First an Overview

You should be skeptical of AI's effectiveness – almost no research supports it

Williamson '24 concludes

AI in Education Since the 1960s, scientists and technology companies have explored ways to apply AI in education. AI in Education (AIED) is a major field of research and development.55 The AI applications being promoted to schools today were preceded in the 1960s and 1970s by "Intelligent Tutoring Systems" and "Computer Assisted Instruction" systems.56 Since the early 2000s, researchers have gathered, stored, and analyzed massive quantities of educational data with the intention of informing institutional and instructional strategies.57 These approaches are now routinely considered synonymous with AIED, and have also been rapidly commercialized by the ed tech industry.58 Most AIED applications employ big data and machine learning to produce various predictions and automated actions—such as predicting that a student may fail an assessment or creating a "personalized" intervention intended to produce a desired learning outcome.59 Research on AI in education has developed and tested various approaches and reported modest effectiveness on measurable learning achievement—performance on quizzes and tests, for example.60 Current excitement about its potential is motivating both public and private sources to generously fund researchers trying to find ways to improve learning outcomes using AI.61 However, the assumption that AI in education can be understood primarily as a technical matter best addressed by scientists and companies is increasingly challenged by researchers who argue that a narrowly technical perspective may lead to both bad policy and bad pedagogy.62 They point out that AI exists in social, economic, and political contexts that shape its development and uses.63 How AI is adopted by different educational stakeholders (including AIED researchers, ed tech entrepreneurs, corporate leaders, and policymakers) will have significant implications for its use in schools.64 The fact that entrepreneurs and corporations funded by venture capital and private equity are rushing to promote AI in education will inevitably narrow possible applications to those preferred by stakeholders with financial interests.65 Small-scale ed tech start-ups and Big Tech corporations alike see AI as an opportunity,66 leveraging popular hype to market such education products as personalized learning programs, automated lesson plan generators, and AI tutoring chatbots, called "tutorbots," to schools.67 Compelling evidence for the effectiveness of tutorbots in education remains scarce.68 though this does not prevent entrepreneurs and researchers from proclaiming their usefulness.69 Policymakers routinely invoke AI rhetorically, calling on schools to embark on "digital transformation,"70 often with little attention to social, economic, legal, or ethical implications.71 These calls dovetail with existing political priorities on performance monitoring, account, ability, efficiency, and effectiveness—all of which require extensive collection of data about students.72 Although systems of test-based accountability have existed in schools since the 1990s,73 they will expand and intensify as AI is used to continuously monitor and assess student learning.74 As a result, commercial AI systems will increasingly serve as private actors in public education as schools, districts, and governments relinquish key tasks, functions, and responsibilities to third-party technology vendors.75 Existing and potential uses of AI in education are not merely innovative technical add-ons to teaching and learning practices or engineering solutions to schools' existing pedagogic and administrative problems. Rather, AI in education has been spurred by multiple forces: longstanding efforts by scientists to measure, predict, and support learning processes and outcomes; commercial aspirations to profit from selling products to schools; and the political objective of being perceived as having improved school efficiency and accountability while cutting costs. As things currently stand, these ambitions have begun to coalesce into a vision of AI-driven schooling in which commercial products assess student learning, automate teaching, and make decisions about student progress. Inadequate Research Base

Despite the **extensive research in** the field of **AI** in **Education** (AIED) and the burgeoning research on machine learning, **there is remarkably little evidence to support claims of AI's ability to "transform" schools.** 76 While AIED researchers have produced many research findings, their studies tend to focus primarily on measures of individual student engagement and performance (assessed by standardized achievements tests), or on "engineering" problems such as designing increasingly sophisticated algorithms and enhancing machine learning effectiveness.77¶ Overall, AIED **studies** tend to **find ambiguous results, lack independence and scale, and** fail to address more fundamental questions about educational goals.78 AIED research therefore often promotes a view of education transformation as improving measurable individual outcomes despite very limited evidence that AI "works."79 In effect, such studies **reduce** well-researched and **nuanced theories of how humans learn** to whatever can be made **into a mathematical model** (however complex), and they ignore the contested terrain of exactly which goals and curriculum public schools should embrace.80 Moreover, claims that AI can solve major educational problems—such as lack of qualified teachers, student underachievement, and educational inequalities—rely to a considerable extent on **conjecture rather than evidence.**81¶ **Even more problematic are the serious methodological flaws** in machine learning research that call into **question** the **validity of hundreds of studies.** 82 The nature of the flaws, in general, leads toward "over optimism" with respect to the usefulness and value of machine learning applications in a variety of fields.83 These findings are particularly concerning because they call into question not only commercial marketing claims, but also the scientific evidence base supporting the widespread implementation of AI systems in all sectors,84 including education. Finally, because of the very high computing costs associated with running machine learning models, most **[and] researchers** have to rely on systems from the dominant AI companies themselves in order to conduct research85—the same corporations that often fund AI studies.86 This makes research **depend**ent **on corporate** resources, **funds**, and business practices, **giving AI firms considerable**

influence over not only AI development, but also the academic **research** that depends on their systems.87 It also compromises an important part of the research process, which is reproducing findings to verify their validity. **When** a

company changes or **stops** supporting **a particular model, researchers cannot reproduce studies conducted earlier**.88 This **renders** the **research** base **unstable and unverifiable**—and thus unusable as a basis for assessing subsequent models.

Our first argument is Critical Thinking

Smith '95 explains:

The ability to solve problems is one of the most important manifestations of human thinking. The range of problems people encounter is enormous: planning a dinner party, tracking deer, diagnosing a disease, winning a game of chess, solving mathematical equations, managing a business. This radical diversity of problem domains contrasts with the relative specificity of many human cognitive activities, such as vision, language, basic motor skills, and memory activation, which have a relatively direct biological basis and which all normal individuals accomplish with substantially uniform proficiency. **In the course of normal development we all learn, for example, to speak a native language, but without specialized experience we will never acquire competence in deer tracking or chess playing.** On the other hand, all normal people do acquire considerable competence in solving at least some of the particular types of problems they habitually encounter in everyday life. **We might therefore suspect that problem solving depends on general cognitive abilities that can potentially be applied to an extremely broad range of domains. We will see, in fact, that such diverse cognitive abilities as perception, language, sequencing of actions, memory, categorization, judgment, and choice all play important roles in human problem solving. The ability to solve problems is clearly a crucial component of intelligence.**

However, employing AI degrades educational quality and critical thinking. Ma '24 reports:

A new study of students at a German university has **found that employing ChatGPT** in the search for information **makes** the **work easier** and reduces mental load, **but** it **comes at the expense of** quality arguments, **grades**, **and critical thinking.** Ultimately, using it created superficial assignment results. The study was established specifically to measure both the cognitive load of students, and the quality and diversity of their arguments. It split students into two groups: those who used AI, and those who used traditional search methods, and tasked them with researching information about the safety of sun cream for their fictional friend "Paul." Students were asked to draw conclusions and give advice to Paul, who had concerns over the safety of some ingredients. The study found that: Students using AI (large language models - LLM) had a lower cognitive load and less stress There was no significant difference between the diversity of their arguments, suggesting that AI does not specifically lead to homogenous conclusions Students that use AI have weaker reasoning in their arguments, likely because of lower engagement with the content and significantly reduced critical thinking. The ultimate conclusion was that use of AI can help improve student experience because it provides direct answers rather than needing a student to draw their

own conclusions, but it currently comes at the cost of deep engagement and high-quality learning, with recommendation that the study be extended beyond the original pool of 91 students. What's more, the study did not provide scope for evaluating the quality of their LLM queries, which could – in other studies – lead to misleading or misinformed answers.

The study highlights one of the key concerns over AI, in that **individuals that default to [AI]** using it may **lose** skills that are essential in recognising how accurate information is and whether the information could be being used to intentionally mislead (disinformation). Otherwise known as **critical thinking skills**, the pursuit of knowledge and accuracy **[which] is essential in navigating the world** of ever-increasing data points, and the flood of infor- mation we are receiving from real-world encounters, social media feeds, news engines, magazines, broadcast, and other forms of digital media. AI offers a service of immediacy while aggregating multiple sources, but often loses or eliminates the nuance of that information and the opportunity for depth of learning. This is particularly important as highlighted by Rainie and colleagues, 2019, given that a large majority of participants from an American study (81 percent) report they rely on their own web research over friends and family (43 percent) or professional experts (31 percent) when gathering information before making an important decision. "While LLMs like ChatGPT offer an efficient way to reduce intrinsic and extraneous cognitive load, they may not always facilitate the deep learning necessary for complex decision-making tasks. Traditional search engines, by necessitating more active engage- ment, may promote a higher quality of learning, underscoring the need for educational practices that encourage critical engagement with diverse information sources," study authors concluded.

Specifically, a research study by Zhang et al '24 illustrates:

Zhang, S., Zhao, X., Zhou, T. and Kim, J.H. (2024). Do you have AI dependency? The roles of academic self-efficacy, academic stress, and performance expectations on problematic AI usage behavior. International Journal of Educational Technology in Higher Education, [online] 21(1). doi:https://doi.org/10.1186/s41239-024-00467-0. /// JA CCHS

Conclusions To investigate the internal antecedents and potential consequences of AI dependency, this study examined the relationships among academic self-efficacy, academic stress, performance expectations, and AI dependency using the I-PACE model. **Using a sample of 300 college students in Seoul, South Korea, the results showed that academic self-efficacy was not significantly associated with AI dependency.** However, this association was mediated by academic stress and performance expectations. **The consequences of AI dependency** varied; the top five negative effects **were increased laziness,** the spread of misinformation, **decreased creativity, and reduced** critical and **independent thinking.** This study theoretically expanded on previous studies by providing potential intervention recommendations to reduce students' AI dependency.

Luu '24 confirms:

Luu, E. (2024). The effects of AI on education. [online] HS Insider. Available at: https://highschool.latimes.com/opinion/the-effects-of-ai-on-education/#:~:text=Another%20major%20disadvantage%20of%20AI,learning%20and%20develo ping%20their%20brains. [Accessed 21 Feb. 2025]. // JA CCHS

One major consequence of newly created artificial intelligence on education is the lack of human interaction. Even though AI can give students personalized educational services, it cannot replace human teachers who provide face-to-face interactions. Teachers can humanly interact, discuss, and provide feedback unlike

AI could ever. They are crucial in students' development not only in their academic careers but also as they develop social skills, as advocated by Teachers of Tomorrow. Teachers provide a sense of physical interaction that artificial intelligence could never replace. As seen through the global pandemic, human interaction is necessary for an individual's overall well-being. **AI could potentially result in decreased human interaction and end up leading to detrimental educational experiences. Another major disadvantage of AI in education is the dependence on it involving the educational process. A**rtificial **i**ntelligence **can complete** difficult, lengthy **assignments almost instantaneously [thus]** and students may become overly dependent on technology for tasks where they could be learning and developing their brains. Students gain problem-solving skills and work ethic from completing assignments in their academic careers that prepare them for their futures. Relying on AI to complete these tasks where they should be learning **can be dangerous for individuals in the long run when they have no ability to think independently.** While the negative impacts of AI seem severe and hopeless, some solutions may work. For the first negative impact of decreased human interaction, current teachers could try using AI tools as a way to enhance their curriculums rather than allowing the programs to replace them entirely. Daniel Schwartz, the Dean of the Graduate School of Education at Stanford University, said in his opening remarks at the recent AI+Education summit, "I want to emphasize that a lot of AI is also going to automate really bad ways of teaching. So [we need to] think about it as a way of creating new types of teaching." He perfectly described how educators should not run away from AI and try to avoid it entirely and rather use it as a way to better education and make it a resource students can benefit from. If this is done students will still have teachers and their human interactions and the enhanced content of education from artificial intelligence.

The impact is job loss.

Critical thinking is critical to getting jobs

Georgetown University 20 [Georgetown University, "Recovery: Job Growth and Education requirements", 2020, Georgetown University, https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.ES_.Web_.pdf, Accessed 03/07/2025] //ejs squad

Of all occupations, 96 percent require critical thinking and active listening **to be** either very important or **extremely important** to success.

That's terrible because employment is key to getting out of poverty Vaalavuo

21 [Maria Vaalavuo, "Jobs against poverty: a fixed-effects analysis on the link between gaining employment and exiting poverty in Europe", 06/03/2021, Taylor & Francis, https://www.tandfonline.com/doi/full/10.1080/14616696.2022.2088821, Accessed 03/07/2025] //ejs squad

This article analyses the role of gaining employment in escaping poverty at the individual level by using EU-SILC pooled panel data for 2010–2017 for 30 European countries. We assess this in a dynamic research setting using individual fixed effects that take into account unobserved time-invariant heterogeneity between individuals. We focus on the type and intensity of employment and the role of gender, education, and age. Overall, gaining **employment increased the chances of exiting poverty by 33 percent** age points among men and 30 percentage points among women. Shorter employment spells and part-time employment were less effective routes out of poverty. The results also suggest that poor individuals with higher education were more likely to benefit from employment to exit poverty. We found substantial cross-country variation. However, the unemployment rate, prevalence of precarious employment or spending on active labour market policies did not moderate the association between gaining employment and exiting poverty. Further

analysis is needed on the institutional factors supporting poor people's employment and its effectiveness in significantly improving income level.

Overall poverty is devastating,

PPC 23 [PPC, "2023 National Fact Sheet", 06/16/2023, Poor People's Campaign, https://www.poorpeoplescampaign.org/resource/2023-national-fact-sheet/, Accessed 03/07/2025] //ejs squad

These tens of millions of people live in every region, state and county in the country. Poverty was the fourth leading cause of death, claiming more lives than homicide, gun violence, diabetes or obesity. Long-term ==**poverty was responsible**== ==for 295,000 deaths a year – or over 800 deaths a day.==

Our second argument is Water Scarcity

The use of gen AI in education is growing Westfall 23[Chris Westfall, Jan 28, 2023, "Educators Battle Plagiarism As 89% Of Students Admit To Using OpenAI's ChatGPT For Homework", Chris Westfall covers the changing nature of the leadership conversation. An international business coach to executives, entrepreneurs and aspiring leaders, he is the author of four books, and a ghost writer on eight more (including a Wall Street Journal Best-Seller). An international keynote speaker and frequent media guest, he has appeared on NBC, ABC NEWS, Bloomberg, BBC Radio and multiple broadcast outlets. His clients include influencers, Fortune 500 executives, entrepreneurs, political candidates, military leaders, professional athletes and global organizations. His entrepreneurial coaching clients have appeared on television shows like Shark Tank, Dragons Den in Canada and Shark Tank Australia. He regularly works with students across multiple disciplines at Texas A&M, where he has coached thousands of entrepreneurs, engineers and scientists - including the winners of the Rice Business Plan Competition in 2016 an 2023. He is a past recipient of the MBA top teaching award at Southern Methodist University's Business Leadership Institute. Latest book: Easier (Wiley). Contributor since: 2019., Forbes, https://www.forbes.com/sites/chriswestfall/2023/01/28/educators-battle-plagiarism-as-89-of-students-admit-to-using-open-ais-chatgpt-for-homework/]

Considering that ==90% of students are aware of ChatGPT==, and ==89%== of survey respondents report that they have ==used the platform to help with a homework assignment==, the application of OpenAI's platform is already here. More from the survey.

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%20 many%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..

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.

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 **artificial intelligence 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

Firstly, gen AI is only hurting 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 Tutoring

Personalized Learning is a failed practice.

Matthew **Rascoff** [Vice Provost @ Stanford University]. 10-13-20**23**. "Matthew Rascoff on Empowering Students with AI." Stanford University. https://digitaleducation.stanford.edu/matthew-rascoff-empowering-students-ai //ejs squad

So I was listening very carefully this morning, and I did not hear a single time the term "personalized learning." If we were doing this conference five years ago, personalized learning would have been the beginning, middle, and end of this. But it has not come up a single time. Why is that? I'm asking genuinely, why did we not talk about personalized learning today? Has anybody worked in the space long enough to know that fad, the rise of that fad, and then the decline of that fad? I see some nods. **Why did personalized learning fail at the Chan Zuckerberg Foundation such that they've just written off a $100 million investment in their Summit Learning platform, which was supposed to be the scalable mechanism for kids to do personalized learning in K-12 schools across the United States? They laid off all of their staff who were working on this. They've given up on this idea.** To me, this should make us somewhat skeptical of the kind of rhetoric that we heard from Ben [Nelson] and from George [Siemens] this morning, that, you know, there are some fads and some faddish behaviors in this system, that seek to chase the latest idea and sometimes lose track of the fundamentals that do not rise and fall on a five-year cycle, but are much more oriented towards the long term. And to me, that has to be our focus. You know, we were talking a little bit this morning about the patience that is required. John [Tsang], this came up with you, the patience that's required to invest in this space. The investors don't necessarily get that. They're impatient. They want returns. Right? But if you're an educator in this space, think about the deep impact for the long term that educators have had on you, individual teachers. And those are not fads. And so to me, you know, Zuckerberg and Chan Zuckerberg and Bill Gates talking about personalized learning — this was the Gates Foundation's core investment thesis — they've basically given up on it, and Salman Khan has talked about it, too. **Personalized learning** allows students to progress through content at their own pace without worrying about you being too far behind and too far ahead of their classmates. Where's that? **Where has that gotten us? Kids on computers, in classrooms with headphones on,** who are not learning with one another, **who are not being socialized,** who are not being helped to create an identity, who are not building a learning community, **they are not progressing.** And the data finally caught up. And I credit Chan Zuckerberg for at least being honest about the lack of results and being willing to write off a $100 million investment. So to me, the core fundamental does not change over time, no matter how advanced the technology is that you're building, is that we need to be investing in great educators and great teachers. And they actually do do personalized learning. Great teachers are listening to a student's needs and they are doing it systematically as part of what they do. This is an example from Dan Meyer, who's an educator who I love, who I highly recommend. He's a math educator who writes about math pedagogy, mostly in K-12. But I think a lot of these lessons are relevant to higher education as well. And he basically has argued that an educator like Liz Clark-Garvey in New York City public schools, she can start the lesson with a whole-class move. She'll ask one question for the whole class and then through the class, moving around the class, listening to what the students say, listening to how they decipher this problem, she is able to understand where students are at and to meet their needs. The problem, I think the challenge, with a context like this, is it seems to depend on heroic individual teachers like this. And there has not been a systematic mechanism. Maybe in Singapore there is. Maybe in Hong Kong there is. But in the US there has not been a systematic mechanism to take a model like this from individual great educators and scale it to the order of the millions of teachers that we have, three million teachers in our schools, not to mention higher education. So to me, the challenge is not, How do we give every kid a laptop and a screen and headphones? **The challenge is how do we give them a great educator who cares about them, who will create a learning community in the classroom of people who will learn together, who will support one another?** That to me is the precious thing and the rare thing and the thing that has become even more precious and more rare **under the conditions of technology, seeming to take away some of the role for humanity in our classrooms.**

Rascoff furthers

Matthew **Rascoff** [Vice Provost @ Stanford University]. 10-13-20**23**. "Matthew Rascoff on Empowering Students with AI." Stanford University. https://digitaleducation.stanford.edu/matthew-rascoff-empowering-students-ai //ejs squad

So I was listening very carefully this morning, and I did not hear a single time the term "personalized learning." If we were doing this conference five years ago, personalized learning would have been the beginning, middle, and end of this. But it has not come up a single time. Why is that? I'm asking genuinely, why did we not talk about personalized learning today? Has anybody worked in the space long enough to know that fad, the rise of that fad, and then the decline of that fad? I see some nods. **Why did personalized learning fail at the Chan Zuckerberg Foundation such that they've just written off a $100 million investment in their Summit Learning platform, which was supposed to be the scalable mechanism for kids to do personalized learning in K-12 schools across the United States? They laid off all of their staff who were working on this. They've given up on this idea.** To me, this should make us somewhat skeptical of the kind of rhetoric that we heard from Ben [Nelson] and from George [Siemens] this morning, that, you know, there are some fads and some faddish behaviors in this system, that seek to chase the latest idea and sometimes lose track of the fundamentals that do not rise and fall on a five-year cycle, but are much more oriented towards the long term. And to me, that has to be our focus. You know, we were talking a little bit this morning about the patience that is required. John [Tsang], this came up with you, the patience that's required to invest in this space. The investors don't necessarily get that. They're impatient. They want returns. Right? But if you're an educator in this space, think about the deep impact for the long term that educators have had on you, individual teachers. And those are not fads. And so to me, you know, Zuckerberg and Chan Zuckerberg and Bill Gates talking about personalized learning — this was the Gates Foundation's core investment thesis — they've basically given up on it, and Salman Khan has talked about it, too. **Personalized learning** allows students to progress through content at their own pace without worrying about you being too far behind and too far ahead of their classmates. Where's that? **Where has that gotten us? Kids on computers, in classrooms with headphones on, who are not learning with one another, who are not being socialized, who are not being helped to create an identity, who are not building a learning community, they are not progressing.** And the data finally caught up. And I credit Chan Zuckerberg for at least being honest about the lack of results and being willing to write off a $100 million investment. So to me, the core fundamental does not change over time, no matter how advanced the technology is that you're building, is that we need to be investing in great educators and great teachers. And they actually do do personalized learning. Great teachers are listening to a student's needs and they are doing it systematically as part of what they do. This is an example from Dan Meyer, who's an educator who I love, who I highly recommend. He's a math educator who writes about math pedagogy, mostly in K-12. But I think a lot of these lessons are relevant to higher education as well. And he basically has argued that an educator like Liz Clark-Garvey in New York City public schools, she can start the lesson with a whole-class move. She'll ask one question for the whole class and then through the class, moving around the class, listening to what the students say, listening to how they decipher this problem, she is able to understand where students are at and to meet their needs. The problem, I think the challenge, with a context like this, is it seems to depend on heroic individual teachers like this. And there has not been a systematic mechanism. Maybe in Singapore there is. Maybe in Hong Kong there is. But in the US there has not been a systematic mechanism to take a model like this from individual great educators and scale it to the order of the millions of teachers that we have, three million teachers in our schools, not to mention higher education. So to me, the challenge is not, How do we give every kid a laptop and a screen and headphones? **The challenge is how do we give them a great educator who cares about them, who will create a learning community in the classroom of people who will learn together, who will support one another?** That to me is the precious thing and the rare thing and the thing that has become even more precious and more rare **under the conditions of technology, seeming to take away some of the role for humanity in our classrooms.**

AI is discriminatory and inherently can't incorporate outlier data
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politics and French from Mount Holyoke College and a MA in journalism from Northeastern University.), 4-3-20**24**, "Why AI fairness conversations must include disabled people — Harvard Gazette," Harvard Gazette, https://news.harvard.edu/gazette/story/2024/04/why-ai-fairness-conversations-must-include-disabled-people/, accessed 2-25-2025 //ejs squad

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

AI has implicit biases against people with disabilities.

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

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

Personalized AI systems are discriminatory and reinforce prejudices.

UNICEF. 11-20-20**24**. "How AI can have negative impacts on children." UNICEF, the United Nations agency for children, works to protect the rights of every child, especially the most disadvantaged and those hardest to reach. Across more than 190 countries and territories, we do whatever it takes to help children survive, thrive and fulfil their potential. We provide and advocate for education, health and nutrition services. Protect children from

violence and abuse. Bring clean water and sanitation to those in need. And keep them safe from climate change and disease. The world's largest provider of vaccines, UNICEF also runs the world's largest humanitarian warehouse .https://www.unicef.ch/en/current/blog/2024-11-20/how-ai-can-have-negative-impacts-children //ejs squad

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

AI increases teacher burnout by forcing them to adapt their curriculum to prevent cheating

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 //ejs 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.

A2: The Future

AI in the workplace is already being disproved to help people

Doctorow 24 [Cory Doctorow (Canadian-British blogger, journalist, and science fiction author who served as co-editor of the blog Boing Boing. He is an activist in favour of liberalising copyright laws and a proponent of the Creative Commons organization, using some of its licences for his books.), AI's productivity theater, 7-25-2024, Medium, https://doctorow.medium.com/https-pluralistic-net-2024-07-25-accountability-sinks-work-harder-not-smarter-ec371d191c84] accessed 2-20-2025 //ejs squad

The headline findings tell the whole story: 96% of bosses expect that AI will make their workers more productive; 85% of companies are either requiring or strongly encouraging workers to use AI; 49% of workers have no idea how AI is supposed to increase their productivity; 77% of workers say using AI decreases their productivity. Working at an AI-equipped workplaces is like being the parent of a furious toddler who has bought a million Sea Monkey farms off the back page of a comic book, and is now destroying your life with demands that you figure out how to get the brine shrimp he ordered from a notorious Holocaust denier to wear little crowns like they do in the ad: https://www.splcenter.org/fighting-hate/intelligence-report/2004/hitler-and-sea-monkeys Bosses spend a lot of time thinking about your productivity. The "productivity paradox" shows a rapid, persistent decline in American worker productivity, starting in the 1970s and continuing to this day: https://en.wikipedia.org/wiki/Productivity_paradox The "paradox" refers to the growth of IT, which is sold as a productivity-increasing miracle. There are many theories to explain this paradox. One especially good theory came from the late David Graeber (rest in power), in his 2012 essay, "Of Flying Cars and the Declining Rate of Profit": https://thebaffler.com/salvos/of-flying-cars-and-the-declining-rate-of-profit Graeber proposes that the growth of IT was part of a wider shift in research approaches. Research was once dominated by weirdos (e.g. Jack Parsons, Oppenheimer, etc) who operated with relatively little red tape. The rise of IT coincides with the rise of "managerialism," the McKinseyoid drive to monitor, quantify and — above all — discipline the workforce. IT made it easier to generate these records, which also made it normal to expect these records. Before long, every employee — including the "creatives" whose ideas were credited with the productivity gains of the American century until the 70s — was spending a huge amount of time (sometimes the majority of their working days) filling in forms, documenting their work, and generally producing a legible account of their day's work. All this data gave rise to a ballooning class of managers, who colonized every kind of institution — not just corporations, but also universities and government agencies, which were structured to resemble corporations (down to referring to voters or students as "customers"). Even if you think all that record-keeping might be useful, there's no denying that the more time you spend documenting your work, the less time you have to do your work. The solution to this was inevitably more IT, sold as a way to make the record-keeping easier. But adding IT to a bureaucracy is like adding lanes to a highway: the easier it is to demand fine-grained record-keeping, the more record-keeping will be demanded of you. But that's not all that IT did for the workplace. There are a couple areas in which IT absolutely increased the profitability of the companies that invested in it.

GAI decreases productivity

Hailey **Mensik,** Hailey Mensik write for WorkLife news, a Digiday publication covering the future of work, including topics like tech, spaces, culture, diversity, equity and inclusion., 7-24-20**24**, "AI is actually making workers less

productive", WorkLife, https://www.worklife.news/technology/ai-is-actually-making-workers-less-productive/ //ejs squad

Generative AI tools that are poised to eliminate time-consuming tasks leading to major boosts in workplace productivity have yet to make good on that promise. In fact, right now they are doing the opposite — giving employees more work to do and contributing to burnout. Almost 80% of workers who use generative AI in their jobs said it has added to their workload and is hampering their productivity, an Upwork survey among over 2,500 full-time workers, freelancers and executives found. Workers say they're spending more time reviewing or moderating AI-generated content and investing more of their time in learning how to use the tools, and their experiences are far apart from the perceptions of their employers. Some 96% of executives expect AI to boost productivity, while about 40% of employees say they don't know how that will ever happen, the Upwork survey found. Accordingly, employers will need to adjust their expectations and approach to effectively integrate new tech and see some ROI — though it'll likely be less than they're hoping for. "What's happening is that this hype bubble is just huge, and it's disproportionate to the actual impact the technology can have right now, especially the way it's being deployed," said Emily Rose McRae, senior director analyst at Gartner. "What's happening is that this hype bubble is just huge, and it's disproportionate to the actual impact the technology can have right now, especially the way it's being deployed." "I talked with one client who said their board declared they should cut headcount by 20% due to generative AI. I'm going to be frank that I'm not actually sure any company has come anywhere near that level of headcount cutting, and I don't know that they will, because that's just not how the tool works," McRae said. A key problem is that the tools themselves remain imperfect. Generative AI is still prone to hallucinate or fabricate an answer that sounds reasonable, meaning a human's input is needed to double-check the material. "What it does is it saves you the time of putting it all together in the first place," McRae said. Naturally, there are examples of companies that have found generative AI is genuinely saving time for workers. There are also some extremely specific use cases where generative AI really has had a massive impact, like the legal field, where during discovery AI tools can help lawyers research and analyze existing case law and summarize huge amounts of information, she said. In other cases, gen AI-powered chatbots can significantly speed up the time it takes staff to learn how to operate a new software or complete new tasks, or save HR leaders time by answering employee questions and virtually directing them to resources. But in all cases, a human is still needed to review the validity of the output. The review process can be time-consuming itself, and neglecting to do so carries varying levels of risk. "A lot of your large language models only operate at best when a human's in the loop and when there is human judgment and oversight, and that's just the reality of where we are with this technology," said Kelly Monahan, managing director and head of the Upwork Research Institute. "A lot of your large language models only operate at best when a human's in the loop and when there is human judgment and oversight, and that's just the reality of where we are with this technology." "In order to really capture the productivity gains, we actually have to take a big step back and say what is the business problem we're solving for? How do I rethink the way that I'm doing my job in order to achieve that? And how does this tool help? And I'm not sure that a broader AI strategy in workforce development has taken place yet in many organizations," Monahan said. Instead workers are feeling left on their own when it comes to making the tools really work for them. The Upwork survey found that 40% of workers feel their company is asking too much of them when it comes to AI, and they are investing far more of their time teaching themselves how to use the tools. Employers can better support staff by holding focus groups to determine exactly what barriers they're facing and what kind of targeted training is needed, Mcrae said. "If it's a priority that your workforce experiment with and learn how to use generative AI, make sure you have real cases for what you want them to be doing with it and give them the tools and space to learn how to do that. But also ideally be very open to the feedback, that this doesn't do what we need it to do, and it's actually not helpful," she said. In the near future, Mcrae believes employers will soon start teaching staff to spot AI hallucinations the same way they do with phishing, or through "information skepticism" training. There they will learn how to spot cues to be more skeptical of an output, or any AI-generated content — whether it's labeled as such or not — and when they can accept one more confidently. Just like phishing they'll also be able to report such instances and use that data to better inform the language models they are working with.

AI causes job loss Zilber 24[Ariel Zilber, August 12, 2024, "Top Wall Street exec predicts 'social unrest' due to AI: 'Millions of people could be out of jobs", Ariel got his start as a journalist in Israel, where he worked for Ha'aretz and The Jerusalem Post. He returned in 2016 to the US, where before joining The Post he did a five-year stint as an online news reporter for the Daily Mail. He is currently a resident of Brooklyn who enjoys walking his dog while wondering how to overcome his Twitter addiction, New York Post ,https://nypost.com/2024/08/12/business/top-wall-street-exec-predicts-social-unrest-due-to-ai/DOA: 3/10/2025] //ejs squad

Artificial intelligence could render many jobs such as cashiers and drivers **obsolete** — **leading to widespread social unrest**, according to a senior Wall Street finance executive. Armen Panossian, a co-CEO of the Los Angeles-based investment firm Oaktree Capital Management, told Bloomberg News that **AI poses "the biggest risk"** because while it "clearly has the potential for very large economic gains," it will also have "societal impacts." **"Millions of people could be out of jobs. So who's going to retrain those people?"** Panossian told Bloomberg News. "If we don't figure that out, **there could be social unrest."**