Teachers

Society is facing a massive teaching crisis, even with years of gen AI

White 25[Scott White, March 7, 2025, "Teacher Funding Cut As National Shortage Reaches Breaking Point", I have worked in college admissions and college counseling for over 40 years, and have written extensively on the college admissions process. I have served as the Director of Guidance at Morristown High School, as a school counselor and Director of Guidance at Montclair High School, and as Director of College Counseling at Montclair Kimberley Academy. My early experience as an admissions counselor at Bard College was vital to my understanding of college admissions. I have been a featured expert on CBS Sunday Morning, the Washington Post's Answer Sheet and in most major national publications. I currently work as an independent college counselor, Forbes, https://www.forbes.com/sites/scottwhite/2025/03/07/teacher-funding-cut-as-national-shortage-reaches-breaking-point/]

America's education system is facing a crisis that threatens to undermine the future of millions of students: a severe and growing teacher shortage. This issue, simmering for years, has reached a boiling point as **schools nationwide struggle to fill classrooms with qualified educators.** Compounding the problem is a recent decision by the Trump administration to eliminate federal funding for teacher preparation programs, which has sparked lawsuits and intensified the debate over how to address the shortage. The stakes are high, and the consequences of inaction could reshape the educational landscape for decades.

It has and will get worse with AI.

Marshall et al. 25 [David T. Marshall, Teanna Moore & Timothy Pressley, 2-4-2025, David T. Marshall is an associate professor of educational research at Auburn University. "Tech Aims to Reduce Teacher Burnout – But it Can Sometimes Make it Worse," No Publication, https://www.the74million.org/article/tech-aims-to-reduce-teacher-burnout-but-it-can-sometimes-make-it-worse/, DOA: 2-21-2025] //beta squad

When we set out to study pandemic-related changes in schools, we thought we'd find that learning management systems that rely on technology to improve teaching would make educators' jobs easier. Instead, we found that teachers whose schools were using learning management systems had higher rates of burnout.

Our findings were based on a survey of 779 U.S. teachers conducted in May 2022, along with subsequent focus groups that took place in the fall of that year. Our study was peer-reviewed and published in April 2024.

During the COVID-19 pandemic, when schools across the country were under lockdown orders, schools adopted new technologies to facilitate remote learning during the crisis. These technologies included learning management systems, which are online platforms that help educators organize and keep track of their coursework.

We were puzzled to find that teachers who used a learning management system such as Canvas or Schoology reported higher levels of burnout. Ideally, these tools should have simplified their jobs. We also thought these systems would improve teachers' ability to organize documents and assignments, mainly because they would house everything digitally, and thus, reduce the need to print documents or bring piles of student work home to grade.

But in the follow-up focus groups we conducted, the data told a different story. Instead of being used to replace old ways of completing tasks, the learning management systems were simply another thing on teachers' plates.

A telling example was seen in lesson planning. Before the pandemic, teachers typically submitted hard copies of lesson plans to administrators. However, once school systems introduced learning management systems, some teachers were expected to

not only continue submitting paper plans but to also upload digital versions to the learning management system using a completely different format.

Asking teachers to adopt new tools without removing old requirements is a recipe for burnout.

Teachers who taught early elementary grades had the most complaints about learning management systems because the systems did not align with where their students were at. A kindergarten teacher from Las Vegas shared, "Now granted my kids cannot really count to 10 when they first come in, but they have to learn a six digit student number" to access Canvas. "I definitely agree that … it does lead to burnout."

In addition to technology-related concerns, teachers identified other factors such as administrative support, teacher autonomy and mental health as predictors of burnout.

Why it matters

Teacher burnout has been a persistent issue in education, and one that became especially pronounced during and after the COVID-19 pandemic.

If new technology is being adopted to help teachers do their jobs, then school leaders need to make sure it will not add extra work for them. If it adds to or increases teachers' workloads, then adding technology increases the likelihood that a teacher will burn out. This likely compels more teachers to leave the field.

Schools that implement new technologies should make sure that they are streamlining the job of being a teacher by offsetting other tasks, and not simply adding more work to their load.

The broader lesson from this study is that teacher well-being should be a primary focus with the implementation of schoolwide changes.

AI increases teacher burnout because it forces them to adapt their curriculum to prevent cheating Shah 24

Priten **Shah** (Priten Shah is an education entrepreneur and the author of AI & The Future of Education: Teaching in the Age of Artificial Intelligence (Jossey-Bass, 2023). He is the founder of Pedagogy.Cloud, an educational consulting firm that supports educators in K-12 schools, higher education, and the nonprofit sector adapt to the increasing capabilities of AI.

), 6-5-20**24**, "I Was an AI Optimist. Now I'm Worried It's Making Teacher Burnout Worse (Opinion)," Education Week, https://www.edweek.org/technology/opinion-i-was-an-ai-optimist-now-im-worried-its-making-teacher-burnout-worse/2024/06, accessed 2-27-2025]//beta squad

Seemingly overnight, understanding AI technology went from being a niche skill to an essential life skill. While many **educators** across the country have diligently spent their free time, prep periods, and summer vacations pursuing professional development, an overwhelming majority **are** rightfully **daunted by the prospect of learning how to navigate** this **new technology**. **The learning curve** for many educators **has been** much **steep**er than is being acknowledged. The prospect of learning a brand-new tool can be overwhelming as you learn its features, capabilities, and limitations, and how it works best for you. Using AI tools also involves learning more than just the user interface of a new tool; it requires our educators to learn how this technology works to feel empowered to use it responsibly and have meaningful conversations with their students about it. For others, the **technology remains unaffordable as major tools begin to paywall their**

strongest features. **Absent support from their district**, this often means that **many teachers have an additional expense that they must pay out of pocket to use these technologies** in the powerful ways advertised. **This** only **further limits the number of teachers who are seeing the benefits of developing AI literacy**. Even those who manage to find the time and money to pursue some professional development or are part of a small contingent of American teachers who receive resources from their schools still face the task of staying current with the developments and rapid changes that the AI space is currently undergoing. Schools and districts need to acknowledge the challenge AI creates for teachers who want to become active, responsible users of the technology. They must find space in their existing professional development schedules and allow teachers to spend meaningful time learning about and using AI technology in ways that can eventually reduce their workload. How AI has changed curriculum Part of the frustration we hear from educators is how **many** of their **assignments need to be restructured, given the ability for** students to use **AI** technologies **to complete their homework** easily. **This has creat[ing]ed a crisis for educators** who assign out-of-class work, especially those who extensively use independent writing as an assessment tool. Teachers are facing the need to rethink their assessments and pedagogical practices, **with** very **little guidance on how to effectively** and sustainably **make these changes**. The definition of "AI-proof assignments" shifts so rapidly that it has become a relatively futile goal for educators to pursue. Some "AI proofing" has relied on generative AI's limited knowledge of recent events and its inability to perform math, while other anti-cheating efforts turned to now-defunct AI detectors or the lack of students' voices in writing. As **AI programs continue to overcome** these **limitations**, teachers will likely have to move toward different types of student assessments that capitalize on classroom time and use independent time only for preparatory work.

Human teachers are uniquely key for learning.

Walter 25, Walther, Cornelia C. "AI Is Changing How We Learn: The New Role of Human Teachers." Forbes, 1 Mar. 2025, Dr. Cornelia C. Walther is a humanitarian leader with 20+ years at the UN driving social change. Now a Wharton/University of Pennsylvania Fellow, she pioneers research on hybrid intelligence and prosocial AI through the global POZE alliance to build Agency amid AI for All. Her focus Is on harnessing AI to bring out the best in and for people and planet.www.forbes.com/sites/corneliawalther/2025/03/01/ai-is-changing-how-we-learn-the-new-role-of-human-teachers/ //beta squad

This incident highlights the tension between artificial and natural Intelligences: **while AI excels at processing data, it lacks the deeper dimensions of human understanding that characterize NI.** Natural Intelligence: A Multidimensional Framework. Going far beyond the rational thought process the type of intelligence that each of us is naturally equipped with operates on multiple levels that **AI cannot replicate**, so far: Personal Aspects: **Aspirations: Our goals and visions that animate us to learn[ing] and give knowledge purpose. Emotions: Empathy, compassion, and other feelings that shape how we interpret experiences. Thoughts: Logical reasoning, creativity, and moral judgment that converge in our thinking. Sensations:** Our embodied awareness of the world that can trigger intuition or creativity.

When AI inserts scholarly sources that don't exist in the real world it does not come with the intent of deception in the human sense. **AI models don't understand truth or falsehood**: they merely generate patterns that mimic authoritative language. What makes this particularly challenging is the polished, articulate nature of AI outputs, which can easily convince even discerning readers. **This is precisely why teachers are irreplaceable. They help students develop cognitive agency — the ability to think independently despite technological shortcuts** — before entering workplaces where time pressures constantly tempt them to outsource their thinking. Just as physical strength requires consistent exercise, critical thinking is a muscle that atrophies without use. **Teachers serve as vital trainers, guiding students to flex their curiosity, creativity, and analytical skills in a world that increasingly rewards the passive consumption of machine-generated content.**

Can't be solved - AI can never be creative because it only alters previously known data.

De Cremer 21, *Professor in Management and Organizations at the NUS Business School at the National University of Singapore; Director of the Centre on AI Technology for Humankind at NUS Business School; **Chairman of the Human Rights Foundation, Founder of the Renew Democracy Initiative. *David De Cremer and **Garry Kasparov, "AI Should Augment Human Intelligence, Not Replace It," Harvard Business Review, 03-18-2021, https://hbr.org/2021/03/ai-should-augment-human-intelligence-not-replace-it // beta squad

In general, people recognize today's **advanced computers as intelligent because they have the potential to learn and make** decisions based on the information they take in. But while we may recognize that ability, it's a **decidedly different type of intelligence what we posses.**

In its simplest form, AI is a computer acting and deciding in ways that seem intelligent. In line with Alan Turing's philosophy, AI imitates how humans act, feel, speak, and decide. This type of intelligence is extremely useful in an organizational setting: Because of its imitating abilities, AI has the quality to identify informational patterns that optimize trends relevant to the job. In addition, contrary to humans, AI never gets physically tired and as long it's fed data it will keep going.

These qualities mean that **AI is perfectly suited to put at work in lower-level routine tasks that are repetitive and take place within a closed management system.** In such a system, the rules of the game are clear and not influenced by external forces. Think, for example, of an assembly line where workers are not interrupted by external demands and influences like work meetings. As a case in point, the assembly line is exactly the place where Amazon placed algorithms in the role of managers to supervise human workers and even fire them. **As the work is repetitive and subject to rigid procedures optimizing efficiency and productivity, AI is able to perform in more accurate ways to human supervisors.**

Human abilities, however, are more expansive. Contrary to AI abilities that are only responsive to the data available, humans have the ability to imagine, anti[o]cipate, feel, and judge changing situations, which allows them to shift from short-term to long-term concerns. These abilities are unique to humans and **do not require a steady flow of externally provided data to work as is the case with artificial intelligence.**

Education is essential for society

Serdyukov 17, Peter Serdyukov 17, Professor in the Department of Teacher Education at National University, 3/27/2017, "Innovation in Education: What Works, What Doesn't, and What to Do about It?" Journal of Research in Innovative Teaching & Learning, Vol. 10, No. 1, pp. 4–33, http://dx.doi.org/10.1108/JRIT-10-2016-0007 //beta squad

Education, being a social institution serving the needs of society, is indispensable for society to survive and thrive. It should be not only comprehensive, sustainable, and superb, but must continuously evolve to meet the challenges of the fast-changing and unpredictable globalized world. This evolution must be systemic, consistent, and scalable; therefore, school teachers, college professors, administrators, researchers, and **policy makers are expected to innovate the theory and practice of teaching and learning, as well as all other aspects of this complex organization to ensure quality preparation of all students to life and work.** Here we present a systemic discussion of educational innovations, identify the barriers to innovation, and outline potential directions for effective innovations. We discuss the current status of innovations in US education, what educational innovation is, how innovations are being integrated in schools and colleges, why innovations do not always produce the desired effect, and what should be done to increase the scale and rate of innovation-based transformations in our education system. We then offer recommendations for the growth of educational innovations. As examples of innovations in education, we will highlight online learning and time efficiency of learning using accelerated and intensive approaches. Innovations in US education **For an individual, a nation, and humankind to survive and progress, innovation and evolution are essential. Innovations in education are of particular importance because education plays a crucial role in creating a sustainable future. "Innovation resembles mutation, the biological process that keeps species evolving so they can better compete for survival" (Hoffman and Holzhuter, 2012, p. 3). Innovation, therefore, is to be regarded as an instrument of necessary and positive change. Any human activity (e.g. industrial, business, or educational) needs constant innovation to remain sustainable. The need for educational innovations has become acute. "It is widely believed that countries' social and economic well-being will depend to an ever greater extent on the quality of their citizens' education:** the emergence of the so-called 'knowledge society', the transformation of information and the media, and increasing specialization on the part of organizations all call for high skill profiles and levels of knowledge. Today's education systems are required to be both effective and efficient, or in other words, to reach the goals set for them while making the best use of available resources" (Cornali, 2012, p. 255). According to an Organization for Economic Cooperation and Development (OECD) report, "the pressure to increase equity and improve educational outcomes for students is growing around the world" (Vieluf et al., 2012, p. 3). In the USA, underlying pressure to innovate comes from political, economic, demographic, and technological forces from both inside and outside the nation.

DPC 04: Which has long term impacts, as according to dropout Prevention Center 04, the dea

Dropout Prevention Center 04 [National Dropout Prevention Center, "Economic Impacts of Dropouts – National Dropout Prevention Center", 2004, Alliance for Excellent Education, no author quals https://dropoutprevention.org/resources/statistics/quick-facts/economic-impacts-of-dropouts/, Accessed 05/22/2023] //beta squad

Teen girls in the bottom 20% of basic reading and math skills are five times more likely to become mothers over a two-year high school period than teen girls in the top 20% (Alliance for Excellent Education, 2003b). Male and female students with low academic achievement are twice as likely to become parents by their senior year of high school, compared to students with high academic achievement (Alliance for Excellent Education, 2003b). **The** U.S. **death rate for those with fewer than 12 years of education is [250%]** 2.5 times **higher** [250%] **than the rate of those with 13 or more years of education** (alliance for Excellent Education, 200

LAWS

Gen AI is used in LAWS BHRRC 23[BHRRC, May 2, 2023, "The application of generative AI to warfare raises human rights concerns", no author quals, Business & Human Rights Resource Centre, https://www.business-humanrights.org/en/latest-news/the-application-of-generative-ai-in-warfare-raises-human-rights-concerns/]//JS

Since the launch of ChatGPT in January 2023, generative artificial intelligence (AI) tools have been applied to a variety of industries. The defense sector is no exception. **Defense companies are beginning to apply generative AI to their use of autonomous weapons systems**, without clear explanations as to how salient human rights risks will be effectively mitigated. **This could lead to situations where biased or inaccurate responses to gen**erative **AI** queries **are relied upon to make life-or-death decisions in times of conflict, without much clarity** surrounding accountability or access to remediation. And what happens when autonomous weapons systems malfunction, are hacked or fall into the wrong hands?

Universities deliver LAWs in TWO years --- mass research capacity and priming graduates.

D'Agostino 24 [Susan D'Agostino, PhD in Mathematics from Dartmouth + MA in Science Writing from John Hopkins + Associate Professor of Mathematics @ Southern New Hampshire University + Editor @ the Bulletin of the Atomic Scientists + Spencer Journalism Fellow @ Columbia University, 1-31-2024, Does military AI research at universities benefit humanity?, Inside Higher Ed | Higher Education News, Events and Jobs, https://www.insidehighered.com/news/tech-innovation/artificial-intelligence/2024/01/31/does-military-ai-research-universities,]//beta squad

The United States Army Futures Command is at work modernizing weapons and equipment and identifying, acquiring and developing **next-generation military technologies**. It is "the best example of our commitment to the future lethality of the force" and "probably one of the boldest reforms" the Army has pursued, Secretary of the Army (later Secretary of Defense) Mark Esper told Congress in 2018. The command makes its home not on an Army base but on the campus of the **University of Texas** at Austin. That choice was by design.

"It's critical that we have access to talent," Esper said at the time. "Talent that can help us think about the future strategic environment, thinking in the 2030s, 2040s, because that will inform, in many ways, the steps we take with regard to material … It's proximity to innovation. It's **proximity to academia."**

UT Austin has a mission, too. It seeks to "transform lives for the benefit of society" and "to serve as a catalyst for positive change in Texas and beyond." These human-centered ideals echo mission statements crafted by universities around the country that also lend expertise to the Pentagon.

Within the next few years, the United States is expected to possess fully autonomous lethal weapons systems—or "killer robots," as they are known to opponents. Now, some people are asking whether the Defense Department's massive higher education funding stream engages universities in supporting that work. While the Pentagon is clear about its lethal objectives, higher education is less so. Many universities **welcome DOD funding** with expressions of pride and altruism—**and no mention of potential for harm.**

"In the **pursuit of talent**, [the Defense Department] is like a **parasitical creature** that attaches itself to another entity to feed off of its energy and capabilities," said Michael Klare, the Five College Professor Emeritus of Peace and World Security Studies at Hampshire College, who also serves on the board of the Arms Control Association.

But some, including Emelia Probasco, senior fellow at Georgetown University's Center for Security and Emerging Technology, where she works on the military applications of artificial intelligence, suggest that a portrait of the Defense Department as overly "focused on the war machine" is simplistic. In higher ed–military collaborations, "there's quite a bit of health research and business operations research that gets overlooked," said Probasco, who served as a surface warfare officer in the U.S. Navy and deployed twice to the Indo-Pacific. She currently serves as a special government employee advising the Defense Innovation Unit.

Universities as '**Agents of the State**'

To counter China's massive, asymmetric military advantage, the United States plans to field, **within the next two years**, the Replicator Initiative—**thousands** of autonomous systems across land, air, sea, space and cyberspace. Far from science fiction, Replicator's real-world autonomous weapons systems will deliver capabilities at **"volume and velocity."**

"We are not taking our foot off the gas, and in fact we're accelerating," Deputy Defense Secretary Kathleen Hicks said in a speech last year.

The Pentagon relies on contracts with private companies such as Lockheed Martin, Raytheon, General Dynamics, Boeing and Northrop Grumman to help develop, manufacture and supply advanced military technology such as fighter aircraft and missiles.

But universities **outshine** defense contractors in at least two areas—**expertise** and **research capacity**, according to Margaret O'Mara, the Scott and Dorothy Bullitt Chair of American History at the University of Washington. O'Mara's research connects the growth of America's high-tech sector with its political history.

The U.S. government's "mighty" higher education investment "essentially makes universities **agents of the state**, where they help achieve **what the government wants** to see happen in science but particularly in new military and space technology," O'Mara said. "Some might call it a devil's bargain."

Nearly **50 universities help the United States government build nuclear weapons**, according to the International Campaign to Abolish Nuclear Weapons (ICAN), winner of the 2017 Nobel Peace Prize. Lucrative contracts may offer an incentive for overlooking moral quandaries concerning weapons design and development, according to Alicia Sanders-Zakre, ICAN policy and research coordinator. Now, ICAN is concerned that the Defense Department may substitute artificial intelligence for human judgment in nuclear weapons use.

Not everyone sees the status quo in such stark terms. Faculty and students in Case Western Reserve University's military ethics program, for example, devote time and expertise to understanding the ethical use of emerging military technologies, among other objectives. In doing so, they seek to support "long-term humanitarian goals, such as preventing unjust wars, decreasing incidents of war crimes, genocide, human rights abuses, and other atrocities produced by the dehumanizing effects of armed conflict."

Either way, much of the Defense Department's work—from managing weapons labs and training the next generation of weapons scientists—is classified for national security reasons. That makes gleaning information about university-military collaborations challenging, though not impossible.

"Look at the budget and follow the money," Sanders-Zakre said.

The Money

The 2024 Defense Department budget offers rationales for its spending, including for funding streams to universities. The department seeks to "keep our nation safe while delivering a combat credible Joint Force that is the most lethal [emphasis added], resilient, agile, and responsive in the world," according to Secretary of Defense Lloyd J. Austin III.

The U.S. Defense Department expects to spend $842 billion in 2024. (In contrast, the Education Department got $79.2 billion in the fiscal 2023 budget.) Defense funding is divided into three broad categories: operations and support (which accounts for nearly two-thirds of the budget); acquisition (which includes procurement,

research, development, testing and evaluation and accounts for 37 percent of the budget); and infrastructure (which includes military construction and family housing and accounts for 2 percent of the budget). Higher education receives only a fraction of the defense budget, much from the acquisition category.

But a fraction of hundreds of billions can be significant for individual universities or academic researchers. UT Austin, for example, received a five-year, $65 million contract for serving as the Army Futures Command headquarters.

In support of its "most lethal, resilient, agile, and responsive" goals, the Defense Department funds the highly competitive Multidisciplinary University Research Initiative (MURI) program. In this program, teams of university researchers "focus on [Defense Department]–**specific hard science problems**." For this and other university research initiatives, the 2024 DOD budget allocates $347.3 million.

The institutional recipients of the 2024 MURI program have not yet been named. But in 2023, this initiative awarded $220 million to 31 teams at 61 U.S. academic institutions, or an average of $7.1 million per team.

Also in 2023, the Defense Department, through its Defense University Research Instrumentation Program, awarded $161 million to **281 universities** to purchase equipment supporting defense-relevant research. This program seeks to foster innovation leading to "**unprecedented** military capabilities" in next-generation wars, according to Bindu Nair, director of basic research in the Office of the Under Secretary of Defense for Research and Engineering.

Scant Details on Potential Harm

The University of South Florida College of Engineering, in announcing its (relatively modest) $5 million Defense Department grant to study AI models for the U.S. military, highlighted that the work would "benefit society at large." The work involves conducting research "related to AI and associated technology," including "recognizing legitimate targets." With this word choice, the work is cast as an academic exercise, not one with a potential human toll. (The computer science professor referenced in the news release did not respond to a request for comment.)

The University of Dayton's poetically named Soaring Otter—an $88 million Air Force award—provides research and development "to advance, evaluate and mature Air Force autonomous capabilities," according to the university. In the military, "autonomous capabilities" could have applications in lethal autonomous weapons.

But the institution's press statement is vague about whether the work would advance AI agents that are capable of making decisions to kill without human input. (The principal investigator at the university referenced in the press release did not respond to a request for comment.)

"The [Defense Department] **does not rule out any system ever**," said Probasco, who is not involved with Soaring Otter. "But in considering any future autonomous or AI-enabled weapon … they put in place what, in the technical world, we call a risk-management process."

When Texas A&M University's Engineering Experiment Station announced its lead on a five-year Defense Department applied hypersonics project valued at $100 million, it spoke of "advancing innovation" and "nurturing the next generation of researchers." The news release was opaque about whether the work would contribute to hypersonic weapons research. Hypersonic missiles, which fly faster than Mach 5, offer militaries a distinct advantage, as they can evade nearly all defense systems.

"It doesn't matter what the threat is," General John Hyten, the former vice chairman of the U.S. Joint Chiefs of Staff, said of hypersonic missiles' significance, as reported in Voice of America. "If you can't see it, you can't defend against it." (The engineering professor referenced in the university press release did not respond to a request for comment.)

A Blurry Line

Universities are not wrong when they suggest that DOD funding supports innovation, especially when the influx of cash amounts to billions. The modern internet, for example, was born from a project at the precursor to the Defense Advanced Research Projects Agency, or DARPA. Concerning the development of artificial intelligence, machine learning and autonomous systems, the U.S. government acknowledges its interest in defense applications. But it also observes that the research has applications in "fields as diverse as manufacturing, entertainment and education."

Complex software systems underpin Defense Department operations, according to a Carnegie Mellon University press release announcing a renewed defense contract. The award, which was valued at $2.7 billion over five years, provides funds to operate the Software Engineering Institute.

In the statement, J. Michael McQuade, Carnegie Mellon's vice president for research, championed the institution as "a high-tech anchor" and the contract for "supporting jobs." Whether that software could be applied to lethal autonomous weapons systems was unclear. Software can be susceptible to algorithmic bias based on race, disability and gender, which would be especially problematic if targeting humans.

In 2019, Carnegie Mellon University president Farnam Jahanian, a computer scientist and entrepreneur, was asked whether he would endorse an autonomous weapon ban. The question was posed during a press conference with local media upon the expansion of Carnegie Mellon's collaboration with the Army's Artificial Intelligence Task Force. At that time, he declined to endorse a ban, which aligns with the position of the U.S. government.

U.S. Policy: Lethal Autonomous Weapons Are an Option

The Defense Department has dedicated time, attention and resources to support its understanding of responsible AI. The 47-page policy directive, "U.S. Department of Defense Responsible Artificial Intelligence Strategy and Implementation Pathway," for example, offers evidence of that.

The department's 2012 autonomous weapons policy directive also "assigns responsibilities for developing and using autonomous and semi-autonomous functions in weapon systems" and "establishes guidelines designed to minimize the probability and consequences of failure" in those systems.

Said differently, the Pentagon can imagine circumstances under which **lethal autonomous weapons may be used**. Some, including Probasco, agree. She, for example, "would much rather have a missile that's better at hitting its intended target than just hoping … 'we threw them as best we could.'"

The Defense Department "has terrible, terrible incidents in our history where people made decisions that honestly break my heart," Probasco said. "But every time we get up, we try to get better, and we try to put in place rules and operating procedures and training and technologies that will prevent the harm but achieve the mission."

But many universities that have accepted military funding **appear to avoid conversations**—nuanced or not—concerning whether campus research could contribute to destruction or death.

UT Austin, for example, did not respond to a request for comment about its mission statement. Also, the Massachusetts Institute of Technology's AI Accelerator—funded with $15 million from the Air Force—does not post an email address for its director on its webpage. A staff member in the MIT media relations office said that the director was "traveling with a packed schedule" and needed to decline to speak. The university also did not respond to a subsequent request to be put in touch with any one of the other 25 team members at the AI Accelerator.

"The vagueness works in the military's favor," Sanders-Zakre said. "Maybe university researchers believe—and maybe rightly so—that their research can have multiple applications and will not just be used for weapons. But that's why the Defense Department funds the work."

Equal Opportunity Defense Work

For a long time, the Defense Department appeared to favor predominantly white institutions in its funding. In 2020, for example, Johns Hopkins University, the Georgia Institute of Technology and Pennsylvania State University received more than half of the department's more than $2.5 billion allocated for university science and engineering programs, while historically Black colleges and universities received less than $1 million, according to University Business.

But in 2023, DOD awarded $90 million to Howard University—a first for a historically Black institution—for its new Research Institute for Tactical Autonomy. Dr. Wayne Frederick, Howard's president at the time, dubbed the new institute "historic" and "tremendous" for diversifying the pool of scientists contributing to national security. At the same time, he made no mention of potential harmful social impacts.

Howard's new institute will have "a direct impact on my classmates and my wingmen," Victor Fabritz Lugo, a Howard sophomore and Reserve Officers' Training Corps member, told The Hilltop, Howard's student newspaper. Evidence supports Lugo's claim.

Student Interests, Shaped by the Pentagon

On-campus military research may **normalize weapons work** among students. For example, many soon-to-be college graduates use Handshake—a career services platform promoted by many universities that matches college students with prospective employers—to find jobs. In 2023, three defense contractors cracked the top 10 searches on the website, according to a Handshake analysis.

Student Handshake search interest in Raytheon (No. 1 on the list) was up by 209 percent. For Lockheed Martin (No. 4), searches were up by 92 percent. For Boeing (No. 8), searches were up by 56 percent. These three companies also ranked in the top 10 of another list—the top 10 defense contractors. (The study's random sample included nearly 1,000 college students at four-year higher education institutions; correlation does not imply causation.)

No big tech companies—such as Meta, Google and Microsoft—made Handshake's top 10 searches.

Handshake explained the finding in the context of layoffs and economic uncertainty. In 2023, college graduates "want a stable job that pays well, and they're willing to flex other requirements—from company brand and growth rate to remote work options—to get it," the company wrote.

Last year was "the worst 12 months for Silicon Valley since the dot-com crash of the early 2000s," which included eliminating 260,000 jobs, according to NPR. In 2024, the carnage at Microsoft, Amazon, Alphabet, Meta and other big tech companies has continued. Nearly 100 tech companies have already laid off close to 25,000 employees in the first month of the year, according to Layoffs.fyi.

Tech-savvy students are primed to consider **alternatives to Silicon Valley**. For those who came of age on campuses where administrators framed war technology **in only positive terms**, defense contractors may provide an appealing option—one that appears to promise security from layoffs and unexpected downsizing.

Academia is crucial.

Klare 23 [Michael T. Klare, Professor emeritus of peace and world-security studies @ Hampshire College
1-30-2023, The Pentagon's Quest for Academic Intelligence: (AI), Nation,
https://www.thenation.com/article/world/the-pentagons-quest-for-academic-intelligence-ai/]//beta squad

Largely propelling this drive for **direct academic access** is the Pentagon's belief that superior command of AI will prove essential for success in **future conflicts**. "AI will transform all aspects of military affairs," the National Security Commission on Artificial Intelligence declared in its Final Report of February 2021. "In the future, warfare will pit algorithm against algorithm."

Algorithms—the computer programs that govern an **ever-expanding range** of civilian and military devices—do not roll off **industrial assembly lines** as do tanks, planes, and missiles. Rather, they are fashioned by computer **scientists** at **universities** and the innovative start-ups they have installed on **academia's periphery**. To gain access to these innovators and the **fruits of their labor**, the Army and Air Force have established operating units at several universities, including **MIT**, **Carnegie Mellon**, **Texas A&M**, and the **University of Texas at Austin**.

Prominent among these centers is the Air Force–MIT AI Accelerator, established in 2019 with $15 million in Air Force funding. The US military has, of course, long subsidized advanced weapons research at MIT's Lincoln Laboratory, an FFRDC located in Lexington, Mass. But the AI Accelerator is very different: It's located on MIT's main campus in Cambridge and involves active participation by Air Force personnel in joint projects with faculty and students. In this manner, the university states, "a multidisciplinary team of embedded officers and enlisted Airmen join MIT faculty, researchers, and students to tackle some of the most difficult challenges facing our nation and the Department of the Air Force" (emphasis added). Since when has it been necessary to "embed" serving military personnel on American university campuses?

Automation escalates conflict.

Yu 24 [Jihoon Yu, MA in National Security Affairs from the US Naval Postgraduate School & PhD in Political Science from Syracuse University, 12-20-2024, The Strategic Implications of AI on Maritime Security, Real Clear Defense, The Strategic Implications of AI on Maritime Security | RealClearDefense]//beta squad

Artificial Intelligence (AI) is **transforming the global security landscape**, and its impact on the maritime domain is **profound**. From enhancing surveillance to introducing new vulnerabilities, AI's role in maritime security offers significant opportunities and challenges. One of AI's most transformative contributions lies in improving situational awareness and surveillance. Traditional methods of monitoring vast oceanic spaces are labor-intensive and limited in scope, but AI-powered systems can analyze data from satellites, drones, and automatic identification systems (AIS) to detect patterns and anomalies. This capability enables the identification of "dark ships" involved in illicit activities such as smuggling or illegal fishing, allowing authorities to act proactively and efficiently. In naval operations, AI is revolutionizing capabilities through the deployment of autonomous systems. Unmanned surface vessels and underwater drones can perform high-risk tasks like reconnaissance, mine detection, and surveillance, reducing risks to human crews. However, the use of AI in naval warfare raises strategic concerns. Autonomous systems could escalate conflicts if they **act unpredictably** or **misinterpret data.** The lack of international regulations governing AI-driven weapons further complicates the potential for conflict resolution and risk management in contested regions. If rival states deploy AI-enabled naval systems without coordination or transparency, the risk of **accidental confrontations** or **rapid escalations** in regions such as the **S**outh **C**hina **S**ea or the **Arctic** grows significantly. These strategic flashpoints, where **competing claims** and **heightened tensions** already exist, could see AI **amplifying instability** rather than mitigating it. Ports, as critical hubs of global trade, also stand to benefit from AI integration. Automated systems powered by AI can enhance cargo inspections, detect anomalies, and improve access control, bolstering security and reducing vulnerabilities to criminal or terrorist activities. Predictive analytics can identify patterns that signal threats, ensuring timely interventions. However, the increased reliance on digital systems introduces cybersecurity risks, a double-edged sword in the maritime domain. AI-driven cybersecurity tools can help detect and neutralize threats, but adversaries can also use AI to launch sophisticated attacks. Cyberattacks on ports or shipping systems could disrupt global trade, creating cascading economic and geopolitical effects. AI's role in maritime warfare brings additional **strategic risks**. Autonomous systems and decision-making platforms could alter the nature of naval conflicts, making engagements **faster and less predictable**. This heightens the risk of escalation in **already tense regions**, such as the South China Sea. Misidentifications or unintended actions by AI systems could spark conflicts, and the absence of international agreements on the use of AI in military applications increases the potential for miscalculations. For example, an AI-powered naval drone could perceive a civilian or non-threatening vessel as hostile, prompting unnecessary or disproportionate responses. Such incidents could trigger a chain reaction in high-tension regions, potentially drawing major powers into conflict. On a broader strategic level, AI is altering the balance of power in maritime security. Nations with advanced AI capabilities have a **distinct advantage**, as they can integrate sophisticated technologies into their maritime operations, creating a **technological gap** between themselves and less-developed states. This **disparity** could lead to a **concentration of power** among a few dominant nations, undermining collective maritime security efforts. Additionally, adversaries with access to AI capabilities, such as autonomous naval vessels or intelligent cyberattack platforms, could challenge the dominance of traditionally superior navies, leveling the playing field in asymmetric conflicts.

Look to Israel-they are using LAWS

Biesecker and Mednick 25 [Michael Biesecker and Sam Mednick, "As Israel uses US-made AI models in war, concerns arise about tech's role in who lives and who dies", 02/18/2025, AP News, **Biesecker:** Biesecker is a global investigative reporter for The Associated Press, based in Washington. He reports on a wide range of topics, including human conflict, climate change and political corruption, **Mednick:** Mednick is the AP correspondent for Israel and the Palestinian Territories. She focuses on conflict, humanitarian crises and human rights abuses. Mednick formerly covered West & Central Africa and South Sudan.
,https://apnews.com/article/israel-palestinians-ai-technology-737bc17af7b03e98c29cec4e15d0f108]//JS

U.S. tech giants have quietly empowered **Israel** to track and kill many more alleged militants more quickly in Gaza and Lebanon through a sharp spike in artificial intelligence and computing services. But **the number of civilians killed has also soared, fueling fears that these tools are contributing to the deaths of innocent people.** Militaries have for years hired private companies to build custom **autonomous weapons.** However, Israel's recent wars mark a leading instance in which commercial AI models made in the United States **have been used in active warfare**, **despite concerns** that they were not originally developed to help decide who lives and **who dies**.

To quantify,

Serhan 24 [Yasmeen Serhan, "What Israel's Use of AI in Gaza May Mean for the Future of War", 01/08/2024, TIME, Yasmeen Serhan is a staff writer at TIME, based in the London Bureau. She covers foreign affairs with an emphasis on the future of democracies and rising authoritarianism around the world. https://time.com/7202584/gaza-ukraine-ai-warfare/]//JS

AI warfare may conjure images of **killer robots and autonomous drones**, but a different reality is **unfolding in the Gaza Strip.** There, **a**rtificial **i**ntelligence **has been suggesting targets in Israel**'s retaliatory campaign to root out Hamas following the group's Oct. 7, 2023 attack. A program known as "The Gospel" generates suggestions for buildings and structures militants may be operating in. "Lavender" is programmed to identify suspected members of Hamas and other armed groups for assassination, from commanders all the way down to foot soldiers. "Where's Daddy?" reportedly follows their movements by tracking their phones in order to target them—often to their homes, where their presence is regarded as confirmation of their identity. **The air strike that follows might kill everyone in the target's family, if not everyone in the apartment building.** These programs, which the Israel Defense Force (IDF) has acknowledged developing, may help explain the pace of the most devastating bombardment campaign of the 21st century, in which **more than 44,000 Palestinians have been killed,** according to the Hamas-run Gaza Health Ministry, whose count is regarded as reliable by the U.S. and U.N. In earlier Gaza wars, Israeli military veterans say airstrikes occurred at a much slower tempo. "During the period in which I served in the target room [between 2010 and 2015], you needed a team of around 20 intelligence officers to work for around 250 days to gather something between 200 to 250 targets," Tal Mimran, a lecturer at Hebrew University in Jerusalem and a former legal adviser in the IDF, tells TIME. "Today, the AI will do that in a week." Experts on the laws of war, already alarmed by the emergence of AI in military settings, say they are concerned that its use in Gaza, as well as in Ukraine, may be establishing dangerous new norms that could become permanent if not challenged.

Humans won't detect failures.

Klare 20 [Michael Klare, secretary for the Arms Control Association board of directors and a senior visiting fellow working on emerging technologies, April 2020, 'Skynet' Revisited: The Dangerous Allure of Nuclear Command Automation, Arms Control, https://www.armscontrol.org/act/2020-04/features/skynet-revisited-dangerous-allure-nuclear-command-automation ,]//beta squad

An equal danger is what analysts call "**automation bias**," or the tendency for stressed-out decision-makers to trust the information and advice supplied by advanced computers rather than their own considered judgment. For example, a U.S. president, when informed of sensor data indicating an enemy nuclear attack and under pressure to make an immediate decision, might choose to accept the computer's advice to initiate a retaliatory strike rather than consider possible alternatives, such as with Petrov's courageous Cold War action. Given that AI data systems can be expected to gain ever more analytical capacity over the coming decades, "it is likely that humans making command decisions will treat the AI system's suggestions as on a par with or **better** than those of human advisers," a 2018 RAND study noted. "This potentially unjustified trust presents new risks that must be considered."19 Compounding all these risks is the likelihood that China, Russia, and the United States will all install automated NC3 systems but without informing each other of the nature and status of these systems. Under these circumstances, it is possible to imagine a "flash war," roughly akin to a "flash crash" on Wall Street, that is triggered by the interaction of competing corporate investment algorithms. In such a scenario, the data assessment systems of each country could **misinterpret** signs of adversary moves and conclude an attack is imminent, leading other computers to order preparatory moves for a retaliatory strike, in turn prompting the similar moves on the other side, until both commence a rapid **escalatory cycle ending in nuclear catastrophe**.20

Water Scarcity

The use of gen AI in education is growing

Rosenbaum 24 [Eric Rosenbaum, "AI is getting very popular among students and teachers, very quickly",Senior Editor at CNBC, 06/11/2024, https://www.cnbc.com/2024/06/11/ai-is-getting-very-popular-among-students-and-teachers-very-quickly.html]//JS

The percentage of K-12 **students and teachers who say they are using AI** and approve of it **has risen sharply over the past year**, according to a new poll conducted by Impact Research for the Walton Family Foundation. Almost half of U.S. teachers and K-12 students say they are using ChatGPT weekly. Less than 20% of students say they never use generative AI. The American public as a whole remains on the fence with artificial intelligence, according to many polls, but in education, adoption among teachers and students is rapidly rising. In a little over a year, the percentage of teachers who say they are familiar with ChatGPT — the breakthrough generative AI chatbot from Microsoft-backed OpenAI, which is next headed to the Apple iPhone — rose from 55% to 79%, while among K-12 students, it rose from 37% to 75%, according to a new poll conducted in May by Impact Research for the Walton Family Foundation, in conjunction with the Learning Engineering Virtual Institute's AI Lab. When it comes to actual usage, a similar spike occurred, with **46% of teachers and 48% of students saying they use ChatGPT at least weekly,** with student **usage up 27 percent**age points over last year.

Gen AI only results in the use of more AI infrastructure Voruganti 23

[Kaladhar Voruganti, August 7, 2023, "What Generative AI Means for Data Centers", Senior Business Technologist, https://blog.equinix.com/blog/2023/08/07/what-generative-ai-means-for-data-centers/] //JS

he original prompt you put into the AI engine is highly important in delivering good results. Generative AI query response times can be slower (in the order of multiple seconds) compared to that of traditional AI queries (with sub-second response times) because of the extra processing and larger data sets. **Generative AI involves much larger AI training infrastructure and higher power consumption**, thus **requiring denser server racks and advanced cooling techniques**. In many use cases, subject matter experts can interact directly with generative AI systems instead of going through data scientists. Data scientists are still required for foundational model customization. Because of **the high computation and infrastructure requirements to create AI** models from scratch, companies are starting to share AI models through Model as a Service and open-source AI model marketplaces.

That's bad-they consume too much water University of Tulsa 24[The University of Tulsa, July 19, 2024, "Data centers draining resources in water-stressed communities", no author quals, https://utulsa.edu/news/data-centers-draining-resources-in-water-stressed-communities/#:~:text=Unfortunately%2C%20many%20data%20centers%20rely,thousands%20of%20households%20or%20farms.] //JS

The rapid growth of the technology industry and the increasing reliance on cloud computing and artificial intelligence have led to a boom in the construction of data centers across the United States. Electric vehicles, wind and solar energy, and the smart grid are particularly reliant on data centers to optimize energy utilization. These facilities house thousands of servers that require constant cooling to prevent overheating and ensure optimal performance. **Unfortunately**, many **data centers rely on water-intensive cooling systems that consume millions of gallons of** potable (**drinking**) **water annually**. **A single data center** can **consume[s]** up to **5 million gallons of drinking water per day, enough to supply thousands of households** or farms. **The increasing use and training of AI models has further exacerbated the water consumption challenges faced by data centers.** Machine learning, particularly deep learning models, requires significant computational power, which generates a lot of heat. As a result, data centers housing these machine learning servers need even more cooling to maintain optimal performance and prevent overheating. Graphics processing units, which are commonly used to accelerate machine learning workloads, are known for their high energy consumption and heat generation.

AI is taking more water than ever Rucker and Hill 24[Karah Rucker and Zachary Hill, October 8, 2024, "AI tools consume up to 4 times more water than estimated", Karah Rucker is a morning anchor and reporter for Straight Arrow News. Her journalism career has spanned two of our largest states, covering news in Texas and California and Zachary is a Video Editor at Straight Arrow News. Straight Arrow News, https://san.com/cc/ai-tools-consume-up-to-4-times-more-water-than-estimated/]//JS

A new report shows that **a**rtificial **i**ntelligence tools, **including ChatGPT, are using up to four times more water than previously** believed. **This discovery raises concerns** about the sustainability of data centers **as AI continues to expand.** Researchers from the University of California, Riverside found that processing 10 to 50 queries on AI chatbots can consume up to 2 liters of water, far exceeding the earlier estimate of half a liter. The increase is attributed to the intense cooling needs of data centers, where the servers generate significant heat.

Look to ChatGPT, a gen AI McNally 24[Paul McNally, April 3, 2024, "Critical impact-ChatGPT consumes 500 ml of water for every 50 texts you send it", Paul McNally is the Founder of Develop AI, an innovative company that reports on AI, provides training and consulting services and builds AI tools. He is the Founder of podcasting company Develop Audio and the community radio non-profit Citizen Justice Network. He has received awards and recognition for his podcast Alibi and his influential book, The Street, that investigated corrupt cops and drug lords in Johannesburg. In 2016 he was a Visiting Nieman Fellow at Harvard. https://www.dailymaverick.co.za/article/2024-04-03-critical-impact-chatgpt-consumes-500ml-of-water-for-every-50-texts-you-send-it/] //JS

Similarly, as we ramp up towards a world of constantly generating content with AI, we are being asked to consider the environmental cost of its production. According to a paper published late last year, it is estimated that **ChatGPT is thirsty for 500ml of fresh water to generate** between **[just] five** and 50 **prompts** or questions. The range varies depending on where its servers are located and the season. The estimate includes indirect water usage which is needed to cool power plants that supply the data centres with electricity. And, frankly, **this is only the beginning**… The big guys can't hide how much more water they now need. In this environmental report, Microsoft said that its **global water consumption spiked 34% from 2021 to 2022 (to over 6 billion litres)**. This is a sharp increase compared to previous years and researchers reckon this has to do with all its work with AI.

Firstly, gen AI is only hurting the wildfires, look at California,Tobin 25[Taylor Tobin, Jan 11, 2025, "ChatGPT Is Under Attack For Its Use Of Water — But How Does That Even Work?", Taylor Tobin is a Brooklyn-based food and lifestyle writer whose work can be seen in publications like Insider, Observer, Fairygodboss, and Apartment Therapy. She spends most of her free time on some combination of bikes, books, and bourbon.https://www.huffpost.com/entry/how-does-chatgpt-use-water_l_6782a3d6e4b0788bdb62b2ba] //JS

AI platforms can't generate content without the help of massive data center servers. These centers "contain thousands of high-performance computer chips that process user queries," explained Daniel Kearney, the chief technology officer of Firmus Technologies, which focuses on creating sustainable operating solutions for AI companies. "Because the computers and chipsets that power servers are so densely packed, they generate an incredible amount of heat. Running complex AI applications like **ChatGPT requires immense amounts of computing power**, which generate lots of heat 24 hours a day," explained HP Newquist, an artificial intelligence historian and the author of "The Brain Makers: Genius, Ego, and Greed in the Quest for Machines That Think." To prevent servers from crashing, cooling systems are put in place to help regulate data center temperatures. And, in many cases, "water is used to physically cool AI servers," explained Mia Montoya Hammersley, an assistant professor specializing in environmental law and the director of the Environmental Justice Clinic at the Vermont Law and Graduate School. So how much water are we talking about here? "Many of these systems rely on water to absorb and dissipate the heat through cooling towers or evaporative cooling methods," Kearney told us. "For some large facilities, this can mean using millions of gallons of water per year."The current wildfires were caused in part by drought affecting much of Southern California. "**With California already experiencing an ongoing drought, the water necessary to fight these fires is further straining the state's water supply**," Montoya Hammersley said.

"Water is a finite resource, and cutting back on AI use will have direct impacts on the state's water availability and ability to respond to this climate disaster."

Waddick 25 explains[Karissa Waddick, January 14, 2025, "How many homes have burned in the Los Angeles wildfires so far?", no author quals, AOL]
https://www.aol.com/many-homes-burned-los-angeles-175405693.html#:~:text=How%20many%20homes%20have%20burned%20in%20the%20Los%20Angeles%20wildfires%20so%20far%3F,-Karissa%20Waddick%2C%20USA&text=More%20than%2012%2C000%20homes%2C%20businesses,Los%20Angeles%20area%20last%20Tuesday.] //JS

More than **12,000 homes**, businesses, schools and other structures **have been destroyed by** raging **wildfires** that began ripping **through** the Greater **L**os **A**ngeles area last Tuesday. Cal Fire said in an update Monday that a total of 40,300 acres have burned across multiple blazes including the Pacific Palisades fire west of Los Angeles, the Eaton Fire near Altadena and the Hurst fire near Sylmar. At least 24 people have died and more than **100,000 have been forced to flee their homes.**

But secondly, millions in the US suffer from a lack of water Shane 23 finds
[Cari Shane, Cari Shane is a D.C.-based freelance journalist who writes on subjects she finds fascinating — especially science, medicine, and health. Her work can be found in a wide variety of publications, from *Scientific American* to *Smithsonian*. "'We're going backwards in water access': How 46 million Americans still don't have safe drinking water", 03/17/2023, Fast Company, https://www.fastcompany.com/90858376/were-going-backwards-in-water-access-how-46-million-americans-still-dont-have-safe-drinking-water]//JS

They're not alone. **More than 46 million people in the U.S. live with water insecurity**—**either no running water or water that may be unsafe to drink.** Experts say at least $18.4 billion is needed over the next 10 years to bring water security to more people, although the Environmental Protection Agency and American Water Works Association estimates it would cost close to fully $1 trillion to replace and repair the U.S.' aging infrastructure. People are likely familiar with the water crises in Jackson and Flint, Michigan. In the former, flooding last summer overwhelmed the main water plant, and nearly 200,000 residents woke up to a boil water advisory; reports showed that high levels of lead in the city's drinking water were ignored for years. In the latter, toxic levels of lead in the water system—the result of aging, corroded pipes—sickened 100,000 residents and killed more than a dozen. But issues like this are happening all over the country in places like Tallulah, Louisiana; Grapeland, Texas; and parts of New Hampshire, Idaho, Kansas, Nevada, South Dakota, and Puerto Rico, where residents also don't have safe running water—their stories simply haven't made national headlines.

Water scarcity only results in deaths United Nations ND finds that[United Nations, No Date, "World Water Day Reminds Us of the Value of a Precious Resource", no author quals,

https://www.un.org/en/academic-impact/world-water-day-reminds-us-value-precious-resource#:~:text=Approximately%203.5%20million%20people%20die,water%20supply%2C%20sanitation%20and%20hygiene.]//JS

(Young girls fetch water at a communal water pump drilled by the United Nations Children's Fund (UNICEF) in Bubango, Tanzania.) According to the World Health Organization unsafe drinking water, inadequate availability of water for hygiene, and lack of access to sanitation together contribute to about 88 percent of deaths from diarrheal diseases, which kill 900 children under 5 years old per day according to new UN estimates, or one child every two minutes. UN-Water, the United Nations inter-agency coordination mechanism for all freshwater related issues including sanitation, concluded that the major sources of water pollution are from human settlements and industrial and agricultural activities. Approximately **3.5 million people die each year due to inadequate water supply**, sanitation and hygiene.

Rebuttal

A2 C1

AI exacerbates resource inequality.

Admin, **CRPE**. "AI Is Coming to U.S. Classrooms, but Who Will Benefit?" Center on Reinventing Public Education, 16 May 2024, The Center on Reinventing Public Education (CRPE) is a research organization at Arizona State University's Mary Lou Fulton College for Teaching and Learning Innovation, where transformative ideas are rigorously examined and tested, and research informs action. We are truth tellers who combine forward-thinking ideas with empirical rigor. Since 1993, we have been untethered to any one ideology but unwavering in a core belief: that public education is a goal—to prepare every child for citizenship, economic independence, and personal fulfillment—and not a particular set of institutions. crpe.org/ai-is-coming-to-u-s-classrooms-but-who-will-benefit/ . Accessed 15 Feb. 2025. //ejs squad

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. Worrying signs: 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.**

A2 C2

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.**