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**OV --- AI is inevitable**

**AI in education is inevitable.**

**Bureau 24** [Scott Bureau graduated is a Senior Communications Specialist at Rochester Institute of Technology, xx-xx-2024, "Like It Or Not, Generative Ai Is Changing Education," RIT, https://www.rit.edu/news/generative-ai-is-changing-education DOA: 2-9-25] cgc

Today, hundreds of RIT researchers are developing a range of applications using AI, varying from medical monitoring devices to deepfake detection tools. RIT also started a master’s degree program in artificial intelligence this fall that aims to prepare well-rounded AI professionals from diverse educational backgrounds. Throughout the university, generative AI is redefining the boundaries of creation.

“**Generative AI is** already **extensively used across our society**—it has moved out of research labs and into our home and work environments,” said Cecilia Alm, professor in the Department of Psychology, School of Information affiliate faculty, and joint program director of the master’s in AI. “It’s changing how we work and live, just like other technology has done in the past.”

In the classroom, **AI is forcing faculty** members **to change the way they teach.** How can faculty embrace a new technology that graduates will likely use in their careers, while making sure students still learn the fundamentals of their discipline? It also raises issues with academic integrity and AI ethics.

Finding the right balance is key to preparing **students** like Spaulding, **need to understand how to effectively use AI in their future jobs**

“Faculty are preparing professionals who will use and develop this technology,” said Alm. “AI will continue to change and the approach to AI should be nuanced.

Generative AI has become a powerful teaching tool for Liz Lawley, professor of interactive games and media. She uses the technology to foster critical thinking and ethical consideration among her students.

‘Moral responsibility’

For 25 years, the final assignment in Neil Hair’s digital marketing class was a 20-page report. This year, the associate professor killed the term paper.

“Instead, I’m having students research and give a presentation that focuses in on all the nuts and bolts of the learning objectives in my course,” said Hair, recognizing that a student could use generative AI to write the paper for them in seconds. **“AI tools are changing the game, and we as faculty need to evolve how we teach.”** Hair serves as executive director of RIT’s Center for Teaching and Learning and is helping lead the campus discussion about pedagogy and AI. When generative AI tools first hit the mainstream last fall, he remembers the uproar of concern from educators. However, at RIT, that panic quickly subsided and turned into a cycle of trepidation and excitement “RIT faculty are really creative and known for active learning in technology,” said Hair. “We have a moral responsibility to teach our community about AI, and I think RIT is in a good place to address these questions and embrace it. This fall, faculty members vary in how they’re using AI in the classroom. Some have instructed students to restrict AI use in certain cases, while others encourage students to articulate when and how they are using it. Faculty members have set up teaching circles to discuss AI in their disciplines, and several instructors are even using AI to refresh and refine their own lesson plans. Liz Lawley, professor of interactive games and media, calls generative AI the most influential technology she has ever seen as a teacher—even more significant than the internet, due to the pace of change. She has equipped the syllabi for her Introduction to Interactive Media and Introduction to Web Development courses with a statement about AI use, noting that although AI tools can be helpful, they can pose risks of inaccurate information and make it easy to avoid learning core concepts. “Students are obviously going to use these tools, but how do we make sure they use them in a way that doesn’t prevent them from learning the building blocks we know they’re going to need moving forward?” said Lawley. “I want them to realize that you can’t do the really complex, sophisticated, and creative work if you don’t know how to do the basics.” For one assignment, Lucy Zhang, a third-year computer science major, was asked to analyze how ChatGPT translates Chinese song lyrics. The AI-generated elements contain visual approximations of music and characters. According to Lawley, if teachers tried to ban generative AI, it would be a losing arms race. She explained that while there are tools that claim to detect text generated by AI, they do a relatively poor job and have a problematic false positive rate when it comes to students for whom English is not their first language. “Even if you could catch it, you can’t prove it,” said Lawley. “I want students to acknowledge when they use AI and tell me how they made it better, because that’s actually the skill I want students to learn—critical thinking.” In Introduction to Interactive Media, Lawley’s students are using multiple generative AI tools for tasks ranging from drafting an outline for a persuasive argument essay to creating simple graphics for a website prototype. Each time, Lawley asks students to critically assess the materials created and consider the ethical issues related to these tools Lucy Zhang, a third-year computer science major, had a similar assignment in the spring 2023 semester. In a Chinese language course, her professor asked students to translate the lyrics of Chinese songs using ChatGPT—mistakes and all. Students then translated the songs back to Chinese themselves. “The assignment actually showed the limitations of ChatGPT,” said Zhang, who is from Rochester, Mass Zhang said that she views AI as another tool, akin to Google. She has used AI to create websites in Python and to come up with funny team names for class projects. AI also came in handy when reviewing topics for finals. For last spring’s Imagine RIT: Creativity and Innovation Festival, Zhang worked with Engineering House to create an AI mascot called Gearbo that could answer any question about the RIT special interest house. “I think being able to efficiently use AI will be a powerful tool for engineers and other workers,” said Zhang. “AI is good at getting the ball rolling, but you still need human input. AI is not able to create innovation, but it can inspire it.” Juan Noguera, assistant professor of design, encourages his industrial design students to explore how generative AI can be used to transform the creative process.red and green prisms Deep thinkers Benjamin Banta, associate professor of political science, encourages his students to debate AI. In his Cyberwar, Robots, and the Future of Conflict course, he touches on removing the soldier from the battlefield and the decision-making process via drone warfare He poses the question, “What if an algorithm decides to kill someone?” For Banta, it’s important that RIT approaches generative AI technology holistically, rather than from a position of assumed technological progress and optimism “I prompt students to ask whether we need it, why it’s being developed and promoted in certain areas, and how it ultimately should be utilized if we want to promote a thriving democratic society,” said Banta. In the classroom, Banta under­stands that some students will use generative AI as part of their research process. He encourages students to then go to the original sources and not to copy text from AI verbatim. “RIT is on the forefront of technology, and it’s important that our students are deep thinkers,” said Banta. “When our graduates go out, invent the next big thing, and make a billion dollars, I also want them to be thinking about these issues. **It’s important to be users of the technology—not used by the technology.”**

**We should embrace it.**

**Watkins ‘25** [Marc, Assistant Director of Academic Innovation, Director of the Mississippi AI Institute, January 27, 2025, Rhetorica, “AI Is Unavoidable, Not Inevitable”, https://marcwatkins.substack.com/p/ai-is-unavoidable-not-inevitable]

addresses points Josh brought up, but I’ve been thinking about them for quite a while now outside of their discussion. To make my position clear about the current AI in education discourse I want to highlight several things under an umbrella of “it’s very complicated.” Type your email... Subscribe The AI is Inevitable Hype: I think **gen**erative **AI is unavoidable**, not inevitable. The former speaks to the reality of our moment, while the latter addresses the hype used to market the promise of the technology—a sales pitch and little else. Faculty and students have to contend with generative technology in our world as it is now, not as it is promised to be. That should be our focus. We Need AI Across the Curriculum: **We cannot resist** or adopt **AI** without knowing what it is. This technology is not static, nor should our understanding of its impact. Asking faculty from every department to teach students about this technology isn’t the same as calling to adopt AI tools for students to use. Our **students** are living in a world awash with generative tools and **must be given opportunities to reflect on what their world looks like with this technology.** Generative AI Defies Analogies: AI is not like a calculator. As Alison Gopnik so thoughtfully opined, generative AI is a cultural technology that is reshaping how we interact with information and each other. We haven’t had to deal with anything like this before. GenAI’s impact isn’t confined to academic assessments or student learning outcomes. The recent New York Times article profiling how quickly a young woman fell in love with ChatGPT’s voice bot should alarm all of us. It should also cause us to ask why. What makes AI tools like ChatGPT Unavoidable in Education? **The majority of OpenAI’s 250 million weekly users are students.** OpenAI and other generative companies have committed to release versions of their tools for free with few safeguards, in a massive public experiment that defies belief. There is no touchstone moment in educational history that compares to our current AI moment. If you think generative AI is like MOOCs, then I invite you to have a three-minute discussion about that very topic with a multimodal AI tool called EVI—Hume.AI’s Empathetic Voice Interface. You don’t even need an account, simply click the link and pick the synthetic persona of your choice. Get emotional with it and see how quickly it responds to match your mood. Do you still believe this technology won’t profoundly change education, labor, or even society itself? **Many** of us have **wanted to** take a path of actively **resist**ing generative **AI’s influence on our teaching and our students**. The reasons for doing so are legion—environmental, energy, economic, privacy, and loss of skills, but the one that continually pops up is not wanting to participate in something many of us fundamentally find unethical and repulsive. These arguments are valid and make us feel like we have agency—that we can take an active stance on the changing landscape of our world. Such arguments also harken back to the liberal tradition of resisting oppression, protesting what we believe to be unjust, and taking radical action as a response. **But** I do not believe **we can[t] resist something we don’t fully understand**. Reading articles about generative AI or **trying ChatGPT a few times isn’t enough to gauge GenAI’s impact on our existing skills. Nor is it enough to rethink student assessments or revise curriculum** to try and keep pace with an ever-changing suite of features. **To meaningfully practice resistance of AI or any technology requires engagement.** As I’ve written previously, engaging AI doesn’t mean adopting it. Refusing a technology is a radical action and we should consider what that path genuinely looks like when the technology you despise is already intertwined with the technology you use each day in our very digital, very online world. Most importantly, we all deserve some grace here. Dealing with generative AI in education isn’t something any of us asked for. It isn’t normal. It isn’t fixable by purchasing a tool or telling faculty to simply ‘prefer not to’ use AI. **It is and will remain unavoidable for virtually every discipline taught at our institutions**.

**Thus, Westborough affirms.**

**Our First Contention is Teacher Dropout.**

#### **Society faces a massive teaching crisis**

**Professor Kraft in 2024 explains** [Matthew A. Kraft, Melissa Arnold Lyon (Dr. Matthew Kraft is an Associate Professor of Education and Economics at Brown University, a Research Associate at the National Bureau of Economic Research, and a Research Fellow with IZA – Institute of Labor Economics, and an Invited Researcher at J-PAL North America. His primary work focuses on efforts to improve educator and organizational effectiveness in K-12 public schools. Melissa (Mimi) is an assistant professor of public policy at the Rockefeller College of Public Affairs and Policy at the University at Albany, SUNY. Mimi studies the political economy of education, focusing on inequality, governance, and teacher politics and policy.), The Rise and Fall of the Teaching Profession: Prestige, Interest, Preparation, and Satisfaction over the Last Half Century, 4-1-2024, Annenberg Institute At Brown University, <https://edworkingpapers.com/ai22-679>] accessed 2-19-2025

**Across every single indicator** we measure, our findings show that the overall wellbeing of **the teaching profession today is at** or near **historically low levels.** Perceptions of teacher prestige 6 have fallen between 20% and 47% in the last decade to be at the lowest levels recorded over the last half century. **Interest in** the **teaching** profession among high school seniors and college freshman **has fallen 48%** since the 1990s, **and** 40% since 2010, reaching the lowest level in the last 50 years. The number of prospective teachers earning a teaching license each year fell by over 100,000 between 2006 and 2021, and the proportion of college graduates that go into teaching is at a 50-year low. Teachers’ **job satisfaction reached the lowest level in five decades** in 2022, declining by 26% in the past 10 years alone.

**Twinkl Publishing 23** [Twinkl Educational Publishing (), Report: Adopting AI could prevent $77 billion of unpaid teacher overtime, 12-11-2023, K-12 Dive, <https://www.k12dive.com/press-release/20231211-report-adopting-ai-could-prevent-77-billion-of-unpaid-teacher-overtime/>] accessed 2-18-2025

NEW YORK CITY, N.Y. — A new report has revealed that **U.S. teachers work** a combined **1.75 billion hours of overtime every year** - equivalent to $84 billion in unpaid hours - but that the support offered by **AI** tools **could shrink that** figure **by** over **85 percent**. According to the analysis published by educational publisher Twinkl, U.S. teachers work an average of 15.1 hours a week above what they’re contracted to work - but are exempt from receiving overtime pay under current Department of Labor regulations. The findings reference 2023 data from the Department of Education, which suggests teachers could each regain as many as 13 hours a week by embracing AI tools. The repercussions of high work hours for America’s 3.2 million teachers have severely impacted teacher turnover, which has experienced highs over the past three years.

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#### **The impact is already threatening schools**

**Peck 25 identifies** By Devlin Peck., 1-3-2025, "15 Teacher Shortage Statistics (2025)," Devlin Peck https://www.devlinpeck.com/content/teacher-shortage-statistics //JC

**86% of public schools are struggling to hire educators** (USA Today, EdWeek) A survey of more than 1,300 K-12 schools across the nation was conducted in mid-August of last year to predict how the 2023-2024 academic year would unfold regarding teacher shortages. High poverty districts are continuing to report vast understaffing, but other districts are up from last year - 45% feeling understaffed compared to the 53% reported last year. Hiring teachers of color is another issue entirely. Only 20% of the teaching workforce are those of color, despite the fact that over half of students are people of color. This matters when considering research has proven that teachers of color provide both academic and social-emotional benefits for all students. 2. **35% of teachers are ‘fairly likely’ to leave** teaching in the next two years (EdWeek) While over one-third of teachers (35%) sounds like a lot, this number is down from last year when 44% of teachers planned to leave the education industry. Why is this number improving? Going into 2024, more teachers now say that the general public is respecting them more and treating them as professionals, despite ongoing cultural conflicts amidst schools. 3. 35% of public schools are “extremely concerned” about finding substitute teachers (NCES) Going into the 2024 school year, the average attendance rate for students in public schools is 90%. This is concerning given the fact that over one-third (35%) of public schools are “extremely concerned” when it comes to sourcing substitutes. To add to the problem, 41% of public schools indicate having a shortage of food service staff. 4. Understaffing in high-poverty neighborhoods is worse, persisting at 57% from last year to 2024 (USA Today) Teachers aren’t the only occupation dealing with shortages surrounding public schools. In fact, only 8% of schools say finding a bus driver is an “easy” job to find workers for. In the 2022-23 year, 51% of schools reported bus driver vacancies. Good news: this number decreased to 39% for the 2023-24 academic year. What’s the leading cause of the teacher shortage? 5. 62% of teachers don’t want their own children to become teachers (National Education Association) It’s tragic when one is so unsatisfied with their career that they wish their own children do not follow their path. A recent survey revealed that more than 6 in 10 teachers don’t want their children to become teachers themselves. Why? The top reasons cited were “inadequate pay” and “benefits.” These very reasons may explain the hiring gap that’s been occurring since 2017. The job openings in public education began to outpace hires in the industry that year, but this gap has significantly widened since 2020. Now, the hiring gap is less than 1 hire to each vacancy created. In 2022 was the worst, reported at .55 hires for each teacher opening. 6. American teacher weekly salaries have increased just $29 in 28 years (Economic Policy Institute) Inflation seems to be affecting all Americans, but it has hit teachers dramatically. The average weekly wages of teachers has been nearly flat since 1996. That means in approximately 28 years, teacher salaries have barely been adjusted for inflation. Just look at the figures: From 1996 to 2021, a teacher’s average weekly salary increased just $29. Compared to other college graduates, their average weekly salary during this same time period increased $445. 7. Teachers earn 23.5% less than comparable college graduates (Economic Policy Institute) Usually, teachers have a degree, but lately many districts are bypassing qualified candidates to fast-track people into teaching positions. So to compare teachers who have college educations with other comparable college graduates is fair. However, college grads who do not pursue teaching earn almost one-quarter more. This relative teacher wage “penalty” is over 20% in a reported 28 states. To put it bluntly, there are teachers in 28 states who are paid less than 80 cents on the dollar compared to those with a similar college education. This wage penalty spans from 2.4% in Rhode Island to 35.9% in Colorado. 8. 67% of teachers say a pay raise would help support them most (EdWeek) In the end, pay is the top reason teachers are done with teaching. A recent survey asked teachers, “What steps could your district or school take to support your mental well-being?” A majority 67% agreed that a pay raise would help. Another 62% agreed that smaller class sizes would help them, while another 62% are wanting more support for student discipline-related issues. How many teachers quit last year? 9. 51,000 teachers and other educational staff quit their jobs in 2023 (Statista) In November 2023, approximately 51,000 educators quit within the United States. This marks the highest point since the beginning of the COVID-19 pandemic in April 2022. How did this exodus affect schools? 10. Teacher turnover was 12% during the 2022-23 school year, predicted to decline this academic year (Teachershortages.com, EdWeek) This website dedicated to reporting the current state of teacher shortages estimates **there are at least 55,000 vacant** positions **and 270,000 underqualified positions right now** in 2024. This is after teacher turnover rose to a historical high of 14% two years ago. Their prediction was that this cited 14% would decline to 12% for the 2022-23 school year, and furthermore improve for the 2023-24 school year. According to EdWeek, there are 36,500 vacant teacher positions. 11. 44% of public-school students started the 2023-24 academic year behind a grade level in at least one subject (NCES) **The lack of teachers is affecting students. Almost half of students are behind in at least one subject,** which is lower than in the previous two school years. This same survey cited that about 37% of public schools are operating with a minimum of 1 teaching vacancy, while another 45% of public schools are operating with at least 1 non-teaching vacancy.

#### **Luckily, AI saves teachers time and improves efficiency**

**Dr. Poth 24 finds** [Dr. Rachelle DenÉ Poth (An edtech consultant, presenter, attorney, author, and teacher. Teaches Spanish and STEAM: Emerging Technology at Riverview High School in Oakmont, PA. Juris Doctor degree from Duquesne University School of Law and a Master’s in Instructional Technology. An ISTE Certified Educator and a Microsoft Innovative Educator Expert. A past-president of the ISTE Teacher Education Network and served on the Leadership team of the Mobile Learning Network for five years. Has written seven books. She presents regularly at state, national, and international conferences and provides professional development and coaching for educators on a variety of topics including assessments, and emerging technologies such as AI, AR and VR, and STEM. Rachelle has more than five years of experience teaching about, presenting on and writing about AI.), 7 Ways AI is Set to Make Teachers’ Jobs Easier, 10-29-2024, Learning as I go: Reflections & lessons learned, <https://rdene915.com/2024/10/29/7-ways-ai-is-set-to-make-teachers-jobs-easier/>] accessed 2-20-2025

AI can have a positive impact on many different facets of teaching to make the job easier. By improving each of the above aspects, **AI will reduce overall burnout** in teachers, which is having a massive impact on the industry. HMH’s 9th Annual Educator Confidence Report found that **burnout is a critical issue, with 82% of educators citing that what they need most is a** more **balanced workload.** Education and students are changing fast, with one teacher noting that “today’s student is different from students even five years ago.” **AI will** not only **allow teachers to keep up,** but it will also reduce their workload and give them more time to focus on their students. This will make their job easier **and** improve their work-life balance, which will hopefully **stem the number** of teachers **leaving the profession.**

**Specifically, AI saves teachers 13 hours per week.**

**Bryant 20**, Jake, et. al. “How artificial intelligence will impact K-12 teachers”, McKinsey & Company, 14 Jan 2020, https://www.mckinsey.com/industries/education/our- insights/how-artificial-intelligence-will-impact-k-12-teachers. //AG

Our current research suggests that 20 to **40 percent of current teacher hours are spent on activities that could be automated using** existing **tech**nology. That translates into **approximately 13 hours per week** that teachers could redirect toward activities that lead to higher student outcomes and higher teacher satisfaction. In short, our research suggests that **existing technology can help teachers reallocate** 20 to **40 percent of their time to** activities that **support student learning.**

#### **AI holds the potential to revitalize teaching**

**Grant 22** Policar, 11-20-2022, "84% of U.S. Educators Actively Use AI In The Classroom", No Publication, https://teachinglicense.study.com/featured-insights/teachers-change-minds-about-AI.html

The increased use of AI among teachers follows a trend of school districts providing training to teachers on AI literacy. After interviewing educational leaders in 2024, RAND corporation found that 60% of districts plan to have trained teachers about AI use. Notably, the potential for AI tools to make teachers' jobs easier has prompted leaders to focus primarily on teachers' AI literacy rather than students'.

Educators Passion and Outlooks are Changing for the Better

**While educators' use of AI has increased, their passion for teaching has, too. In fact, 65% of educators nationwide attribute their recent increase in passion to their use of AI.** There has also been a 5% increase in confidence among educators, compared to 2023. This increase in confidence is attributed partially to a 17% increase in the use of digital platforms to increase student engagement.

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#### **Teacher shortages will decide the future of education**

**Whizara 24** [Whizara (), How educator shortages impact instructional growth?, 1-23-2024, <https://www.whizara.com/post/how-educator-shortages-impact-instructional-growth>] accessed 2-19-2025

Research, such as studies conducted by the National Bureau of Economic Research, suggests that **teacher shortages** can **lead to lower student achievement and have long-term economic consequences. With less**er **teachers**, larger class sizes and an increased teacher-to-student ratio, **the quality of education suffers**. The challenges of teacher turnover and burnout further disrupt the continuity of instruction, making it difficult for students to develop strong, lasting teacher-student relationships. Disadvantaged communities are disproportionately affected by these challenges, leading to educational inequities and achievement gaps.. We will explore further the two immediate and tangible consequences emerging from educator shortages. Learning

#### **STEM is key to national security**

**Walden University confirms** (Walden University is an accredited institution offering online education bachelor’s, master’s, and doctoral degree programs, including a MS in Education with a specialization in STEM Education (Grades K–8). Expand your career options and earn your degree in a convenient, flexible format that fits your busy life.) “america-needs-more-teachers-for-stem-education“, Walden University, nd. <https://www.waldenu.edu/online-masters-programs/ms-in-education/resource/america-needs-more-teachers-for-stem-education>] ES

Science, technology, engineering, and mathematics—the four ingredients that make up **STEM**. It **is** these elements that many consider **key to** America’s innovation, global competitiveness, and **national security.** What will the future look like if there are no students interested in pursuing STEM careers? It’s a question that raises concern as **the U.S. falls behind internationally, ranking 30th in math and 19th in science** among industrialized nations.\*

The U.S. Department of Education reports that only 16% of American high school seniors are proficient in math and interested in a STEM career. Even among those who do go on to pursue a STEM major in college, only about half choose to work in a related career.† According to Teach For America, there will be 8 million STEM jobs available in the U.S. by 2018 but a vast majority of graduates will be unprepared to fill them.‡ What the country needs is more STEM teachers to not only educate America’s youth in these critical areas but also to energize and instill a sense of confidence and passion for pursuing STEM majors in college that lead to STEM careers.

**America Needs More Teachers for STEM Education**

Sounds simple, but it’s challenging. Judith Fraivillig, associate professor at Rider University, says kids tend to make up their minds about whether they like or dislike math and science by the fourth grade.‡ Those who decide they dislike STEM by age 10 are less likely to become a scientist, engineer, or innovator. The key is having enough STEM teachers to reach all students—regardless of socioeconomic status, zip code, or ethnicity—in order to inspire and prepare them to reach their full potential.

#### **US tech leadership prevents extinction.**

**Trotti 21** [(Christian Trotti is assistant director of the Forward Defense practice at the Atlantic Council’s Scowcroft Center for Strategy and Security. He is responsible for executing multiple facets of program administration, including strategy, business development, and event and logistical planning, and has authored and contributed to analyses on defense strategy, military technology, and nuclear deterrence.) “New Tech Will Erode Nuclear Deterrence. The US Must Adapt“, Defense One, 11-3-2021. <https://www.defenseone.com/ideas/2021/11/new-tech-will-erode-nuclear-deterrence-us-must-adapt/186634/>] ES

**Nuclear weapons are no longer enough to sustain U.S. strategic deterrence.** Senior military leaders and pioneering scholars believe a new technological revolution is now unfolding, and they are right. If we are not attentive now, the United States may lose the ability to deter major attacks in coming years.

The old model of strategic nuclear deterrence is increasingly threatened by a new suite of military technologies, from hypersonic missiles and advanced missile defenses to non-kinetic cyberattacks. Individually, these technologies are potent. But together, they will revolutionize the way that great powers deter and conduct war. **To avoid falling behind, the U**nited **S**tates **must** hedge against disruptive capabilities by **moderniz[e]**ing its existing nuclear arsenal and undertaking a systematic review of strategic capabilities for the 2030s. This vision for the future balance of strategic forces should then enable defense and diplomatic officials to determine investment priorities accordingly and decide when and how to engage Russia and China **to avoid strategic instability** in this new era.

These contemporary trends are best understood through the historical lens of revolutions in military affairs, or RMAs. While the history of warfare is mostly evolutionary, certain technological advancements—such as gunpowder, aviation, and precision-guided munitions—have revolutionized warfare and reshaped military balances and the geopolitical landscape.

Technology is not the only variable; RMAs require a convergence of technology, training, doctrine, and operational concepts, as well as a fundamental shift in underlying assumptions, to produce a new way of competing and fighting. For example, the United Kingdom invented tanks, but Germany revolutionized tank warfare by integrating armor, radio, and airpower with novel concepts for employing them. This produced the blitzkrieg of World War II.

The nuclear revolution was perhaps the most consequential RMA, since **nuclear weapons** could do what no other weapon had ever done: **pose an** instantaneous, **existential threat.** The preceding paradigm of strategic deterrence was instantly outdated, as large armies and navies no longer sufficed to deter major attacks. The advent and continual evolution of nuclear weapons ultimately precipitated a new approach to deterrence during the Cold War, wherein only a “triad” of nuclear delivery systems—strategic bombers, intercontinental ballistic missiles, and submarine-launched ballistic missiles—was deemed sufficiently diversified to survive any enemy first strike and retaliate, thereby maintaining stability between nuclear-armed adversaries. These capabilities, which so uniquely affect the very decision to wage war, are termed “strategic forces.”

A new, second RMA in strategic forces is now underway on the backs of an array of **emerging tech**nologies like hypersonic weapons, advanced missile defenses, artificial intelligence and autonomous systems, high-performance data analytics, quantum computing and sensing, space-based sensors and anti-satellite weapons, and cyberweapons. These threaten to **undermine[s]** the **long-standing nuclear deterrence** paradigm and alter the balance of power among the United States, Russia, and China. New capabilities can destroy, intercept, or blind traditional delivery systems, potentially enabling a devastating first strike and precluding adversary retaliation. The country that first develops a new model for using these capabilities in tandem with each other, mastering the emerging “strategic forces balance,” may become the next military and geopolitical hegemon.

This RMA poses distinct threats to each leg of the current nuclear triad. First, advanced Russian and Chinese air defenses are already challenging the stealth capabilities of U.S. strategic bombers. One of China’s leading defense companies claims to have developed a prototype radar that relies on quantum physics to detect the incredibly faint (and normally undiscernible) signals of stealth aircraft. Without stealth, U.S. nuclear-armed bombers could operate outside contested airspace and still reach their targets with standoff cruise missiles, but even those missiles may be increasingly less likely to prevail against more sophisticated missile defenses.

Second, in the wake of the United States’ successful kinetic missile defense test last November, ground- and sea-based missile defenses are vastly improving their ability to shoot down ICBMs and SLBMs, threatening the triad’s ground- and sea-based legs. While it is still relatively easy to overwhelm existing missile defenses, **new tech**nological **developments** in directed energy are very likely to **enable a more robust defense** against massed ballistic missile attacks. Meanwhile, shooting down a missile is not the only way to stop it; in many cases, it is preferable to destroy the missile before it ever launches. Here again, **emerging tech**nologies **soon will offer a solution**: travelling at over five times the speed of sound, hypersonic missiles supported by synthetic aperture radar satellites are increasingly capable of hitting heavily defended or time-critical targets, thereby enabling preemptive “left-of-launch” strikes against ballistic missile launchers.

#### **Even perceived US weakness causes global nuke war.**

**Means 21** Grady, Former Policy Assistant to Vice President Nelson Rockefeller, Retired American Business Executive, MA in Economics and Engineering from Stanford University, 8/30/2021, “Biden Brings The World Closer To Nuclear War,” <https://thehill.com/opinion/white-house/569732-biden-brings-the-world-closer-to-nuclear-war>

Over the past six months, the world has edged closer to nuclear war than it has been since the Cuban Missile Crisis. The Doomsday Clock is ticking toward midnight. The global power balance has been dramatically reshuffled, and the potential for disastrous miscalculation hasn't been so high in 80 years. The match and fuse for this is instability — an exaggerated **sense of U.S. weakness** and lack of capability and resolve — that could **lead[s] to** huge, **aggressive military miscalculations** and mistakes by our enemies. The Biden administration has set the table for such a catastrophe.

The timing could not be more dangerous. **China** has changed strategic direction and has been **building its nuclear stockpile** and delivery systems. China also has continued to develop hypersonic weapons, including stand-off “carrier killers,” space weapons and cyber capabilities to blind opponents’ strategic and conventional systems. Russia has been advertising (mostly for domestic consumption, but nonetheless worrying) its “unstoppable” delivery systems, and has a very capable nuclear stockpile and military. Iran will continue to move forward with building nuclear weapons. Pakistan and India both have significant nuclear capability in an increasingly unstable part of the world. Nuclear-armed North Korea is again assuming a more belligerent posture. Israel has a full nuclear triad (land, air, subs) to respond to existential aggression. The U.K. and France have significant nuclear deterrents. The world is a powder keg.

In Hollywood terms, today’s capacity for nuclear holocaust is thousands of times greater than the era portrayed in the Armageddon films “On the Beach,” “Fail Safe,” or “Dr. Strangelove.” There would not be anything left for “Mad Max.” Climate disasters may be unfolding over the next hundred years. Nuclear disaster is unfolding now. COVID-19 has killed more Americans than the flu typically does. **Nuclear war could kill us all**. Our leaders must get their priorities straight.

**Our Second Contention is AI Literacy.**

**GenAI in education provides a model for literacy.**

**Bozkurt 24** [Aras Bozkurt is a researcher and faculty member at Anadolu University, Türkiye, 8-28-2024, "Why Generative AI Literacy, Why Now and Why it Matters in the Educational Landscape? Kings, Queens and GenAI Dragons", Open Praxis, https://openpraxis.org/articles/10.55982/openpraxis.16.3.739] DOA: 03-05-2025] Ewan

The rapid emergence of Generative Artificial Intelligence (Generative AI) has fundamentally transformed the educational landscape, presenting both profound opportunities and significant challenges. As a powerful and evolving digital creature, **generative AI requires** a **literacy** (GenAI literacy) that goes **beyond** mere **basic understanding**, requiring a comprehensive approach that integrates theoretical knowledge, practical skills, and deep critical reflection. This paper argues that GenAI literacy is crucial for surviving the complexities of human-machine interaction and properly **leveraging this tech**nology, especially **in educational settings**. The proposed 3wAI Framework—encompassing the dimensions of Know What, Know How, and Know Why—**provides a** structured yet adaptable **model for cultivating GenAI literacy**. Know What focuses on the foundational knowledge of AI, including its definitions, capacities, and decision-making processes. Know How emphasizes the practical application of AI, guiding users in leveraging AI to solve problems, innovate, and drive positive societal change. Know Why addresses the critical ethical and philosophical considerations, urging users to prioritize responsible AI use, advocate for equity and social justice, and critically assess the implications of AI technologies.

**AI Literacy spills over---it enables a litany of critical skills.**

**Jonker ‘25** [Alexandra Jonkers is a technology writer and editor, 1-18-2025, "AI Literacy: Closing the Artificial Intelligence Skills Gap", IBM, https://www.ibm.com/think/insights/ai-literacy] DOA: 03-05-2025 //Ewan

One definition of **AI literacy** is the ability to comprehend various aspects of artificial intelligence—including its capabilities,limitations and ethical considerations—and to use it for practical purposes. It might **entail[s] learners [in] exercising critical thinking** in their understanding of AI technologies and the applications of AI.

**Being AI literate** “**requires** not just learning but **learning to learn**—asking the right questions **to comprehend how AI systems work,**” writes Ignacio Cruz, an expert in communications and emerging technologies.

Cruz adds that **AI literacy goals** “can **span** a continuum” ranging **from grasping basic AI concepts to** more sophisticated abilities, such as evaluating the risks of **automating certain decision-making.** 2

**It’s critical for democracy.**

**AASA 24** [AASA is the American Association of School Administrators, 11-1-2024, "The Case for News Literacy Skills in an AI World", https://www.aasa.org/resources/resource/the-case-for-news-literacy-skills-in-an-ai-world] DOA: 02-09-2025 //Ewan

Our **students live in an information ecosystem** cluttered with social media influencers, YouTube rabbit holes **and AI** technologies that anyone can use to create realistic-looking content at a scale never before possible. For all the upsides that generative AI technologies could bring to the classroom — personalizing learning or automating rote tasks to free up more time for teaching — it also **could be used to** develop and **distribute misinformation more quickly and convincingly than ever before.**

All of this is happening against a backdrop of hostility toward the media, dwindling access to local, credible news and a divisive society in which people choose which set of “facts” they believe.

Crucial Credibility

**The proliferation of AI has made it more urgent than ever for school leaders to prioritize** news **literacy instruction.**

News literacy is the ability to determine the credibility of news and other information and to recognize the standards offact-based journalism. With these skills, students know what to trust, share and act on. News **literacy teaches students how to think, not what to think. It helps young people evaluate** the **credibility** and authenticity of the informationgenerated by AI.

In this new information world, news literacy must be integrated into cross-disciplinary instruction so students have the skills and habits needed to find credible information, evaluate evidence and recognize and push back against rumors and falsehoods.

Many school leaders across the country are leading the way. In the Gunnison Watershed School District, a rural Colorado district about 200 miles southwest of Denver, teachers meet year-round to map out and pilot news literacy courses that include lessons on navigating AI.

In a news literacy approach to AI, what do educators and students need to know?

To evaluate the credibility of AI-generated information, students and educators must understand that these tools have serious limitations. They often get things wrong, they are not objective and they can be riddled with bias.

AI tools are trained on significant portions of the internet, including credible sources, but also on message boards filled with hate speech, YouTube videos pushing conspiracy theories and propaganda sites run by foreign governments. This means AI often “learns” inaccurate “facts” and perpetuates harmful stereotypes.

AI tools also make things up. The tech industry calls this “hallucination” or the “black box problem,” and even the people who build AI technologies aren’t entirely certain why it happens. But it results in AI presenting false information with certainty, and it happens frequently.

Even though this technology — and its shortcomings — are new, the fundamentals of thinking critically about information remain the same.

Students should be taught to approach AI tools with dispositions and questions such as “How do you know this information is accurate or authentic?” “Are sources cited?” and “Are they credible?” One question especially relevant to AI is to ask whether the sources are even real. AI has been known to fabricate citations to news stories that don’t exist and never have actually been published.

To illustrate this, ask students to use AI tools to research a topic they are deeply knowledgeable about — such as Taylor Swift or their favorite sports team — and analyze the accuracy and credibility of the information that’s generated.

Students also must recognize when AI generates content that is overtly biased. Teachers can ready their students to spot this by helping them understand the different forms bias can take, such as an absence of fairness and balance, framing that misleads or skewed sourcing and tone.

Our students need to be prepared to encounter possible misuses of AI, including its potential to turbocharge the creation and spread of misinformation. When school leaders in the Gunnison Watershed District recently surveyed their students and staff about AI as part of their efforts to incorporate news literacy instruction into the district, 65 percent of respondents said one of the primary challenges is the technology’s ability to spread misinformation.

A district’s blueprint teaches students how to navigate AI with news literacy.

It’s one thing to identify the skills and dispositions that students need to learn so they can navigate information generated by AI. It’s another thing to integrate this necessary instruction into the classroom in a meaningful way. Gunnison, a district with about 2,000 students and 165 teachers, provides a blueprint for others to follow.

Gunnison had perfect timing. Just as AI began to explode in the public consciousness, the district was selected to join the News Literacy District Fellowship program, a two-year effort that includes intensive support from the nonpartisan, nonprofit News Literacy Project to create and implement a systemic news and media literacy instructional plan.

While the fellowship presented the time, space and support for Gunnison teachers to incorporate AI into their news literacy approach, the steps they took can be replicated anywhere.

First, district leaders tapped into educators’ expertise. Starting in the 2023-24 school year, Gunnison identified teachers who met regularly throughout the year to discuss various aspects of news and media literacy. Three educators had a primary focus on AI. Together, they identified where to include lessons on AI, like recognizing its limitations as a source, into the news literacy curriculum.

The district also took stock of the current landscape and future needs when it comes to AI. The district surveyed educators and students to measure the existing AI knowledge within Gunnison and how students were already using the technology. With those insights, district leaders pinpointed areas where staff could provide professional learning support, as well as areas where outside support was needed from organizations like NLP or through subscriptions to approved AI-tools that could be integrated into teachers’ work.

Like any educational initiative, administrative support has proven to be a key strength. Leaders have made it a priority to provide guidance to educators on using AI. They have modeled professional learning by leading workshops for staff and built their own skills alongside the district’s teachers by attending sessions hosted by their fellowship team.

Another main ingredient to Gunnison’s success has been engagement and communication. Educators recognized the need to bring students’ families into the conversations happening around AI. They made it a priority to clearly address concerns that caregivers had about AI use in the classroom, while also highlighting the ways students successfully use the technology in their studies.

As the first year in the program ended, the fellowship team drafted AI agreements so everyone in the district is on the same page when it comes to understanding the how, what and why of AI use in teaching and learning in Gunnison.

Heading into the 2024-25 school year, the district was well-positioned to implement a sustainable, systemic plan to ensure students learn to navigate AI technologies using news literacy skills.

What school leaders can do to integrate news literacy into the classroom.

Classroom educators can use an inquiry-based approach or a pedagogy that models curiosity to learn how to use these tools.

There is a plethora of free professional development opportunities and other resources available through organizations like the News Literacy Project, the Digital Inquiry Group and Common Sense Education. The Poynter Institute’s MediaWise initiative offers useful classroom materials for teaching news literacy skills, including content created by teens for their peers.

For school leaders looking for a comprehensive approach to integrating these critical dispositions and skills across grade bands and content areas, the News Literacy Project offers two resources. The Framework for Teaching News Literacy provides a bird’s-eye view of news literacy instruction and is ideal for incorporating it into curriculum or as the basis for creating stand-alone courses. The grade band expectations for teaching news literacy can help districts tailor teaching approaches from K-12.

Organized around the three-stage, “backward design” process of Understanding by Design, the framework maps out common standards, essential questions and knowledge and skills objectives, along with suggested performance tasks and learning activities. NLP’s five core competencies that students need to master to be news-literate are the heart of the framework. The competency most relevant to navigating AI calls for students to learn to verify, analyze and evaluate information.

The grade-band expectations help educators build these competencies in age-appropriate ways. In K-2, for example, students begin conceptual development of verifying context by demonstrating how the meaning of words can change when they are taken out of context. In grades 3-5, verifying authenticity of information is added to conceptual development; students define what authenticity means in different contexts and reflect on how information can be authentic or inauthentic. By middle and high school, students can recognize the advantages and uses of generative AI technologies, as well as their potential for fabricating details, sources and visuals.

These skills are the foundation of a solid civics education but are also applicable across content areas. Students who have developed core news literacy skills and habits of mind can evaluate scientific evidence and detect pseudoscience. In art and social studies, they can explain how editorial cartoons are distinct from memes and assess the potential for each to be used to spread propaganda. In math, they can understand how data can be misused or distorted, complicating the notion that, “Numbers don’t lie.”

Another way that school leaders can ensure that students are given the opportunity to learn these essential 21st-century skills is to advocate for policies that make news literacy a requirement for graduation. States across the country are increasingly taking this approach. New Jersey is particularly noteworthy. A law passed last year calls for news literacy concepts to be taught in all grades, thanks in part to advocacy from the state’s school librarians.

Fully Prepped Students

Districts like Gunnison know that news **literacy is** not a “nice to have” but **a “must have.” Information is the basis for civic literacy, agency and action.​ Failing to prepare students to separate what’s credible from what’s not is a failure to prepare them to be** fully informed **participants in our democracy.**

**Democracy solves extinction.**

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There is an intimate and neglected relationship between existental risk and democracy.

**Democracy** must be central to efforts to **prevent[s]** and mitigate **catastrophic risks.** It is also an antidote to many of the problems manifest in the TUA. Do those who study the future of humanity have good grounds to ignore the visions, desires, and values of the very people whose future they are trying to protect? Choosing which risks to take must be a democratic endeavour.

We understand democracy here in accordance with Landemore as the rule of the cognitively diverse many who are entitled to equal decision-making power and partake in a democratic procedure that includes both a deliberative element and one of preference aggregation (such as majority voting)sis. Decision-making procedures are not either democratic or non-democratic, but instead lie on a spectrum. They can be more or less democratic, inclusive, and diverse.

The democratic constraint of extreme measures may simply be a form of collective self-interest. **Voters are unlikely to tolerate** global catastrophic risks (**GCRs**), which incur the death of a sizeable portion of the electorate, if they know they themselves could be affected. We expect that scholars who do not support sacrificing current lives in the name of abstract calculations, but would still like to explore the use of expected value theory in existential risk, will be in support of democratic fail-safe mechanisms.

We posit three reasons for why we should democratise research and decision-making in existential risk: the nature of collective decision-making about human futures, the superiority of democratic reason, and democratic fail-safe mechanisms.

Avoiding human extinction, or crafting a desirable long-term future, is a communal project.

Scholars of existential risk who take an interest in the future of Homo sapiens are choosing to consider the species in its entirety. If certain views are excluded, the arguments for doing so must be compelling.

**Democracy will improve** our judgments in both the **governance and the study of existential risks.** Asking how our actions today influence the long-term future is one of the most difficult intellectual tasks to unravel, and if there is a right path, democratic procedures will have the best shot at finding it. Hong and Pagel6,117 demonstrate both theoretically and computationally that a diverse group of problem-solving agents will show greater accuracy than a less diverse group, even if the individual members of the diverse group were each less accurate. Accuracy gains from diversity trump gains from improving individual accuracy. Landemore115, builds on this work to advance a probabilistic argument that inclusive **democracies** will, in expectation, make epistemically superior choices to oligarchies or even the wise few. This is supported by promising results in inclusive, deliberative democratic experiments from around the worldils. In the long run, democracies should **commit fewer mistakes than alternative decision-making procedures.** If this is true, it should improve the accuracy of research efforts and decision-making. We are more likely to make accurate predictions about the mechanisms of extinction, probable futures, and risk prevention if the field invites cognitive diversity, builds flat institutional structures, and avoids conflicts of interest.

**Democracies** can **limit harms.** Any approach to mitigating existential threats could create response risks, and the TUA seems particularly vulnerable to this. Despite good intentions and curiosity-driven research, it could justify violence, dangerous technological developments, or drastically constrain freedom in favour of (perceived) security. If we hope to explore ideas but minimise harms, democracies can be used to moderate the measures taken in response to harmful ideas. It seems, for example, vanishingly unlikely that a diverse group of thinkers or even ordinary citizens would entertain the idea of sacrificing 1 billion living, breathing beings for an infinitesimal improvement in reaching an intergalactic techno-utopia. In contrast, the TUA could recommend this trade-off.

There are many ways to consider the interests of the many. Democratic assemblies could allow global citizens to deliberate about the futures they prefer, citizens could be surveyed, and the field of ERS itself could be diversified. At the moment, the field is, as many academic disciplines are, unrepresentative of humanity at large and variably homogenous in respect to income, class, ideology, age, ethnicity, gender, nationality, religion, and professional background. The latter issue is particularly true of existential risk, which, despite being an inherently interdisciplinary endeavour, is at the highest levels dominated by analytic moral philosophers. We need to be vigilant to what perspectives are not represented in the study of existential risk. An awareness of bias will go some way towards mitigating its negative effects. To get close to replicating the cognitive diversity found among humans, we must begin by inviting different thinkers with different values and beliefs into the field.

**Empirically, this** fail-safe mechanism seems to **work[s]**. Even deeply imperfect democracies, like the ones we inhabit now, often avert detrimental outcomes. **Democracies prevent famines** 9 (although not malnutrition) 20. **They make war** — a significant driver of GCRs — **less likely.**

**Thus, we affirm.**