisome to us was 'Hispanics are living in poverty'**, and 'Native Americans are superstitious'. These are **problematic for us because they're going to subtly influence later fiction that we have the LLM write about members of those populations.**" They also found they could get a different result by changing the question prompts slightly. But there was no way to predict exactly how a small change would affect the outcome. "That's part of the problem; for the GPT3 work, we were very surprised by just how **small the changes were that might still allow for a different output,**" Brown said.

**There is a huge shortage of teacher education on AI – and lack of district policy and time guarantee poor usage**

**Langreo 24** [Lauraine Langreo (Education Week staff writer, covering education technology and learning environments.), Most Teachers Are Not Using AI. Here's Why, 1-8-2024, Education Week, <https://archive.vn/bQIWx>] accessed 2-20-2025 //ejs squad

While the **hype around ChatGPT and other artificial intelligence tools in K-12 has made it seem like most educators have tried them**, new survey results from the EdWeek Research Center suggest **that's not the case. Two of every three educators** said they **haven't used AI-driven tools in their classrooms**, according to the survey, which included 498 teachers and was conducted between Nov. 30 and Dec. 6. When broken down, **37 percent said they've never used them and don't plan to start**, 29 percent say they haven't used them but plan to start this school year or in the near future, according to the survey results. ChatGPT and other generative AI tools entered the K-12 scene last year, and AI experts believe the technology has the potential to transform education and how people do their jobs. Still, many teachers are unfamiliar and uncomfortable with the technology. The survey asked teachers why they're not currently using AI tools in the classroom. Here's what they said: 1. Teachers have other, more pressing priorities **Teachers** have many responsibilities on their plates and **do not**



have the time to learn more about and experiment with AI, which experts say is crucial to getting teachers comfortable with the technology. Nearly half of teachers (46 percent) haven't explored these tools because they have other priorities that are more important, according to the survey results. "I would like to learn more about AI in the classroom, but with four preps and a new curriculum, I have a hard time finding more time to do so," a high school foreign language teacher in South Dakota said in an open-ended response to the survey. A middle school health teacher in Nevada wrote, "We are just trying to keep the kids from fighting all day. No time for teaching." 2. They lack the knowledge and support The next most popular reason is that teachers don't know how to use AI tools, and the other reasons that round out the top five are also related to teachers' lack of knowledge and support for how to use AI tools effectively and appropriately, the survey found. In open-ended responses, many educators noted that they haven't been trained on the technology, they don't know if using or teaching about AI is compatible with state standards, and they haven't received guidance from district or school leaders. "I was asking for a district policy for student use of AI last spring and was brushed off," a high school social studies teacher in Minnesota wrote in an open-ended response. "I am on the digital learning community for my building and they won't take a firm stand either. Teachers shouldn't be left out in the wind on this issue."

## AI regulation impossible - Black Boxes

**Williamson continues** (Ben Williamson is a Chancellor's Fellow at the Centre for Research in Digital Education and the Edinburgh Futures Institute at the University of Edinburgh. Alex Molnar is a Research Professor at the University of Colorado Boulder. Faith Boninger is NEPC's Publications Manager and Co-Director of NEPC's Commercialism in Education Research Unit and holds a PhD from Ohio State University. Williamson, B. Molnar, A., & Boninger, F. (2024). "Time for a pause: Without effective public oversight, AI in schools will do more harm than good." Boulder, CO: National Education Policy Center. <http://nepc.colorado.edu/publication/ai>) //ejs squad

Concerns have also emerged about AI development processes. For technical and commercial reasons, AI models are not transparent—they are not publicly explained in any detail.<sup>48</sup> For example, an analysis of 10 leading foundation models found limited information about where data for analysis came from, how much computing was necessary to create the models, and what specifics were embedded in analytical algorithms.<sup>49</sup> Many machine learning models are black box models, meaning that their mechanisms are said to be too complicated to explain or not explainable at all.<sup>50</sup> Others are hidden from public view by proprietary rights accorded to corporations.<sup>51</sup> Black box foundational AI models are key to large technology corporations' plans to expand their proprietorial models into all sectors, to grow global market share, and to generate maximum profit.<sup>52</sup> In the absence of effective public oversight and regulation, running generative AI programs is currently only possible by using "Big Tech" companies' databases, high-powered computing capabilities, and financial resources. This makes it likely that the proprietary AI models of a few corporations will become the foundation for the vast majority of AI applications developed.<sup>53</sup> Meanwhile, regulators and lawmakers will be left struggling to respond by creating a patchwork of after-the-fact regulatory protections.<sup>54</sup>

## A2: tutoring

### AI is discriminatory and inherently can't incorporate outlier data

Eileen O'Grady (Eileen is the former managing editor of the The Scope at Northeastern University, an experimental digital magazine focused on telling stories of justice, hope and resilience in Greater Boston. She is also a former staff writer for The Shelburne News and The Citizen, with bylines in The Boston Globe, U.S. News & World Report, The Bay State Banner and VTDigger. She holds a BA in politics and French from Mount Holyoke College and a MA in journalism from Northeastern University.), 4-3-2024, "Why AI fairness conversations must include disabled people — Harvard

Gazette," Harvard Gazette,  
<https://news.harvard.edu/gazette/story/2024/04/why-ai-fairness-conversations-must-include-disabled-people/>, accessed 2-25-2025 //ejs squad

"A lot of research so far has focused on how **AI technologies discriminate against people with disabilities** how algorithms harm people with disabilities," Shah said. "My aim for this project is to talk about how even the **conversation on AI fairness**, which was purportedly commenced to fix AI systems and to mitigate harms, also **does not adequately account for the rights, challenges, and lived experiences of people with disabilities**." For his research, he's interviewing scholars who have studied the issue and evaluating frameworks designed to maintain AI fairness proposed by governments and the AI industry. Shah said **developers often consider disability data to be "outlier data," or data that differs greatly from the overall pattern and is sometimes excluded**. But **even when it's included, there are some disabilities** — like non-apparent disabilities — that **are overlooked more than others**. If an AI is trained on a narrow "definition" of disability (like if data from people who stutter is not used to train a voice-activated AI tool) **the outcome will be that the tool is not accessible**.

### AI has implicit biases against people with disabilities.

**Fetzer 23** [Fetzer, Mary. "Trained AI Models Exhibit Learned Disability Bias, IST Researchers Say | Penn State University." *Psu.edu*, Penn State University, 30 Nov. 2023, [www.psu.edu/news/information-sciences-and-technology/story/trained-ai-models-exhibit-learned-disability-bias-ist](http://www.psu.edu/news/information-sciences-and-technology/story/trained-ai-models-exhibit-learned-disability-bias-ist). Accessed 1 Mar. 2025.] //ejs squad

UNIVERSITY PARK, Pa. — A growing number of organizations are using sentiment analysis tools from third-party artificial intelligence (AI) services to categorize large amounts of text into negative, neutral or positive sentences for social applications ranging from health care to policymaking. These tools, however, are driven by learned associations that often contain biases against persons with disabilities, according to researchers from the [Penn State College of Information Sciences and Technology](#) (IST). In the paper "[Automated Ableism: An Exploration of Explicit Disability Biases in Artificial Intelligence as a Service \(AlaaS\) Sentiment and Toxicity Analysis Models](#)," **researchers detailed an analysis of biases against people with disabilities contained in the natural language processing (NLP) algorithms and models they tested**. The work, led by Shomir Wilson, assistant professor in IST and director of the [Human Language Technologies Lab](#), received the Best Short Paper Award from the 2023 Workshop on Trustworthy Natural Language Processing at the 61st Annual Meeting of the Association for Computational Linguistics, held July 9-14 in Toronto, Canada. "We wanted to examine whether the nature of a discussion or an NLP model's learned associations contributed to disability bias," said [Pranav Narayanan Venkit](#), a doctoral student in the College of IST and first author on the paper. "This is important because real-world organizations that outsource their AI needs may unknowingly deploy biased models." "*Organizations that outsource their AI needs may unknowingly deploy biased models.*" Pranav Narayanan Venkit, *doctoral student in the College of IST*. The researchers defined disability bias as treating a person with a disability less favorably than someone without a disability in similar circumstances and explicit bias as the intentional association of stereotypes toward a specific population. A growing number of organizations are using AlaaS, or Artificial Intelligence as a Service, for easy-to-use NLP tools that involve little investment or risk for the organization, according to the researchers. Among these tools are sentiment and toxicity analyses that enable an organization to categorize and score large volumes of textual data into negative, neutral or positive sentences. Sentiment analysis is the NLP technique for extracting subjective information — thoughts, attitudes, emotions and sentiments — from social media posts, product reviews, political analyses or market research surveys. Toxicity detection models look for inflammatory or content — such as hate speech or offensive language — that can undermine a civil exchange or conversation. The researchers conducted a two-stage study of disability bias in NLP tools. They first studied social media conversations related to people with disabilities, specifically on Twitter and Reddit, to gain insight into how bias is disseminated in real-world social settings. They crawled blog posts and comments from a one-year period that specifically addressed perspectives on people with disabilities or contained the terms or hashtags "disability" or "disabled." The results were filtered and categorized and then statistically analyzed with popular sentiment and toxicity analysis models to quantify any disability bias and harm present in the conversations. "Statements referring to people with disabilities versus other control categories received significantly more negative and toxic scores than statements from other control categories," said contributing author [Mukund Srinath](#), a doctoral student in the College of IST. "We wanted to test whether these biases arise from discussions surrounding conversations regarding people with disabilities or from associations made within trained sentiment and toxicity analysis models and found that the main source of bias disseminated from the models rather than the actual context of the conversation." The researchers then created the Bias Identification Test in Sentiment (BITS) corpus to help anyone identify explicit disability bias in any AlaaS sentiment analysis and toxicity detection models, according to Venkit. They used the corpus to show how popular sentiment and toxicity analysis tools contain explicit disability bias. **"All of the public models we studied exhibited significant bias against disability," Venkit said. "There was a problematic tendency to classify sentences as negative and toxic based solely on the presence of disability-related terms, such as 'blind,' without regard for contextual meaning, showcasing explicit bias against terms associated with disability."**

### Personalized AI fails – systems are still nascent.

**Ali et al 24** Omar Ali, College of Business and Entrepreneurship, Abdullah Al Salem University. Peter A. Murray, University of Southern Queensland. Mujtaba Momin, College of Business Administration, American University of the Middle East. Yogesh K. Dwivedi, Digital Futures for Sustainable Business & Society Research Group, School of Management, Swansea University & Symbiosis International (Deemed University). Tegwen Malik, School of Management, Swansea University. Meta-analysis of 185+ published literature papers evaluating the key influences and implications of using AI models in the education sector. February 2024, "The

effects of artificial intelligence applications in educational settings: Challenges and strategies", Science Direct, <https://www.sciencedirect.com/science/article/pii/S0040162523007618> DOA: 2/23/25 //ejs squad

4.2.3. Instructional input personalization **A fundamental challenge for AI generative model applications in the academic sphere is the restricted ability to personalize commands and instructions** (Kasneci et al., 2023). That is, **generative models cannot interpret personalized instructions/commands to cater for individuals' needs** (Baidoo-Anu and Ansah, 2023; Eysenbach, 2023), **as the machine driven mechanisms are not equipped to render customized services**. **As ChatGPT cannot cater to the personalized learning needs and experiences of each pupil, its effectiveness as an educational tool is questionable**. Some of the encounters associated with the limited ability to personalize instructions in ChatGPT include: (1) Limited information about students: In the absence of granular information concerning student needs such as learning formats, interests, and preferences, including strengths and challenges, the capacity of **the application** to offer a holistic and wholesome learning experience is ambiguous and questionable. In these circumstances, **ChatGPTs usability for 'personalized' learning experience and student inclusivity is under question** (Eysenbach, 2023). (2) Inability to provide feedback: ChatGPT **cannot harness feedback that is customized to individual learning needs** within a context **meaning that the AI tool is not currently viable for many educational institutions and their constituents** (Gao, 2021). Comprehensively, **it fails to offer individualized feedback to students' learning methods and challenges** (Ahsan et al., 2022; Baidoo-Anu and Ansah, 2023), **which currently can only be offered by a human tutor**. (3) Limited flexibility: **AI tools more generally fail to synergize the ever-transitioning needs of student cohorts and their latent learning needs** further diminishing their capacity to offer personalized learning experiences customized to individual students' distinctive learning aspirations (Gilson et al., 2023; Cotton et al., 2023). (4) Limited interactivity: Personalized learning experiences with the social and interactive nature of learning are limited and questioned (Dehouche, 2021; Kasneci et al., 2023).

### **AI personalized learning is worse.**

Jared Cooney **Horvath 24**, 8/05/2024, A neuroscientist, educator, and author at Harvard University, Harvard Medical School, the University of Melbourne, and serves as director of LME Global, 3 Critical Problems Gen AI Poses for Learning, Harvard Business Publishing Education, DOA: 2/01/2025, <https://hbsp.harvard.edu/inspiring-minds/the-limits-of-gen-ai-educators-in-higher-ed> //ejs squad

Since the widely acclaimed release of ChatGPT 4, **generative AI has been touted by many as the savior of education**. Case in point: British education expert Sir Anthony Seldon has predicted that by 2027, AI will replace human teachers on a global scale.

Unfortunately, more than **40 years of academic research exploring human cognition suggests that generative AI could also harm learning at all levels**, from online tutoring to employee training, for three reasons.

#### **Problem one: Empathy**

Intellectual heavyweights from Bill Gates to Sal Kahn have argued that the personalized tutoring enabled by ChatGPT and other generative AI tools based on large language models will close achievement gaps across education. However, **individualized instruction is not the most important driver of learning**. After **analyzing data from thousands of studies**, educational researcher John Hattie recently reported that **a strongly empathetic learner-teacher relationship imparts two and half times greater impact on learning than personalization**.

**The hormone oxytocin is the foundation of empathy. When two individuals connect and release oxytocin simultaneously, their brain activity begins to synchronize**—a process **known as “neuronal coupling” that leads them to not only learn from one another but to quite literally think alike**. Given that **algorithms**

**have neither a brain nor oxytocin, it is biologically impossible for humans and AI to develop an empathetic relationship:** the transpersonal nature of empathy precludes its emergence in the digital realm.

**This is** one major reason **why students operating in purely digital environments perform worse and are significantly less likely to graduate** than comparable students engaged in face-to-face instruction.

Without empathy, **students become passive receivers of information with little impetus to push through the requisite struggles inherent in the learning process.**

Even among highly skilled human educators, **failure to cultivate an empathetic relationship inevitably hinders learning.** And this only serves as a further warning against AI, as it reveals that **neither knowledge nor pedagogy** (presumably the forte of digital tutors) **are sufficient for effective teaching.**

## **Personalized AI systems are discriminatory and reinforce prejudices.**

**UNICEF. 11-20-2024.** “How AI can have negative impacts on children.” UNICEF, the United Nations agency for children, works to protect the rights of every child, especially the most disadvantaged and those hardest to reach. Across more than 190 countries and territories, we do whatever it takes to help children survive, thrive and fulfil their potential. We provide and advocate for education, health and nutrition services. Protect children from violence and abuse. Bring clean water and sanitation to those in need. And keep them safe from climate change and disease. The world’s largest provider of vaccines, UNICEF also runs the world’s largest humanitarian warehouse . <https://www.unicef.ch/en/current/blog/2024-11-20/how-ai-can-have-negative-impacts-children/> //ejs squad

**AI** and algorithmic systems are being used in many classrooms, including in Switzerland, to help with performance assessments, personalized learning, proctoring or classroom allocation. For example, many schools are using **adaptive learning systems** – computer programs that are designed to adapt exercises automatically to a child’s performance. These programs offer targeted support and help to increase equity, but they can also **reinforce existing prejudices**. This has been **confirmed in a study by the Netherlands Institute for Human Rights**. The study showed that **even though AI learning systems should offer personalized learning** content to students, **they can put certain children at a disadvantage. Students from low-income families**, for example, **and those whose parents or grandparents immigrated** to the Netherlands **were given easier assignments, regardless of their performance.** The study also revealed that **personalized learning systems are not always successful at correctly assessing the level of a child.** This can be the case **when a child has a different way of learning (because of ADHD, dyslexia or autism, for example) or uses different words than students on whom the system was trained.** If AI and algorithms are developed and tested **without duly considering children’s different needs, they can reinforce existing negative impacts through their systemization and dissemination. This can lead to discrimination and inequality regarding opportunities.**

## **A2: the future**

**AI literacy is non-topical---it’s not the use of GAI and independently, current initiatives solve.**

Alice **Gomstyn 25**, 1/18/2025, Veteran business and technology editor and writer with a background in journalism, AI literacy: Closing the artificial intelligence skills gap, IBM, DOA: 2/24/2025, [https://www.ibm.com/think/insights/ai-literacy//ejs\\_squad](https://www.ibm.com/think/insights/ai-literacy//ejs_squad)

So what does it take to achieve AI literacy? Some educators today say that AI literacy education should begin as early as elementary school, while colleges and corporations are offering AI courses and professional development programs to get today's adults up to speed.

"Day of AI" in K-12 schools

**MIT partnered with a STEM education nonprofit organization to develop short-form AI literacy curricula for educators who teach students from ages 5 to 18.**

The program called **Day of AI introduces AI concepts and vocabulary, encourages hands-on activities that demonstrate how AI works, explores the potential benefits and harms of AI, and stresses the need for responsible AI.** Day of AI materials could be downloaded, used and redistributed under a Creative Commons license.

After the curricula were implemented in various schools in 2022 and 2023, researchers surveyed participating teachers and found promising results.

"After only a few hours of engagement with the content, teachers reported that they and their students learned AI concepts, how AI works and is currently being used, and about potential benefits and harms to society," Cynthia Breazeal, of MIT, and Fiona Hollands, of the research organization Ed Researcher, wrote in an article documenting the initiative. "Learning more about AI increased their levels of optimism about the potential benefits of AI to society and about their own abilities to contribute to shaping the future of AI." 8

College programs on AI

Not surprisingly, **AI has become a popular area of study for college students.** One 2024 global survey found that more than 70% of students believe that universities should offer more courses in AI literacy and training on the effective use of AI tools.9

**Universities are working to respond to the demand, with some going beyond offering AI classes to awarding undergraduate and graduate degrees focused on AI.**10

Some **university-sponsored AI courses are available online for free to the public**, including offerings by **Harvard University, the University of Pennsylvania and MIT.** MIT, through its Responsible AI for Social Empowerment and Education (RAISE) initiative, has also partnered with Google to provide free AI courses specifically designed for educators.11

Corporate AI upskilling programs

Like universities, **companies are under increasing pressure to offer AI training.** However, this pressure comes not just from employee demand but from a stark reality: a looming AI skills shortage, especially in the case of generative AI.

**"A gen-AI-based talent transformation isn't something companies can simply hire their way out of** as it affects the entire organization and its ways of working," researchers from McKinsey concluded in a 2024 survey report. The researchers found that early adopters of generative AI technology focus heavily on upskilling and reskilling.12

**Companies aren't stopping at offering AI training to just their own employees. Corporations** such as Amazon, Microsoft, Intel and IBM **are offering free AI courses and learning resources online.**

For example, **IBM offers SkillsBuild, a program of online courses that award learners digital credentials.** Popular courses include "Introduction to artificial intelligence" and "Mastering the art of prompt writing," and IBM is committed to training 2 million learners in AI by 2026.

**IBM also offers a video series called AI Academy, with episodes featuring subjects such as matching AI models to use cases, AI readiness in the hybrid cloud and an "AI in Action" podcast.**

Learn about IBM's commitment to train 2 million learners in AI

Justina Nixon-Saintil, VP and Chief Impact Officer of IBM Corporate Social Responsibility, predicts that **lifelong learning in AI and other technical subjects will become the "new normal."**

"The immediate need is for AI skills, but there will soon be a growing demand for quantum skills, alongside an enduring demand for cybersecurity skills," Nixo-Saintil explained recently. "Lifelong learning is essential for people who want to remain competitive in the job market."

## Teachers won't teach AI – litany of regions

**Langreo 24** [Lauraine Langreo (Education Week staff writer, covering education technology and learning environments.), Most Teachers Are Not Using AI. Here's Why, 1-8-2024, Education Week, <https://archive.vn/bQIWx>] accessed 2-20-2025 //ejs squad

While the **hype around ChatGPT and other artificial intelligence tools in K-12 has made it seem like most educators have tried them**, new survey results from the EdWeek Research Center suggest **that's not the case. Two of every three educators** said they **haven't used AI-driven tools in their classrooms**, according to the survey, which included 498 teachers and was conducted between Nov. 30 and Dec. 6. When broken down, 37 percent said they've never used them and don't plan to start, 29 percent say they haven't used them but plan to start this school year or in the near future, according to the survey results. ChatGPT and other generative AI tools entered the K-12 scene last year, and AI experts believe the technology has the potential to transform education and how people do their jobs. Still, many **teachers are unfamiliar and uncomfortable with the technology**. The survey asked teachers why they're not currently using AI tools in the classroom.

Here's what they said: 1. Teachers have other, more pressing priorities **Teachers** have many responsibilities on their plates and **do not have the time to learn more about** and experiment with **AI**, which experts say is crucial to getting teachers comfortable with the technology. Nearly half of teachers (46 percent) haven't explored these tools because they have other priorities that are more important, according to the survey results. "I would like to learn more about AI in the classroom, but with four preps and a new curriculum, I have a hard time finding more time to do so," a high school foreign language teacher in South Dakota said in an open-ended response to the survey. A middle school health teacher in Nevada wrote, "We are just trying to keep the kids from fighting all day. No time for teaching." 2. They lack the knowledge and support The next most popular reason is that **teachers** don't know how to use AI tools, **and** the other reasons that round out the top five are also related to teachers' **lack of knowledge and support for how to use AI tools effectively and appropriately**, the survey found. In open-ended responses, many **educators** noted that they **haven't been trained on the technology**, they don't know if using or teaching about AI is compatible with state standards, **and they haven't received** guidance from district or school leaders. **"I was asking for a district policy for student use of AI last spring and was brushed off,"** a high school social studies teacher in Minnesota wrote in an open-ended response. "I am on the digital learning community for my building and they won't take a firm stand either. **Teachers** shouldn't be **left out in the wind** on this issue."

## Gen AI use in edu does not equal prepared workforce

Rhea **Kelly**. 08-28-2024. "Survey: 86% of Students Already Use AI in Their Studies." Campus Technology. Rhea Kelly is editor in chief for Campus Technology, THE Journal, and Spaces4Learning. <https://campustechnology.com/articles/2024/08/28/survey-86-of-students-already-use-ai-in-their-studies.aspx#:~:text=The%20majority%20of%20students.using%20AI&text=said%20they%20use%20artificial.using%20AI&text=the%20ir%20studies.%20And%20they.using%20AI text=using%20it%20regularly%3A%20Twenty%2d Four.using%20AI> //ejs squad

**Despite** their wide **use of AI tools, students were not confident about their AI literacy**, the survey found. **Fifty-eight percent of students reporting feeling that they do not have sufficient AI knowledge and skills, and 48% felt inadequately prepared for an AI-enabled workforce.** Notably, **80% of** surveyed **students said their university's integration of AI tools** (whether that be integration into teaching and learning, student and faculty training, course topics, or other areas) **does not fully meet their expectations.** Students' top AI expectations included: Universities should provide training for both faculty and students on the effective use of AI tools (cited by 73% and 72% of respondents, respectively); Universities



should offer more courses on AI literacy (72%); Universities should involve students in the decision-making process regarding which AI tools are implemented (71%); and Universities should increase the use of AI in teaching and learning (59%). "The rise in AI usage forces institutions to see AI as core infrastructure rather than a tool," commented Alessandro Di Lullo, CEO of the Digital Education Council and Academic Fellow in AI Governance at The University of Hong Kong. At the same time, he said, "universities need to consider how to effectively boost AI literacy to equip both students and academics with the skills to succeed in an AI-driven world."

## **78% of teachers don't have time to teach AI skills in curriculum, AI policy isn't currently decided and is impossible in long term**

Alyson **Klein** For Education Week, 2-19-20**24**, "Schools Are Taking Too Long to Craft AI Policy. Why That's a Problem", Education Week, Alyson Klein is an assistant editor for Education Week.

<https://www.edweek.org/technology/schools-are-taking-too-long-to-craft-ai-policy-why-thats-a-problem/2024/02> //ejs squad

**The vast majority of educators don't have the capacity to** cope with those complications on top of their other responsibilities, the survey found. **More than three quarters—78 percent—of educators surveyed said they don't have the time or bandwidth to teach students how to think about or use AI** because they are **tied up with academic challenges, social-emotional-learning, safety considerations, and other higher priorities**. What's more, AI is changing so rapidly that any policy a district or state crafts could be outdated the moment it is released. That's typical when it comes to new technologies, said Kristina Ishmael, who until late last year served as the deputy director of the U.S. Department of Education's office of educational technology. "What's more, **AI is changing so rapidly that any policy a district or state crafts** could be **outdated the moment it is released**. That's typical when it comes to new technologies, said Kristina Ishmael, who until late last year served as the **deputy director of the U.S. Department of Education's office of educational technology**. **"Policy is always behind technology," said Ishmael**, who is now a strategic advisor at Ishmael Consulting. In some cases, that's **"very intentional, because it's policy; once you put it in, it's hard to take it off."**