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**We are entering into a new age of technology. Ai is revolutionizing every field**

Schwab 24--- (Klaus Schwab, [*Founder and Chairman of the Board of Trustees, World Economic Forum*], 9-24-2024, "The Intelligent Age: A time for cooperation", https://www.weforum.org/stories/2024/09/the-intelligent-age-a-time-of-cooperation/) //doa2-25-2025 + master chen 💆

Almost a decade ago, in 2016, I coined the term the Fourth Industrial Revolution. I could see a world where the fusion of our physical, digital and biological realities would transform industries and societies. This revolution, I knew, had the potential to fundamentally change all aspects of our lives. But now, as we witness the exponential acceleration of technological change, it’s clear we are no longer just in the throes of an industrial shift. We are **entering the Intelligent Age**, an era far beyond technology alone. This is a societal revolution, one that has the power to elevate humanity — or indeed to fracture it. The Intelligent Age — **driven by rapid advancements in artificial intelligence** (AI), quantum computing and blockchain — is transforming everything and changing it right now, in real time. Have you read? How India is carving out its role in the Intelligent Age Why cooperation is essential to build ‘intelligent economies’ The Intelligent Age is upon us These converging technologies are reshaping the very fabric of our world, demanding swift adaptation and global cooperation. For this transformation to develop rather than divide society, it must go well beyond technological advances to actually enhance human potential. It is imperative that we develop environmental, social and geopolitical intelligence alongside technological intelligence. AI and automation are already disrupting entire industries. In healthcare, AI-driven systems are outperforming humans for the benefit of patients. In diagnostics, **AI is helping doctors reach more accurate decisions**, ploughing through vast datasets to discover new drugs and developing personalized treatment plans based on genetic information. In agriculture, **farmers** are **leveraging AI** **to optimize crop yields**, while **manufacturers** are **us**ing intelligent **systems to improve supply chain** efficiency and **reduce waste**. Even finance, one of the most conservative industries, is being upended by AI-driven algorithms that predict market movements with increasing accuracy and speed. But there are also potential downsides and risks. Automation is set to displace millions of workers, and while it will create new opportunities, we need to ensure that we have the policies, education systems and social safety nets in place to help people transition to new roles. The economic benefits of these transformations must be widely shared if we are to avoid deepening inequalities that threaten social cohesion. The Intelligent Age is also transforming how we live. **Cities are becoming smarter,** with sensors and AI managing everything from traffic flow to energy usage. These smart cities, and the smart homes within them, are not just more efficient, they are designed to be more sustainable, reducing carbon emissions and improving quality of life. With the rise of the metaverse and virtual worlds, the line between the digital and physical is becoming increasingly blurred. Virtual spaces are emerging where people can work, socialize and even own digital assets — ushering in new forms of economic and social interaction. This **shift towards** a more **blended reality** may profoundly **impact how we define** personal space, property and **community**. Social, geopolitical, technological and environmental intelligence Yet the vast energy demands of these new technologies, especially in areas like cryptocurrency mining and AI computing, should give us pause. It must be balanced with the creation of renewable energy solutions. Environmental intelligence is about ensuring that the Intelligent Age does not exacerbate climate change or deplete our natural resources but rather helps us mitigate environmental risks to build more sustainable economies. The Intelligent Age is fundamentally altering how we communicate — both with one another and with the world around us.

**Its free**

**Watkins from this year** — (Marc Watkins [Assistant Director of Academic Innovation, Director of the Mississippi AI Institute, Lecturer of Writing and Rhetoric at the University of Mississippi. I train faculty in Ai literacy.], 2-21-2025, "The Costs of AI in Education", No Publication, https://marcwatkins.substack.com/p/the-costs-of-ai-in-education, accessed 3-2-2025) //FK

**Generative AI tools are often available for free or low cost** and that’s not going to change. Sam Altman is on the record stating **GPT-5 will be** available for **free**. **You can access all of Google’s top-class models for free** via AI Studio. Heck, you can even turn on Google’s Multimodal Live feature and have a 10-minute session with AI that talks and views you and your computer screen—all for free. Google is now offering one-year contracts to their Gemini model at 50% off for students. For $9 a month, you get access to all the premium features of Google’s AI. Offering such a hefty discount is a sure sign of two things—costs of running the models are going down, while big AI companies are simultaneously trying their best to convert users from free to paid tiers. My guess is they are struggling with the latter.

**Nonprofits are bringing ai to low income schools.**

**Pinedo 25** — (Written By Christian Pinedo [], xx-xx-xxxx, "aiEDU rallies 50+ partners to launch movement for AI education — aiEDU", aiEDU, https://www.aiedu.org/aiedu-blog/aiedu-rallies-50-partners-to-launch-movement-for-ai-education, accessed 3-29-2025) //FK

“aiEDU has been advocating for foundational AI education since 2019, but the sudden explosion of generative AI tools onto the scene has led to a huge wave of interest from educators and education leaders over the past few months,” said Alex Kotran, co-founder and CEO of aiEDU. “Those who were around for the step change brought on by computers and the internet are experiencing a sense of déjà vu; it feels like we are once again on the cusp of a once-in-a-generation technological revolution, and it’s hard to avoid the conclusion that this is a really, really big deal—especially for students.” After Bloomberg broke the news, aiEDU hosted a launch event during SXSW in downtown Austin, TX and announced a goal of securing 500 school district commitments for AI education by 2024, and unveiled an initial group of more than 20 district pioneers that together serve more than 1.5 million students. aiEDU and its partners (find the full list here) are supporting schools that make commitments through a range of professional learning programs, curriculum implementation, stakeholder engagement, and regional/national convenings of education leaders partially or fully funded by an impressive cohort of foundations, companies, and philanthropies. So far, **aiEDU has reached 100,000 students and has relationships with districts representing 1.5 million low-income and underserved kids across the country**–and we anticipate that this CTA will only expand our reach and impact.

**And implementation in the classroom will be seamless.**

**Cai 25** — (Kenrick Cai [Journalist @ Reuters], 1-25-2025, "Google pushes global agenda to educate workers, lawmakers on AI", archive.is, https://archive.is/AdAqp, accessed 3-20-2025) //FK

**Google pushes global agenda to educate workers, lawmakers on AI.** **Google to invest $120 million in AI education programs** SAN FRANCISCO, Jan 25 - Alphabet’s (GOOGL.O), opens new tab Google, already facing an unprecedented regulatory onslaught, is looking to shape public perception and policies on artificial intelligence ahead of a global wave of AI regulation. **A key priority**, one executive told Reuters, comes in **building** out **educational programs to train the workforce on AI.** “Getting more people and organizations, including governments, familiar with AI and using AI tools, makes for better AI policy and opens up new opportunities – it's a virtuous cycle,” said Kent Walker, Alphabet's president of global affairs.

**And despites its shortcomings, Generative AI is vastly improving.**

Henshall 23 --- (Will Henshall, [*Will Henshall is an editorial fellow @ TIME. He covers tech, with a focus on AI.*], 11-6-2023, "4 Charts That Show Why AI Progress Is Unlikely to Slow Down", https://time.com/6300942/ai-progress-charts/) //doa2-21-2025 + master chen 💆

in the last ten years, AI systems have developed at rapid speed. From the breakthrough of besting a legendary player at the complex game Go in 2016, AI is now able to recognize images and speech better than humans, and pass tests including business school exams and Amazon coding interview questions. Last week, during a U.S. Senate Judiciary Committee hearing about regulating AI, Senator Richard Blumenthal of Connecticut described the reaction of his constituents to recent advances in AI. “The word that has been used repeatedly is scary.” The Subcommittee on Privacy, Technology, and the Law overseeing the meeting heard testimonies from three expert witnesses, who stressed the pace of progress in AI. One of those witnesses, Dario Amodei, CEO of prominent AI company Anthropic, said that “the single most important thing to understand about AI is how fast it is moving.” It’s often thought that scientific and technological progress is fundamentally unpredictable, and is driven by flashes of insight that are clearer in hindsight. But progress in the capabilities of AI systems is predictably driven by progress in three inputs—compute, data, and algorithms. Much of the progress of the last 70 years has been a result of researchers training their AI systems using greater computational processing power, often referred to as “compute”, feeding the systems more data, or coming up with algorithmic hacks that effectively decrease the amount of compute or data needed to get the same results. Understanding how these three factors have driven AI progress in the past is key to understanding why most people working in AI **don’t expect progress to slow down any time soon.** Level up with ease Paid Content Level up with ease By GODDESS OF VICTORY: NIKKE Read more: The AI Arms Race Is Changing Everything Compute The first artificial neural network, Perceptron Mark I, was developed in 1957 and could learn to tell whether a card was marked on the left side or the right. It had 1,000 artificial neurons, and training it required around 700,000 operations. More than 65 years later, OpenAI released the large language model GPT-4. Training GPT-4 required an estimated 21 septillion operations. Increasing computation allows AI systems to ingest greater amounts of data, meaning the system has more examples to learn from. More computation also allows the system to model the relationship between the variables in the data in greater detail, meaning it can draw more accurate and nuanced conclusions from the examples it is shown. More From TIME Since 1965, Moore’s law—the observation that the number of transistors in an integrated circuit doubles about every two years—has meant the price of compute has been steadily decreasing. While this did mean that the amount of compute used to train AI systems increased, researchers were more focused on developing new techniques for building AI systems rather than focusing on how much compute was used to train those systems, according to Jaime Sevilla, director of Epoch, a research organization. This changed around 2010, says Sevilla. “**People realized that if you were to train bigger models, you will actually not get diminishing returns,**” which was the commonly held view at the time. Since then, developers have been spending increasingly large amounts of money to train larger scale models. Training AI systems requires expensive specialized chips. AI developers either build their own computing infrastructure, or pay cloud computing providers for access to theirs. Sam Altman, CEO of OpenAI, has said that GPT-4 cost over $100 million to train. This increased spending, combined with the continued decreases in the cost of the increases in compute resulting from Moore’s Law, has led to AI models being trained on huge amounts of compute. OpenAI and Anthropic, two of the leading AI companies, have each raised billions from investors to pay for the compute they use to train AI systems, and each has partnerships with tech giants that have deep pockets—OpenAI with Microsoft and Anthropic with Google. Data AI systems work by building models of the relationships between variables in their training data—whether it’s how likely the word “home” is to appear next to the word “run,” or patterns in how gene sequence relates to protein folding, the process by which a protein takes its 3D form, which then defines its function. In general, a larger number of data points means that AI systems have more information with which to build an accurate model of the relationship between the variables in the data, which improves performance. For example, a language model that is fed more text will have a greater number of examples of sentences in which the “run” follows “home”—in sentences that describe baseball games or emphatic success, this sequence of words is more likely. The original research paper about Perceptron Mark I says that it was trained on just six data points. By comparison, LlaMa, a large language model developed by researchers at Meta and released in 2023, was trained on around one billion data points—a more than 160-million fold increase from Perceptron Mark 1. In the case of LlaMa, the data points was text collected from a range of sources, including 67% from Common Crawl data (Common Crawl is a non-profit that scrapes the internet and makes the data collected freely available), 4.5% from GitHub (an internet service used by software developers), and 4.5% from Wikipedia. Algorithms Algorithms—sets of rules or instructions that define a sequence of operations to be carried out— determine how exactly AI systems use computational horsepower to model the relationships between variables in the data they are given. In addition to simply training AI systems on greater amounts of data using increasing amounts of compute, AI developers have been finding ways to get more from less. Research from Epoch found that “**every nine months, the introduction of better algorithms contributes the equivalent of a doubling of computation budget**s.” The next phase of AI progress

**Hence, AI is slowly integrating itself into the highest levels of education.**

**Reuters 25**— (Rishi Kant [Reporter @ Reuters], 2-4-2025, "OpenAI Targets Higher Education in the U.S. With ChatGPT Rollout at California State University", US News & World Report, https://www.usnews.com/news/top-news/articles/2025-02-04/openai-targets-higher-education-in-the-u-s-with-chatgpt-rollout-at-california-state-university, accessed 3-2-2025) //FK

(Reuters) - Microsoft-backed **OpenAI** said on Tuesday it **will roll out an education-specific version** of its chatbot **to** about **500,000 students** and faculty **at California State University** as it looks to expand its user base in the academic sector and counter competition from rivals like Alphabet . The rollout will cover 23 campuses of the largest public university system in the United States, enabling students to access personalized tutoring and study guides through the chatbot, while the faculty will be able to use it for administrative tasks. OpenAI has been looking to integrate ChatGPT into classrooms since 2023, even as initial concerns about its potential use for cheating and plagiarism had prompted some schools to consider bans. **Universities like** the Wharton School of the **U**niversity of **Penn**sylvania, the **U**niversity of **T**exas at **Austin** in the U.S., **and** the University of **Oxford** in the UK **have already been using ChatGPT Enterprise**, prompting OpenAI to launch ChatGPT Edu in May last year. Rival **Alphabet** has already been expanding into the education sector, where it **has announced a $120 million investment fund for AI education programs** and plans to introduce its GenAI chatbot Gemini to teen students' school-issued Google accounts. In November, British Prime Minister Keir Starmer opened London's first Google-funded AI university, which will provide older teens with access to resources in artificial intelligence and machine learning, as well as mentorship and expertise from Google's AI company, DeepMind.

**The majority of students want good grades – boosts the incentive analysis.**

**Striepling 22** — (Bailey Striepling [], 12-19-2022, "We Are More Than Our Grades: A Student's Perspective (Opinion)", archive.is, https://archive.is/dooWk, accessed 3-29-2025) //FK

These negative thoughts, which are particularly damaging to self-esteem, are huge risk factors for mental health challenges. A 2019 Pew Research Center survey found that 70 percent of teens believe anxiety and depression are a “major problem” among their peers. The teens also listed academic pressure as their top stressor, **61 percent saying they feel “a lot” of pressure to get good grades.**

**Because we believe that at its core, Ai is a force for good in the world, we affirm.**

**Our sole argument is leveling the playing field**

**The affirmative makes a difference is two key ways**

**The first is closing the language barrier**

Rodriguez 20--- (Diane Rodriguez, xx-xx-2020, "Factors that challenge English learners and increase their dropout

rates: recommendations from the field", https://www.fordham.edu/media/review/content-assets/migrated/pdfs/jadu-single-folder-pdfs/Factors\_That\_Challenge\_English\_Learners\_and\_Increase\_Their\_Dropout\_Rates.pdf) //doa3-26-2025 + master chen 💆

local tests. Academic areas affecting EL high school graduation include the following: (a) students’ levels of academic English **language** and **literacy**; (b) ability to learn **content knowledge** and **language** at the same time; (c) **keeping** up with the specialized **vocabulary** and **complex** academic **concepts**; (d) passing State high school tests required for graduation; and (e) passing individual content area tests and course requirements. Cole (2008) believes that poor and minority students drop out of school because they cannot make the grade. When students finally learn English, they have **lost so much ground academically that it becomes difficult for them to catch up,** many of them become discouraged and drop out of school. Hamilton-Boone (2011) presents research studies that provided common reasons for dropping out of high school. Studies included Rumberger and Lim (2008), Rumbaut (1995), Belfanz, Herzog, and Mac Iver (2007), Fry and Hakimzaden (2005). For example, Rumbaut found grade point averages (GPAs) to be a significant predictor of dropping out. She found that students with limited English proficiency had lower GPAs and were **more likely to drop out of school.** However, those students who were former Limited English Proficient (LEP), but had since been reclassified as Fluent in English Proficient (FEP), had higher GPAs and were less likely to leave school prematurely.

Soland 19--- (Jim Soland, xx-xx-2019, "English Language Learners, Selfefficacy, and the Achievement Gap", https://www.nwea.org/uploads/2020/03/researchbrief-collaborative-for-student-growth-english-language-learners-self-efficacy-and-the-achievement-gap-2019.pdf) //doa3-26-2025 + master chen 💆

Closing the achievement gap for English language learners (ELLs) is a high priority in education policy and practice. ELL students face the challenge of learning a new language while building their skills in core academic subjects. ELL students often have lower mean achievement test scores in reading and mathematics, higher dropout rates, and lower college attendance than their English-speaking peers. On average, ELLs perform below grade level in every subject tested for federal accountabilityi and are twice as likely to drop out as their native English-speaking peersii . Research also increasingly demonstrates the importance of the social-emotional well-being of students to their achievement. In particular, academic self-efficacy is strongly associated with achievement and growth in reading and mathematics, so improving self-efficacy may be useful in helping close achievement gaps over time. However, little research has been done on the relationship between achievement and self-efficacy in ELL students.

**In massachusetts,**

Globe 24 --- (The Editorial Board, [Boston Globe] 10-27-2024, "Too many students whose first language isn’t English are struggling. Here’s a plan to help them.", https://archive.is/o5ATc) //doa3-2-2025 + master chen 💆

Susana González moved to Boston from the Dominican Republic nearly nine years ago, settling in Roxbury, where she started a family with her now-husband. The couple’s first daughter, Alaia, is now a second-grader at the Orchard Gardens K-8 School, which she has attended since pre-K. At first, it was hard for Alaia to learn English, and she was sent to speech therapy, which she still receives. Her mother, who works as a bilingual teacher’s assistant at a preschool, said that Alaia does pronunciation exercises in therapy, but she still struggles with writing and subjects like English language arts. Despite that, Alaia now primarily speaks English. In fact, while both of her parents mostly speak to Alaia in Spanish — and always have — the 8-year-old has lost her ability to easily understand and speak Spanish. “It is sometimes very hard to speak with her,” González said. “She’d say, in Spanish, ‘mami, no entiendo lo que me dices, ¿cómo se dice en inglés?’ And I repeat it to her in Spanish but she insists that I tell her in English.” Alaia has struggled to learn because she has never been taught in Spanish — her biggest asset, her primary language — at Orchard Gardens, according to her mom, whose proficiency in English is limited. González and her husband are now in the process of switching Alaia to the Hurley K-8 School, one of BPS’s eight schools that offer bilingual education for English language learners, which the couple said they didn’t know was an option in the district. “It’s very hard for me to help her with homework because I don’t understand,” González said. “I had to put her in an after-school program so they can help her with homework because I can’t.” Educating students whose first language isn’t English, like Alaia, is one of the most urgent challenges facing the Boston Public Schools. **A third of students** in the district — or about 16,800 — are classified as English language learners. At the younger grades, the ELL numbers are even higher: **47 percent of kindergartners** and **51 percent of pre-kindergarteners are non-native English speaker**s. For this group of students, the district has to juggle two tasks: teaching them to speak and write English, as required by federal law, while at the same time teaching them academic subjects like math and science. It’s a daunting challenge — one the district hasn’t always met. Related: From 2021: Most BPS students learning English aren’t getting appropriate services Consider the district’s latest test scores, which paint an abysmal picture for English language learners. Only **4 percent of ELLs** in grades 3-8 and 2 percent of ELLs in grade 10 **met** or exceeded **expectations** on the English MCAS test in 2024, while 8 percent of ELLs in grades 3-8 and 6 percent of ELLs in grade 10 did so on the math MCAS test. Academic research suggests that the best way to serve these students is through bilingual education programs that deliver some instruction in their native language, while also teaching them English — like the one at the Hurley. Decades ago, bilingual education was controversial — Massachusetts even banned it for a time. Now, though, legal restrictions are gone and the barriers are staff and money. **Bilingual** education is **expensive**, qualified bilingual teachers are hard to find, and Boston’s bilingual education **offerings** are relatively **scarce**. There’s no magic formula to solve those problems. But there’s also no question that expanding the district’s bilingual education offerings for families like González’s would be a far better use of money than keeping underutilized school buildings open. Boston needs to consolidate schools so that it can direct as many of its resources as possible into closing gaps that have festered for far too long. The legacy of misguided ‘English-only’ policies For English language learners, the recent history in Massachusetts has been bleak. A political movement in the late 1990s and early 2000s spearheaded by conservative Silicon Valley millionaire Ron Unz drove voters in Arizona, California, and Massachusetts to pass restrictive language laws — so called English-only laws — which severely limited the use of the native language in the education of English learners. The Commonwealth’s voters approved English-only education in a 2002 referendum. In Boston, the impact was immediate. A University of Massachusetts Boston study found that, from 2003 to 2006, high school dropout rates for English learners almost doubled and that MCAS test score gains for them were lower than those of other student populations; as a result, achievement gaps between ELL students and other BPS groups widened. In the next decade, things didn’t improve — despite federal intervention, task forces appointed to address the needs of ELL students, and, in 2017, state legislation that effectively repealed the 2002 law. “The district has **not** created **equitable conditions** to ensure that all English learners progress both academically and in English language development,” read a comprehensive audit of BPS by state education authorities released in spring 2020, just as the COVID-19 pandemic began. Related: From 2017: New law clears way for bilingual teaching in Massachusetts public schools In 2018, the four-year graduation rate for English learners was the second-lowest among all student groups at 63 percent. Between 2015 and 2018, the **dropout rate f**or English learners grew by roughly **34 percent** and was the highest among all groups. Recent BPS data show that the graduation rates of multilingual learners in Boston are much lower than the average; their dropout rates are nearly double the average. At the crux of these poor outcomes is the insufficient amount of bilingual education the district offers. Research shows that programs that use English learners’ primary language in instruction — like dual-language programs, which form part of what is known as bilingual education — are more likely to close achievement gaps. A large-scale, longitudinal study published in 2017 found “that **English-only** and transitional bilingual **programs** of short duration **only close about half of the achievement gap** between English learners and native English speakers, while high-quality, long-term bilingual programs close all of the gap after 5–6 years of schooling.” And yet, according to figures provided by the district, only 7 percent of English learners — or about 1,200 students — are currently enrolled in the district’s dual-language programs. The rest, including Alaia, learn under what is dubbed an English immersion approach, where teachers teach academic subjects in English with limited support in students’ native languages. Lessons are typically taught in English, but the teacher can use various tools or techniques — like speaking slowly, using simple words, or offering visual aids like pictures and videos — to help students follow along even if their English proficiency is low. A growing need English learners are often described as the fastest-growing student segment in K-12 education nationwide. About **1 in 10** American K-12 students is an English language learner. In the Bay State, the share of public school students with ELL status more than doubled between 2003 and 2018 — from 6 percent to 14 percent. Additionally, many English language learners have special needs, which further complicates the challenge of educating them. In Boston, nearly 1 in 4 English learners has a disability. The majority of English learners in the district are native Spanish speakers. But ELLs who speak Haitian Creole as a first language are an emerging demographic — Boston has the third-largest population of Haitians in the country. Small numbers of native Portuguese, Vietnamese, Chinese, Arabic, and Somali speakers attend BPS, according to last year’s data from the district. In an ideal world, all ELLs would be enrolled in bilingual programs — which could also serve as attractive options for English-speaking families who may want their child to learn a second language. But Boston only has eight verbal dual-language programs (it also has an American Sign Language program). Dual-language programs include the Mario Umana Academy K-8 in East Boston (Spanish-English), the Mattahunt Elementary School in Mattapan (Haitian Creole-English), the Rafael Hernández K-8 School in Roxbury (Spanish-English), and the Margarita Muñiz Academy in Jamaica Plain, the district’s first and only dual-language high school (Spanish-English). Building these bilingual education programs requires money, primarily to hire certified bilingual teachers. But there is fierce competition nationwide to hire qualified teachers since so many districts are also contending with rising numbers of ELL students. In fact, the national shortage of bilingual teachers is the main reason why districts across the country aren’t expanding bilingual and dual-language education, according to a recent paper from The Century Foundation, a public policy research nonprofit. Many school systems have been offering targeted cash incentives like hiring or retention bonuses for bilingual educators — for example, up to $8,000 in Houston for new hires. In Boston, though, according to a district spokesperson, bilingual teachers’ pay is not differentiated from non-bilingual educators’ pay. The spokesperson said BPS would like to explore bonuses for bilingual educators and had discussed the idea with the teachers union. The path forward Rebuilding all the infrastructure needed for bilingual education in Massachusetts takes time, given that the pipeline of bilingual teachers withered during the time the policy was illegal. More than anything, it will take millions of dollars — for sustained investment in curriculum, training and certification of specialized teachers and staff, professional development, and even emerging **AI tools** to support bilingual education. In an interview, a BPS spokesperson said the district submitted to state education authorities nine new program proposals to teach multilingual learners. Of those, two are dual-language programs. “That’s a big first step and we want to continue to grow that,” the spokesperson said. “But we are trying to balance doing this well and doing this quickly.” (In the spring, state officials rejected 17 out of 19 new program proposals for multilingual learners the district wanted to implement this fall because they fell short of state criteria.) Boston does have a program to train bilingual educators: The Bilingual Educators and Accelerated Community to Teacher Program, launched during the 2023-2024 school year, is a 12-month program that’s free to accepted applicants. The district’s spokesperson said the program had 18 graduates last year and the current cohort has 89 participants. Graduates are not required to teach in BPS, but they are strongly encouraged to. BPS is also offering a new bilingual inclusive education initiative, in which graduates of the accelerated teacher program can apply to be a teacher resident next school year at one of the district’s bilingual schools and earn a discounted master’s degree through a partnership with Stonehill College, the spokesperson said. The district should launch more grow-your-own programs. These programs could help bilingual paraprofessionals or school staff become licensed teachers and create a career pathway for multilingual high school students to become educators.

**Globally,**

Standard 25 --- (Business Standard, 3-2-2025, "40% population doesn't have access to education in their language: Unesco", https://www.business-standard.com/world-news/40-population-doesn-t-have-access-to-education-in-their-language-unesco-125030200114\_1.html) //doa3-2-2025 + master chen 💆

**Forty per cent of the global population** does not have access to **education** in a language they speak or **understand**, according to UNESCO's Global Education Monitoring (GEM) team. Despite countries' growing understanding of the role of home language, policy uptake remains limited. Implementation challenges include limited teacher capacity to use home languages, unavailability of materials in home languages and community opposition, it said. In **some low- and middle-income countries**, this figure rises to **90 per cent.** More than a quarter of a billion learners are affected, GEM officials said, recommending nations to implement multilingual education policies and practices with the goal of creating educational systems that benefit all learners. The team, which has come up with a report titled "Languages matter: Global guidance on multilingual education", noted that as migration increases, linguistic diversity is becoming a global reality and classrooms with learners from diverse language backgrounds are more common. Over 31 million displaced youth are facing language barriers in education. The report was compiled on the 25th anniversary of International Mother Language Day, celebrating a quarter-century of dedicated efforts to preserve and promote the use of mother tongues. Also Read Devendra Fadnavis, Devendra, Fadnavis Maha delegation in Paris to seek Unesco tag for Shivaji Maharaj's forts Palmyra, Syria Experts push to restore Syria's war-torn heritage sites, including Palmyra Premium Maha Kumbh Mela, Maha Kumbh, MahaKumbh A pitcher of humanity: The evolving significance of the Kumbh Mela Lonar Lake, Maharashtra Maharashtra govt steps up efforts to get Unesco tag for Lonar lake AI, Artificial Intelligence Unesco, IT ministry host stakeholder consultation on safety, ethics in AI The report comes at a time when India is in the process of implementing the new National Education Policy (NEP) that advocates multilingual education. The three-language policy in school education has drawn opposition from some states. "Today 40 per cent of people globally lack access to education in the language they speak and understand fluently.

**Ai solves**

Doherty 25 --- (Martin Doherty, [Canada Global Academy], 1-24-2025, "Language Barrier Breaker: How AI Translation Tools Foster Global Collaboration", https://canadaglobalacademy.com/language-barrier-breaker-how-ai-translation-tools-foster-global-collaboration/) //doa3-2-2025 + master chen 💆

Technology has **revolutionized** every aspect of our lives, and education is **no exceptio**n. In today’s increasingly interconnected world, schools need innovative solutions that bridge language barriers and foster global collaboration. That’s where AI translation tools come in. Imagine a classroom where students from different countries can communicate seamlessly, **breaking down language barriers** and expanding their horizons. With the **help of AI translation** tools, this **vision** is becoming a **reality**. But how exactly do these tools work? And what benefits do they offer for schools and students? In this article, we will explore how Canada Global Academy’s School Partnership Program is revolutionizing schools, using cutting-edge AI translation technology to enable cross-cultural communication and collaboration. From the power of AI in natural language translation to the machine learning algorithms behind it, we will dive deep into the world of AI translation and its potential to transform education. So, are you ready to discover how AI translation tools can **break down language barriers** and foster global **collaboration** in schools? Let’s dive in! Key Takeaways: AI translation tools break down language barriers and enable seamless communication in schools. These tools utilize machine learning algorithms and neural networks for **accurate** and **human-like translations.** Natural language processing techniques enhance the accuracy and fluency of translations. AI-powered translation tools offer benefits such as **speed**, **scalability**, and **improved translation** quality. While AI translation has its limitations, advancements in AI technology hold the potential for even more accurate and contextually relevant translations. The Power of AI in Natural Language Translation AI and translation technologies-Part 3:AI and interpreting Artificial Intelligence (AI) is revolutionizing the way we communicate across different languages, thanks to AI translation tools. These tools leverage cutting-edge technologies such as machine learning, neural networks, and natural language processing to provide seamless and accurate translation of text or speech from one language to another. By harnessing the power of AI, natural language translation has become more efficient and accessible than ever before. Educational institutions, businesses, and individuals around the world are benefiting from these advancements in AI, as they break down language barriers and foster global collaboration. “AI-powered translation tools enable seamless and accurate communication across languages, supporting global educational collaboration and fostering cultural understanding.” – Canada Global Academy With machine learning algorithms at the core, AI translation tools extensively analyze vast amounts of parallel texts in different languages. These algorithms use word-based, phrase-based, and syntax-based models to infer the most likely translation for a given input, ensuring high translation accuracy. Neural networks, including recurrent neural networks (RNNs), convolutional neural networks (CNNs), and transformer models, further enhance the translation process. These networks simulate the structure and function of the human brain, enabling more accurate and human-like translations. Additionally, natural language processing techniques play a crucial role in ensuring accurate and fluent translations. These techniques, such as tokenization, lemmatization, part-of-speech tagging, parsing, semantic analysis, and generation, analyze and understand the linguistic rules and context of the text, resulting in contextually relevant translations. Through AI-powered translation tools, language barriers are no longer a hindrance to global communication. These tools offer numerous benefits, including faster translation speed, improved accuracy, scalability for large volumes of data, and greater accessibility for users. Furthermore, AI-powered translation tools enhance the quality and consistency of translations, reducing errors and ambiguities. This ensures that individuals and organizations can effectively communicate their ideas, collaborate on projects, and engage in cross-cultural exchanges without the barrier of language. Capturing the Power of AI in Natural Language Translation AI translation tools utilize various approaches to break down language barriers effectively. From academia to business, these tools empower global communication and collaboration: International Businesses: AI translation tools enable companies to expand their reach by communicating with clients and partners around the world seamlessly. Diplomacy: Diplomats can engage in real-time discussions and negotiations, overcoming language differences and promoting understanding. Academia: Researchers and educators can collaborate more effectively, sharing knowledge and expertise across language boundaries. Cultural Understanding: AI translation tools foster cultural understanding by enabling people from different backgrounds to communicate and learn from one another. Global Friendships: Language is no longer a barrier to forming meaningful relationships. AI translation tools facilitate connections and friendships across borders. As AI continues to advance, the possibilities for natural language translation are boundless. AI-powered translation tools are constantly evolving, refining the accuracy and fluency of translations. These tools are becoming increasingly proficient in capturing emotions, cultural nuances, and context-specific humor. Moving forward, **challenges** such as **semantic accuracy** and complex idiomatic expressions will continue to be addressed and overcome. Machine Learning for Translation Machine Learning for Translation Machine learning algorithms play a pivotal role in the field of natural language translation. With the ability to analyze vast amounts of parallel texts in different languages, these algorithms are capable of inferring the most likely translation for a given input. Various machine learning models are employed in translation, including word-based, phrase-based, and syntax-based models. These models leverage the power of neural networks to enhance the accuracy and efficiency of language translation\

**Litany of ways ai helps**

D'Argenio 24 --- (Linda D'Argenio, [*Linda D'Argenio is a native of Naples, Italy. She is a world language teacher (English, Italian, and Mandarin Chinese,) translator, and writer. She has studied and worked in Italy, Germany, China, and the U.S. In 2003, Linda earned her doctoral degree in Classical Chinese Literature from Columbia University. She has taught students at both the school and college levels. Linda lives in Brooklyn, NY.*], 3-1-2024, "8 Ways to Use AI to Teach ESL Reading", https://bridge.edu/tefl/blog/artificial-intelligence-teach-esl-reading/) //doa3-2-2025 + master chen 💆

When it comes to AI, there are mixed opinions in educational circles. While ethical concerns should certainly be considered and addressed, there are also incredible ways these tools can be used by teachers to improve instruction and student learning. Understanding AI tools and identifying ways to leverage them as instructional aids, as well as instructing students on the ethical uses of AI, can provide you and your students with some amazing opportunities. For ESL teachers, AI can become a powerful aid for planning lessons and generating activities, thus saving precious time that can be invested in more fruitful pursuits. To be sure, there are a few AI-powered educational resources, such as Diffit, Eduaid, or Magic School, that provide an array of features to help teachers in lesson planning and design. Let’s look at some ways ESL teachers can leverage AI tools to promote students’ **reading skills** in particular. Teaching English virtually? Read about some of the best digital tools for teaching English online. 1. **Modify** reading **materials** to **adapt** them to different language levels. As an ESL teacher, you can use any open-source AI system, like ChatGPT, to accomplish this task. All that is needed is to copy and paste the selected text into the AI assistant and instruct the latter to rewrite the text for the desired English language level. For example, Magic School has a “Text Rewriter” function that does just that. As a measure of caution, always reread and, if necessary, edit the modified material, especially if you are modifying a complex text to make it accessible to a beginner level. Some AI-powered educational sites, like Diffit, will automatically produce a list of keywords with definitions as well as writing prompts in the form of short-answer questions and open-ended questions. a teacher works with very young students learning to read. Whether you work with very young children or adults, AI tools can be used to **adapt** reading materials to your learners’ language levels, so you can make materials **accessible** to a variety of learners. 2. Extract **vocabulary** from readings and produce a **glossary** with native-language translations. While most AI-powered educational sites don’t offer a specific feature for vocabulary extraction, you can accomplish this by simply instructing an open-source AI chatbot to extract all the vocabulary from a text and then translate it into your student’s native language(s). Vocabulary translation can be easily accomplished by using any automatic translator. Before the advent of AI, vocabulary extraction used to be a much more complex task. All in all, this is an extremely useful feature that encourages learners to read in the target language and possibly removes the temptation to copy and paste the text into a computer translator. Learn about the top methods for introducing new words when teaching ESL vocabulary. 3. **Identify high-frequency** and low-frequency **words**. Prompt an AI chatbot to identify high-frequency words in a selected text. This helps **create vocabulary lists** and decide which words to **concentrate** on. You want your students to be as familiar as possible with high-frequency words, as their knowledge helps increase fluency. However, identifying low-frequency words is also important. If the selected text has too many low-frequency words, it may not be suitable for some students. On the other hand, you may want to select some low-frequency words and focus on them for vocabulary enrichment. Looking for fun ways to teach vocab? Read about 8 engaging ESL vocabulary games for teaching in person or online. 4. Personalize news articles using AI. You can easily generate readings in your student’s area of interest by prompting an AI system to write an article on a given topic. Students will be much more likely to engage in the reading process if they know they will gain knowledge about something they are passionate about. A good way to go about this is to have your learners complete a questionnaire. You can, for example, ask them to tell you about three topics they are interested in, three hobbies they engage in, three places they would like to visit, three things they love to eat (two from their native cuisine and one foreign food), and three things they would like to know more about. The answers to the questionnaire will generate an adequate amount of topics you can use to create reading material. You can then cross-reference the information received since some students will share the same interests and assign your learners readings based on topic and language level. It’s important to remember that you must check and edit all AI-generated content carefully before presenting it to students. If a prompt is unclear or simply misunderstood, AI tools will generate a response that may not be relevant or correct. You can minimize incorrect information and improve generated responses by asking AI systems to give sources and links for the information provided and by working to provide prompts that are as specific and detailed as possible. It takes some practice, but with the proper precautions and attention to detail, AI assistants can be a fantastic asset in the ESL classroom. Read about 7 effective strategies to personalize your English lessons. 5. Ask AI tools to write a short story about a topic your students are interested in. Some learners prefer reading stories rather than articles, and if you teach young students, storytelling can be a powerful tool for ESL learners. Using the same steps outlined in the previous section, you can ask an AI assistant to write a story on any given topic. You could also instruct students on how to write prompts and query the AI assistant themselves. Make this a teachable moment, and take some time to explain to your students how to write a good prompt and how to assess and revise the AI-generated results. For example, point out that prompts must be specific. Instead of simply asking the AI system to write a story about cats, students should specify the desired English language level and provide a list of words to be used in the story, i.e., words they need to learn or practice, etc. Let your students know that they should always read what the AI tool produces with a critical eye and ask for teacher feedback when necessary. Read about ways to leverage storytelling through the Teaching Proficiency Through Reading and Storytelling (TPRS) strategy. a desk with student tablets and headphones with stories that have QR codes. 6. Generate reading comprehension drills. One excellent feature of AI-powered educational sites is the ability to produce reading comprehension exercises in the form of multiple-choice questions, short answers, and open-ended questions. This feature drastically shortens the time teachers would normally have to invest in creating reading-related activities. It allows them to get immediate feedback on their students’ understanding of the reading and their ability to reflect on the topics presented. In addition, the open-ended questions can be modified to spur and enhance critical thinking skills. Learn more about effective ways to check for comprehension using CCQs. 7. Ask AI tools to **analyze** the **grammatical and syntactical structures** in the reading. This feature is ostensibly absent in most AI-powered educational sites. However, with open-source AI assistants like ChatGPT, teachers can obtain a reasonably well-crafted text analysis by breaking the task down to specific questions. For instance, in the example below, asking ChatGPT to analyze the syntactical structure of a short text yielded a list of simple sentences, complex sentences, compound sentences, clauses (dependent and independent), and phrases present in the text. Asking it to **provide** a **list** of all the verbs with **tense specification** similarly produced a list of verbs subdivided by tense (present tense, simple past, past perfect, gerund). sample grammatical breakdown of a reading fed to ChatGPT **Such an analysis can help students identify the different parts of speech and better understand their roles in a sentence.** Read about top strategies for teaching grammar to English language learners. 8. Generate **stories** and **drills** to **practice specific vocabulary** and grammar. If there are specific lexical areas you want your students to learn and practice, you can instruct an AI assistant to write a story based on a vocabulary list. For example, if you are teaching students the vocabulary needed to order at a restaurant, you could ask AI to write a three-paragraph story using words such as restaurant, waiter, order, eat, drink, soda, water, coffee, food, main course, side dish, meat, fish, beef, chicken, salmon, salad, appetizer, dessert, delicious, expensive, etc. Alternatively, you could focus on grammar structures. For example, for an ESL beginner level, you could ask an **AI assistant to write a short story** to practice the following grammar structures: personal pronouns and present tense. Your prompt should be as specific as possible, preferably providing a few details for the story. Here is an example of a prompt you could submit to an AI tool: Write a short story (200-400 words) for young ESL students at a beginner’s level to practice the following grammar structures: personal pronouns and present tense forms of to be, to have, to want, to go, and to say. The story should be about a boy who wants a pet cat but doesn’t have one. He tries three different tactics to convince his parents that he should be allowed to get a cat. In the end, he is allowed to get a pet cat. All verbs should be in the present tense. Provide plenty of repetition. This type of prompt will provide you with a skeleton story that you can then edit by adding, removing, or replacing words. For example, below you can see the story that ChatGPT created from the above prompt. It would need a little editing but is a great start. sample AI story from ChatGPT For those interested in comprehensible input and TPRS teaching strategies, this method can also be used to create TPRS-style stories. Artificial Intelligence is rapidly integrating into daily life and, like most technological innovations, will remain for the foreseeable future. There will be a time when people won’t remember the pre-AI era. Thus, it is incumbent on **educators** to **familiarize** themselves with this **tool** and teach students how to use it **productively** and ethically. From the ability to modify texts and adapt them to students’ language level to the ability to generate articles and stories on any topic, AI tools provide an array of useful resources to help facilitate the job of ESL teachers.

**Subpoint B is personalized learning**

**Low income students are disadvantaged**

Wai 20 --- (Jonathan Wai, [*I am an Associate Professor of Education Policy and Psychology, the 21st Century Endowed Chair in Education Policy at the University of Arkansas*], 11-23-2020, "How talented low-income kids are left behind", https://kappanonline.org/how-talented-low-income-kids-are-left-behind-wai-worrell/) //doa2-25-2025 + master chen 💆

The gifted education gap A number of recent studies suggest tha**t talented kids who come from low-income backgrounds are less likely, compared to similarly talented but more affluent peers, to reach their full potential** (e.g., Hoxby & Avery, 2013; Olszewski-Kubilius & Clarenbach, 2012; Plucker & Peters, 2016; Wyner, Bridgeland, & DiIulio, 2007). For instance, in a recent study of 482,418 gifted 7th graders who took the ACT in 7th grade and again in high school, **the academic gains for students from low-income and disadvantaged backgrounds were significantly smaller than for other groups of gifted kids** (Wai & Allen, 2019). So how can we narrow this divide between talented low-income and high-income students? One solution is early identification and talent development. It may seem counterintuitive, but standardized tests appear to be more effective than more subjective measures in selecting students who are ready for more advanced schooling. It’s hard to develop students’ talents if we don’t identify them accurately and at an early enough point to affect their K-12 educational trajectory. This is especially important for gifted low-income students, who do not have the financial advantages that would enable them to access additional educational opportunities and must rely on whatever their local public schools offer them (Assouline et al., 2015; Wai et al., 2010). And, too often, talented but low-income students are simply not being identified systematically (Card & Giuliano, 2016) through methods such as universal screening using standardized measures (Dynarski, 2018). It may seem counterintuitive, but standardized tests appear to be more effective than more subjective measures in selecting students who are ready for more advanced schooling — the key is that such testing must done universally, not relying on referrals from teachers, parents, or other adults. When gifted identification is left to the discretion of parents and teachers, it turns out that more low-income and minority children are missed (Grissom & Redding, 2016). Although some might fear that these tests are unfair because unequal opportunities may lead to unequal math and verbal reasoning test scores, the evidence base suggests that developed math and verbal reasoning abilities, as demonstrated on standardized tests, are an important reflection of what students are ready for (Lohman 2005a, 2005b). Research has shown that students can best build their skills and improve their talent development by being matched to curriculum where their current developed abilities place them, also known as appropriate developmental placement (Lubinski & Benbow, 2000). And it appears that universal screening actually is more, rather than less, helpful in objectively identifying talented but disadvantaged students (Card & Giuliano, 2016). Moreover, recent research has shown that comparing students’ test performance to other students within the same school and using that as the method for identification — what is known as using “local norms” — results in more disadvantaged students being identified (Peters et al., 2019). For example, using local norms instead of national ones improved Latinx and Black representation in gifted programs in 10 states by 170% and 300%, respectively. (See, Peters, Carter, & Plucker in this issue for more details on this and other identification methods.) When schools identify students, especially disadvantaged students, needing more advanced opportunities early in their K-12 educational development, they can provide the most educationally stimulating opportunities possible right from the start, enabling these students to develop to their fullest potential. Our view is similar to that of Scott Peters and colleagues, who suggest in this issue that placement in gifted programs be flexible, with students moving in and out as their developmental needs change based on universal testing and local norms. The **accumulation of opportunities** over the K-12 years will **give these student**s the **best chance** available to compete for admission to prestigious colleges, which will put them on track to **greater success as adults.** Gifted education, college, and future success In K-12 education, gifted education can take many forms. It can be the gifted and talented program in elementary school, participating in the MATHCOUNTS state or national competition in middle school, or being admitted to a selective or specialized high school. Selective or elite colleges or “honors colleges” at large public institutions are, essentially, forms of gifted education in higher education, as illustrated by the high test scores of such selective institutions (Wai, Brown, & Chabris, 2018). The problem is that, for decades, such schools have primarily served students whose parents have consistently marshalled their resources toward the goal of elite college admission, whether through education, community service, sports, and other opportunities needed to develop a well-rounded package to impress admission committees. The competition for college, in particular highly selective colleges, is quite intense, often requiring years of planning, résumé building, and parental investment. Without early identification and consistent talent development, low-income gifted students are likely to remain at a disadvantage. Although the representation of talented but low-income students at selective colleges has improved somewhat since the 1970s, it has improved even more for talented but high-income students (Bastedo & Jaquette, 2017). In fact, researchers have found that **academically advanced low-income students** are **less likely than their high-income peers even to apply** to selective colleges and universities (Hoxby & Avery, 2013). And it is these selective colleges that often serve as gateways to positions of leadership and influence in U.S. society. People who end up in positions of national and global leadership, it turns out, often attended and graduated from highly selective colleges and universities. In fact, roughly half of the country’s political and economic leaders come from a small set of elite schools (Wai, 2013). Thus, the disadvantages accumulate for low-income students. Lacking access to the prestige associated with graduating from an elite school and the networking opportunities such schools provide, these students are largely shut out of top jobs and the loftiest positions of power (Rivera, 2016). Longitudinal research on the gifted from the Study of Mathematically Precocious Youth (Lubinski & Benbow, 2000, 2006, 2020) shows that gifted students who have their talents optimally developed earn doctorates, achieve university tenure, obtain patents, and publish academic journal articles as well as fiction and nonfiction books at rates two to eight times higher than the general population (Kell, Lubinski, & Benbow, 2013; Park, Lubinski, & Benbow, 2007). These students’ success yields benefits for more than the students themselves. Research into the top fraction of achievers in different countries illustrates that promoting intellectual development among the most cognitively gifted has a long-term impact on a country’s gross domestic product (Rindermann & Thompson, 2011). Similarly, research by James Heckman (2000) found greater long-term economic and societal returns on investment in high-ability students relative to lower-ability students, particularly at an early age. Small investment, big impact Talented but disadvantaged students who can marshal their internal resources may be able to overcome environments of disadvantage (Damian et al., 2014). But these students face strong headwinds, whereas their more advantaged peers enjoy favorable tailwinds (Stevens, 2020). Universal screening for early talent identification coupled with universal opportunities for consistent academic challenge and development throughout K-12 education (e.g., Wai et al., 2010) would do a great deal to help talented but disadvantaged students develop to the fullest. Not only would investing in talented students from the beginning of their education help these students flourish personally (Moon, 2009), it would also help resolve the ongoing tension between equity and excellence in education (Benbow & Stanley, 1996; Gardner, 1961; Loveless, 2014). At the same time, even **a small early investment in talented students from poor backgrounds has the potential to greatly** boost societal innovation and the economy, **improving life f**or us all. Surely such an effort is worth it.

**Statistics prove**

Stahly 19 --- (Emily Stahly, 4-10-2019, [*Emily Stahly is an analyst at the Show-Me Institute. Originally from central Kansas, she earned her B.A. in politics from Hillsdale College in Michigan. Emily is researching poverty and welfare policy with the Show-Me Institute.*], "After 50 Years, Low-Income Students Are Still Being Left Behind-When Will Enough Be Enough?", https://showmeinstitute.org/blog/school-choice/after-50-years-low-income-students-are-still-being-left-behindwhen-will-enough-be-enough/) //doa2-25-2025 + master chen 💆

As part of the War on Poverty, President Lyndon B. Johnson’s administration pushed for comprehensive education legislation that became known as the Elementary and Secondary Education Act. When signing the bill into law in 1965, Johnson stated, “By passing this bill, we bridge the gap between helplessness and hope for more than five million educationally deprived children.” But has education policy in the last 50 years closed that gap? Not even close. Back in the 1970s, students from poor households were as much as three to four years of schooling behind their wealthier peers. Fast forward to 2015, and that gap has virtually stayed the same despite pouring billions of dollars into the education system. Isn’t it time for a new approach—shouldn’t we start giving parents the power to control education dollars? According to a recent study, there has been a persistent gap in academic achievement between low-income and high-income students for decades. What’s more, student performance overall hasn’t gotten better; any gains seen in earlier grades dissipate by the age of 17 when students are preparing to go to college or enter the workforce This is despite numerous local, state, and national efforts to provide quality education for low-income kids. In the last 50 years, we have provided services to students with disabilities, evened out school funding between rich and poor districts, instituted a number of accountability systems (Missouri’s accountability system is in its sixth iteration since 1991), and increased funding overall. In fact, the report notes, “Overall school funding increased dramatically on a per-student basis, quadrupling in real dollars between 1960 and 2015.” To show just how bad the achievement gap between high- and low-income students is in Missouri, check out the data from the National Assessment of Educational Progress (NAEP). Beginning with 2005, the data points represent the percentage of 8th grade students in Missouri who were at or above grade level in math and reading, separated by eligibility for the National School Lunch Program (which is for families with incomes below 185 percent of the federal poverty line). 8th grade math proficiency 8th grade reading proficiency **For low-income 8th-graders, only 16 percent were proficient or advanced in math** in 2017. **The number for reading is hardly better, with only 22 percent of students considered proficient or advanced.** Compare that to students who were not eligible for the National School Lunch Program: 42 percent of these kids were at least proficient in math and 47 percent were proficient or advanced in reading. And the gap in both subjects has gotten larger since 2005. What are the consequences of this failure? As I discuss in my two recent essays, “Intergenerational Poverty in Missouri” and “Creating Pathways for Self-Sufficiency,” quality education and the ability to move up the economic ladder are closely linked. How can Missouri expect to break cycles of poverty if it can’t even educate low-income students well? Meanwhile, charter schools and private school choice programs are providing opportunities unmatched by many traditional public schools. Graduates from IDEA Public Schools, a charter school network founded in the impoverished Rio Grande Valley in Texas, have a 100 percent college acceptance rate and half of the class of 2012 acquired a bachelor’s degree within six years after enrolling in college. In Florida, tax-credit scholarship recipients have higher college-going and degree completion rates, and charter school students score higher on tests than students in traditional public school students. So where do we go from here? Should we be satisfied with reforms that just tinker around the edges of our education system and increase spending indefinitely for programs that are failing? Or should we allow more competition and innovation through choice that will make schools more responsive to families of all economic backgrounds? Based on the failure of the education bureaucracy to close the gap in the last 50 years, it seems Missouri’s best option is to start trusting parents.

**Even locally,**

Jonas 24 --- (Michael Jonas, [*Michael Jonas works with Bruce in overseeing CommonWealth Beacon coverage and editing the work of reporters. His own reporting has a particular focus on politics, education, and criminal justice reform.Michael has worked in journalism in Massachusetts since the early 1980s. Before joining the CommonWealth staff in 2001, he was a contributing writer for the magazine for two years. His story on Boston youth outreach workers was selected for a PASS (Prevention for a Safer Society) Award from the National Council on Crime and Delinquency. His CommonWealth work has also won awards from Capitol Beat for state government coverage and from the New England Newspaper & Press Association for work in several areas. Prior to coming to CommonWealth, for 15 years Michael wrote a weekly column on local politics for the Boston Globe. Michael has also worked in broadcast journalism. In the late 1980s he was a co-producer for “The AIDS Quarterly,” a national PBS series produced by WGBH-TV in Boston, and in the early 1990s, he worked as a producer for a weekly news magazine program on WHDH-TV (Ch. 7) in Boston.*], 5-19-2024, "In wake of pandemic, Mass. achievement gap has widened", https://commonwealthbeacon.org/education/in-wake-of-pandemic-mass-achievement-gap-has-widened/) //doa2-25-2025 + master chen 💆

WHILE STUDENTS ACROSS the country continue to struggle to make up the learning loss from the coronavirus pandemic, with many states seeing the gulf separating the achievement of poor and non-poor students grow larger, a study led by researchers at Harvard and Stanford universities says **Massachusetts has the seen the largest widening of that gap of any of the states they examined**. Massachusetts students lost the equivalent of about two-thirds of a typical year of math learning and two-fifths of a year in reading from 2019 to 2022, according to the report from the Center for Education Research Policy at Harvard and the Educational Opportunity Project at Stanford. Many of the state’s Gateway Cities, home to lots of the **state’s poorer students, saw declines of as much as a full year of learning**. While many districts began to see achievement gains from 2022 to 2023 – the first full year when students returned to in-person learning – many Gateway Cities saw achievement levels continue to drop, making the achievement gap even larger now than it was before the pandemic. “No one in Massachusetts wants to leave poor kids footing the bill for the pandemic, but that is the path we are on,” said Thomas Kane, faculty director of Harvard’s Center for Education Policy Research and one of the study’s co-authors. The gap within Massachusetts between poor and non-poor students is now roughly half a grade wider than it was in 2019, according to the analysis of achievement trends across 15 states, a finding that shows just how much harder the school disruption hit lower-income students here – and how uneven the recovery from it has been. Five of the 15 states actually recorded a narrowing of the poor/non-poor gap in one or both subjects. Kane says without focused effort by districts and the state to address the growing achievement gap, research suggests poor students in Massachusetts will face setbacks tied to the pandemic that extend into adulthood, affecting everything from lifetime earnings to incarceration rates. Thomas Kane: “No one in Massachusetts wants to leave poor kids footing the bill for the pandemic, but that is the path we are on.” (Photo by Frank Curran) Many districts with lots of students from higher-income households began to see achievement start to bounce back between 2022 to 2023, following large drops during the pandemic. In Longmeadow, for example, a well-off suburb of Springfield, proficiency rates for grade 3-8 reading went from 61 percent in 2022 to 64 percent in 2023 and in math rose from 58 percent to 65 percent. In many districts with large populations of low-income students, however, it’s been a very different story. Recommended We need to confront the state’s long decline in student achievement Date February 7, 2025 National scores show Mass. students leading – with big asterisks Date February 6, 2025 MCAS ballot question: clashing views of educational equity Date November 3, 2024 Lynn, where 74 percent of students are low-income, has recorded the largest drop in reading and math proficiency rates in the state since the pandemic, with the achievement falloff from the COVID school shutdowns continuing even after the return to classroom instruction. The **district’s grade 3-8 reading proficiency rate fell from 38 percent in 2019 to 21 percent in 2022**, before falling two points further to 19 percent in 2023. **In math, proficiency fell by more than half** during the pandemic, from 37 percent in 2019 to 15 percent in 2022. But the slide continued in 2023, when math proficiency fell to 14 percent. “Our student achievement is always a top concern, so I think it is absolutely troubling to see the trends we’re experiencing,” said Mayor Jared Nicholson, who also chairs the Lynn school committee. The district is “committed to addressing and reversing the learning loss and getting students what they need to close the achievement gaps we’re experiencing,” he said. Change, measured in the share of one grade of learning, in the gap separating poor and non-poor students in 15 states from 2019 to 2023. Positive numbers reflect a growing gap; negative numbers indicate a closing of the gap. (Source: Education Recovery Scorecard, Center for Education Research Policy at Harvard University and the Educational Opportunity Project at Stanford University) Kane said there is no single explanation for the widening achievement gulf between poor and non-poor students. But he said many students from higher-income households saw less learning loss to begin with during the pandemic, and they were far more likely than their lower-income peers to have families that sought out private tutoring or other ways to make up for school closures. Meanwhile, some of the districts that have seen the biggest achievement declines also saw a huge growth in student groups that face particularly steep learning challenges. In Lynn, the share of the district population made up of English language learners rose 75 percent over the course of the pandemic, from 25 percent in 2019 to 43 percent today. Framingham, where 54 percent of the district’s 9,100 students are low-income, also saw a steep drop in achievement during the pandemic, with no recovery seen in the first full year in which students returned to in-person classes. English proficiency for grades 3-8 fell from 40 percent in 2019 to 27 percent in 2022, but showed no recovery in 2023. For math, proficiency fell from 37 percent in 2019 to 24 percent in 2022, and then dropped an additional 2 points to 22 percent in 2023. “Yes, we’re concerned,” said Robert Tremblay, Framingham’s superintendent, who said the district has deployed math and literacy coaches to every school as part of the effort to reverse the pandemic slide. Edward Lambert, executive director of the Massachusetts Business Alliance for Education, said the widening gulf between poor students and their better-off peers should be getting more attention from state and local leaders. “I think it’s pretty damning for Massachusetts,” he said. “As we consider ourselves a leader, it’s pretty disconcerting to see the impacts here and what appears to be the lack of rebound other states have experienced, particularly in some of the Gateway Cities.” Massachusetts received more than $2.8 billion in federal COVID relief money for schools, aid that has been allocated through three rounds of funding. Districts are currently devising plans for how they’ll use the final round of money, which must be spent by September. Although federal rules require that at least 20 percent of the money is spent on academics, Lynn is planning to spend about 30 percent of the $42 million in its last round of federal relief funding on learning recovery. That will include funding for afterschool tutoring and summer school classes, but also a lot of programming during the school day focused on learning recovery. “When we have a student in schools is when you really have to take advantage of that time,” said Evonne Alvarez, the district superintendent. “When you focus on after or before school, you’re really at the mercy of that student and whether they can get there or stay.” Framingham is committing more than a third of its final round of federal funding – $4.7 million out of $14.4 million – to mitigating learning loss through tutoring and afterschool programming, and funding for reading teachers. “We’re not quite sure what the variable is that’s causing learning to not grow at the rate we want it to be,” said Tremblay, the Framingham superintendent. “It’s not for lack of investment in resources.” Kane said districts need to allocate even more of the federal aid to learning loss if they are serious about seeing students recover academically, especially low-income students who have fallen behind the farthest. “From the beginning of the pandemic, I have tried but failed to get the message across that districts needed to do the math on their plans,” he said. Kane said that means taking stock of the impact of strategies like high-dose tutoring, through which students can make up an entire added year of learning, or summer school classes, which can remediate about a quarter of a year of learning loss. Even districts employing some of those strategies, he said, aren’t doing it at the scale needed to remediate the losses students have experienced. “Nobody’s actually doing a plan that makes sure every district has enough of those things to allow kids to catch up,” he said. Kane said it’s not too late for districts to redouble their focus on tutoring and summer school with the final round of federal funding. He also thinks districts should be more transparent in communicating to parents how far behind their children are, something he thinks has been widely lacking. Kane thinks education leaders and families alike haven’t come to terms with the long-term impact of pandemic learning losses, if they aren’t remediated. He pointed to research on the state’s strong K-12 achievement growth over the last several decades, outcomes that he said are correlated with increased earnings, higher post-secondary educational attainment, lower arrest rates, and lower teen pregnancy rates. He said all the positive trends connected to achievement growth are likely to move “in the opposite direction” if scores decline and remain low. State officials acknowledged the greater toll the pandemic took on higher-need students, and emphasized the steps taken in recent years to revamp the school aid formula and direct more money to districts serving those students. “Massachusetts is proud to **lead the nation in student achievement,** but we recognize that more **needs** to be **done** to address learning loss, **particularly for English learners and students from low-income families**,” said state education department spokeswoman Jacqueline Reis in a statement. “That’s why we have fully funded the Student Opportunity Act, which is targeted at districts with high concentrations of poverty, and proposed a nation-leading literacy strategy.” Massachusetts has a long history of deference to local school districts, and the federal pandemic aid did not authorize states to tell districts how to spend the money. But Kane insists the state could do much more to highlight the urgency of the problem and prod districts to do more to address it. He pointed as an example to Texas, which didn’t prescribe how districts spent the federal money but passed a law requiring that all students not testing at proficiency be provided at least 30 hours of small group instruction next year. “It should be alarming that inequality has increased and we’re not making progress closing that increase that happened during the pandemic,” he said. “We’re the ones who supposedly care about education equity.

**That’s because low income students have the same access to resources that their wealthier counterparts do.**

Duncombe 17 --- (Chris Duncombe, [*Virginia Department of Education (VDOE) Free and Reduced Price Lunch Eligibility Report, VDOE Fall Membership data, VDOE Cohort Reports for 2002-2003 and 2013-2014 and the US Office for Civil Rights (OCR) Civil Rights Data Collection (CRDC) Educational Equity Report for 2013-2014.*], 10-26-2017, "Unequal Opportunities: Fewer Resources, Worse Outcomes for Students in Schools with Concentrated Poverty", https://thecommonwealthinstitute.org/tci\_research/unequal-opportunities-fewer-resources-worse-outcomes-for-students-in-schools-with-concentrated-poverty/) //doa2-25-2025 + master chen 💆

teachers in high poverty schools also earn lower average salaries compared to low poverty schools, likely in part because of this discrepancy in teacher experience. The average teacher salary in high poverty schools was about $46,000 in 2013-2014 school year compared to over $57,000 in low poverty schools. Overall, there is lower instructional spending from the state and localities per student in high poverty schools than low poverty schools. **High poverty schools spent 10 percent less per student on instructors (teachers and aides), instructional materials, and professional development** than low poverty schools using state and local resources in 2013-2014. That means Virginia is investing less on instruction in schools with students that start out with less and have greater needs outside of the classroom. High poverty schools with high percentages of students of color had even lower per student spending on instruction. Course Offerings High poverty middle schools and high schools are also **less likely to offer advanced coursework** compared to schools with low concentrations of poverty. For example, the vast majority of middle schools (93 percent) with low concentrations of poverty offered Algebra I, while **only three quarters** **(75 percent**) of middle schools with high concentrations of povert**y offered** this **key course for building foundational math skills** and creating a gateway to higher level math. It is also a required course for acceptance at some specialty high schools such as some of Virginia’s Governor’s schools. Similarly, almost all high schools with low concentrations of poverty were able to provide Calculus and Physics, which are important admissions criteria for many colleges and universities. Meanwhile, in high poverty high schools, only 57 percent offered Calculus and less than half (43 percent) offered Physics. And, it’s not just the math and sciences — students in high poverty high schools are also less likely to offer any Advanced Placement (AP) or International Baccalaureate (IB) class. Less than three quarters (71 percent) of high poverty high schools offered at least one AP or IB class compared to 99 percent of low poverty high schools. For those **high poverty high schools t**hat did offer an AP or IB class, they **offered only about half as many** –about 10 on average — than low poverty high schools, which offered 19 of these **classes** on average. Worse Outcomes in High Poverty Schools There are clear consequences to providing fewer resources to students in high poverty schools. Students in high poverty schools do worse on standardized tests, are more likely to be chronically absent during the school year, more likely to be held back in their grade, and less likely to graduate on-time. Only one-third (34%) of high poverty schools in Virginia were fully accredited by the state in 2013-2014 compared to almost all (99%) of low poverty schools. This stark contrast shows the unequal outcomes on test performance that result from giving students with some of the greatest needs the fewest resources and supports. Meanwhile, the percentage of accredited high poverty schools that also have high percentages of students of color was even lower — just 29 percent. Attendance is another challenge and particularly for students from low income families that may need to care for a younger sibling or family member or that move frequently. Students in high poverty schools were twice as likely to be chronically absent as students in low poverty schools — 16 percent of students compared to only 8 percent, respectively. Chronic absenteeism has been shown to have significant negative impacts on student performance and graduation rates. This includes negative impacts on math and reading scores as early as kindergarten, and is correlated to lower assessment scores in later grades. Chronic absenteeism also diminishes one’s eagerness to learn, increases feelings of isolation, and is an early indicator of dropping out of high school. Students in high poverty schools are also less likely to advance to the next grade level and graduate high school on time. The rate of students failing to advance to the next grade level was three times higher in high poverty schools (3 percent) compared to low poverty schools (1 percent). These attendance and retention challenges can lead to students dropping out of school or not graduating high school on time.

**And current tutoring programs are insufficient**

Rapaport 23 --- (Amie Rapaport, Ph.D., [*Ph.D. People Research Scientist, USC Dornsife Center for Economic and Social Research*], 3-9-2023, "Two Percent of U.S. Children Receive High Quality Tutoring, Despite Billions Funneled into School Systems", https://healthpolicy.usc.edu/evidence-base/two-percent-of-u-s-children-receive-high-quality-tutoring-despite-billions-funneled-into-school-systems/) //doa2-26-2025 + master chen 💆

In the aftermath of Covid-related school closures and continued school disruptions through multiple academic years, there has been intense urgency to find ways to help students with unfinished learning or who continue to struggle to keep up. NAEP’s first large-scale, nationwide, analysis of student achievement post-Covid documented historically low performance and unprecedented declines, with widening (i.e., worsening) of achievement gaps. As EducationWeek called out, “Two decades of progress, nearly gone.” The Promise of high quality/high-impact tutoring One area of promise for addressing students’ academic needs is tutoring. There is consensus that tutoring is effective. A recent meta-analysis has helped to summarize the evidence. Reviewing 96 randomized-controlled trials (the “gold-standard” in efficacy research) published since 1980, the authors conclude that “tutoring programs yield consistent and substantial positive impacts on learning outcomes.” A separate meta-analysis examining different types of educational interventions found that tutoring programs had the largest estimated impacts across all types of interventions examined. As one expert summarized, “Tutoring is a proven and agreed upon strategy that education leaders can be sure works.” Further, research has coalesced around the features of highly effective (or high impact) tutoring programs that lead to positive outcomes. Backed by rigorous research, and recommended widely by the Institute for Education Sciences, “high quality” tutoring: Is delivered at school Is delivered during school hours Groups are composed of three or fewer students to one tutor (four or fewer students can be effective with older students) Is provided to a student three or more times per week Lasts at least 30 minutes per session. Is delivered by teachers or well-trained professional tutors rather than volunteers, peers, or parents. Barriers to delivery Yet delivering high-quality tutoring remains a challenge. Finding qualified tutors, navigating students’ schedules, reaching the volume of students who need extra time, communicating with families, even just motivating students to attend –these barriers continue to interfere with the delivery of services that we know will help students! Many of these challenges existed before COVID began. What is different is that in the wake of the pandemic, huge sums of COVID-relief funds were allotted to K-12 schools through the federal American Rescue Plan, with large portions earmarked for implementing and/or scaling-up tutoring programs ($27 billion by one estimate). With access to unprecedented resources like this, shouldn’t high-quality tutoring by now be reaching students? Despite funding, high-quality tutoring is not reaching students Our nationally representative Understanding America Study (UAS), the University of Southern California Center for Economic and Social Research’s survey of American households, suggests that the barriers are proving substantial. We found little evidence that tutoring is broadly reaching students, and even less that the tutoring delivered meets agreed-upon criteria for high quality, despite the infusion of funds. When asking adults in December 2022 about their students’ fall semester, surprisingly few – about 15% of over 1,600 households – reported that their student was receiving any tutoring at all. This percent was appropriately higher (24%) among students whose parents reported their students typically earned grades of C or lower. There is some, albeit small, unmet need – another 12% would have their child participate if they could but reported that their school did not even offer the service to their child. With relatively low reports of tutoring participation, and large sums of money available, one might expect that at least the tutoring being delivered meets the provision of “high quality” services – smaller student to staff ratios and more time spent per child for example. But that’s not what we found. Only 11% of those receiving tutoring described their students’ programs in a way that met the criteria for high quality1 using a relatively liberal definition. Our definition of high-quality tutoring only required that the student’s tutoring be 1) in person, 2) in groups of four or fewer students to one tutor, 3) for 30 or more minutes each session, and 4) for three or more sessions per week. We did not limit only to tutoring received during the regular school day, nor did we limit to only “well-trained” tutors. We even categorized groups of four students to one tutor as sufficiently “small” for students in any age group. Another way to look at these same numbers – across all 1,600 households surveyed, **less than two percent of students are receiving tutoring that even meets a fairly moderate definition of “high-quality**.” And among those who likely need it most – students who receive grades C or lower – less than four percent are receiving high-quality tutoring. While surely not all students need tutoring, there is no question that the actual percentage of students in need of high-quality academic tutoring intervention is greater than this.2 Though disappointing, these numbers square with recent reports from the federal School Pulse Panel which posed similar questions, but to schools rather than to individual households. Approximately 37% of schools reported offering high-dosage tutoring (similar to our definition of high-quality), and staff in those schools estimated approximately 30% of students receiving high-dosage tutoring. Applied to the nationwide sample, this means only 10% of American students are receiving high-dosage tutoring!

**Ai increases personalized learning**

**UIUC 24 —** (University of Illinois Urbana-Champaign Office of Online Programs, 10-24-2024, "AI in Schools: Pros and Cons", College of Education, https://education.illinois.edu/about/news-events/news/article/2024/10/24/ai-in-schools--pros-and-cons, accessed 2-5-2025) // DP

It can be used to personalize learning. **AI can help** you **tailor** your **content to individual student needs and learning styles, based on AI-driven analytics that give you insight into student performance and learning trends.** In this way, AI helps students be more engaged and motivated. It can provide students with immediate feedback. **AI offers students instantaneous and detailed feedback on their work**, helping them to see their strengths and weaknesses. Such **feedback enhances** understanding and **learning outcomes**—and helps teachers to know what to focus on in future lessons. It can be used to create and supplement content. Through AI-powered platforms, you can create lessons, activities, assessments, discussion prompts, and presentations simply by providing a short prompt with keywords. It can result in more inclusive lessons. **AI has powerful tools that make** previously inaccessible **material available to students with special needs.** Tools that offer **text-to-speech, visual recognition, speech recognition, and more** can **help teachers adapt resources so** that **all students have an equal learning opportunity.** It can provide greater access to resources. Educators can access a wealth of AI-powered platforms to facilitate and enhance the learning that takes place in their classrooms. Just a few examples are Canva Magic Write, which helps in brainstorming, outlining, and lesson planning; Curipod, which enables teachers to quickly create interactive lessons; Eduaide, which provides teachers with more than 100 resource types to choose from to create high-quality instructional materials; and Quizzizz, which can be used to design quizzes that will create a personalized learning path based on each student’s responses. It can make abstract concepts more understandable. **Image-generating AI tools** such as Picsart and Visme can **turn complex concepts into** more readily **accessible content.** It can be used to handle administrative tasks. You can use **AI** to **streamline administrative tasks** such as grading, scheduling, communicating with parents, and managing student records. **This** frees you up to do what you do best: teach. It **affords you more hands-on time with students** and helps **to ensure** that **no students fall through the cracks**. It can foster critical thinkers. The advent and growing use of AI in classrooms lends itself to discussions regarding critical thinking and ethical considerations. Students are naturally intrigued by AI. The rich discussions that you can facilitate can help them grow and develop as thinkers and learners.

**And it decreases the fear of being wrong**

Chen 23 --- (Claire Chen, 3-9-2023, [professor @ stanford] "AI Will Transform Teaching and Learning. Let’s Get it Right.", https://hai.stanford.edu/news/ai-will-transform-teaching-and-learning-lets-get-it-right) //doa2-26-2025 + master chen 💆

And Noah Goodman, associate professor of psychology and of computer science, questioned the analogy, saying this tool may be more like the printing press, which led to democratization of knowledge and did not eliminate the need for human writing skills. 3. Enabling learning without fear of judgment Ran Liu, chief AI scientist at Amira Learning, said that AI has the potential to support learners’ self-confidence. Teachers commonly encourage class participation by insisting that there is no such thing as a stupid question. However, for most students, fear of judgment from their peers holds them back from fully engaging in many contexts. As Liu explained, children who believe themselves to be behind are the least likely to engage in these settings. Interfaces that leverage **AI can offer constructive feedback that does not carry the same stakes or cause the same self-consciousness as a human’s response. Learners are therefore more willing to engage, take risks, and be vulnerable**. One area in which this can be extremely valuable is soft skills. Emma Brunskill, associate professor of computer science, noted that there are an enormous number of soft skills that are really hard to teach effectively, like communication, critical thinking, and problem-solving. With AI, a real-time agent can provide support and feedback, and learners are able to try different tactics as they seek to improve. 4. Improving learning and assessment quality Bryan Brown, professor of education, said that “what we know about learning is not reflected in how we teach.” For example, teachers know that learning happens through powerful classroom discussions. However, only one student can speak up at a time. **AI has the potential to support a single teacher who is trying to generate 35 unique conversations with each student**. Bryan Brown and Emmy Brunskill From left, Bryan Brown and Emma Brunskill This also applies to the workforce. During a roundtable discussion facilitated by Stanford Digital Economy Lab Director Erik Brynjolfsson and Candace Thille, associate professor of education and faculty lead on adult learning at the Stanford Accelerator for Learning, attendees noted that the inability to judge a learner’s skill profile is a leading industry challenge. AI has the potential to quickly determine a learner’s skills, recommend solutions to fill the gaps, and match them with roles that actually require those skills.

**Harvard researchers**

**Kestin et. al. 24** — (Gregory Kestin\*1 Email Kelly Miller\*2 Anna Klales1 Timothy Milbourne1 Gregorio Ponti1 [Harvard University], 5-14-2024, "AI Tutoring Outperforms Active Learning", No Publication, https://www.researchsquare.com/article/rs-4243877/v1, accessed 3-23-2025) //FK

Advances in generative artificial intelligence (GAI) show great potential for improving education. Yet little is known about how this new technology should be used and how effective it can be. Here we report a randomized, controlled study measuring college students’ learning and their perceptions when content is presented through an AI-powered tutor compared with an active learning class. The AI tutor was developed with the same pedagogical best practices as the lectures. We find that **students learn more than twice as much in less time when using an AI tutor**, compared with the active learning class. **They also feel more engaged and more motivated.** These findings offer empirical evidence for the efficacy of a widely accessible AI-powered pedagogy in significantly enhancing learning outcomes, presenting a compelling case for its broad adoption in learning environments.

**A meta-analysis of all available studies concludes that GenAI improves academic achievement + test scores by 53%.**

**Sun and Zhou 24** — (Lihui Sun and Liang Zhou, 8-27-2024, "Does Generative Artificial Intelligence Improve the Academic Achievement of College Students? A Meta-Analysis", Sage Journals, https://www.researchgate.net/publication/384834881\_Does\_Generative\_Artificial\_Intelligence\_Improve\_the\_Academic\_Achievement\_of\_College\_Students\_A\_Meta-Analysis, accessed 3-27-2025) //RIDGE PARTIAL DOUBLE OCTAFINALIST RAHUL RANI

The use of generative artificial intelligence (Gen-AI) to assist college students in their studies has become a trend. However, there is no academic consensus on whether Gen-AI can enhance the academic achievement of college students. Using a meta-analytic approach, this study aims to investigate the effectiveness of Gen-AI in improving the academic achievement of college students and to explore the effects of different moderating variables. **A total of 28 articles (65 independent studies, 1909 participants) met the inclusion criteria for this study.** The results showed that Gen-AI significantly improved college students’ academic achievement with a medium effect size (Hedges’s g = 0.533, 95% CI [0.408,0.659], p < .05). There were within-group differences in the three moderator variables, activity categories, sample size, and generated content, when the generated content was text ( g = 0.554, p < .05), and sample size of 21–40 ( g = 0.776, p < .05), the use of independent learning styles ( g = 0.600, p < .05) had the most significant improvement in college student’s academic achievement. The intervention duration, the discipline types, and the assessment tools also had a moderate positive impact on college students’ academic achievement, but there were no significant within-group differences in any of the moderating variables. This study provides a theoretical basis and empirical evidence for the scientific application of Gen-AI and the development of educational technology policy. **The** combined **effect** size **of Gen-AI** on college students’ **academic achievement is 0.533**, indicating that Gen-AI has a moderate contribution to college students’ academic achievement. This is **consistent with existing research**, where Baidoo-Anu and Owusu Ansah (2023) reported a **strong impact of Gen-AI on teaching and learning**, where **Gen-AI** significantly **improved** not only **the cognitive level, but also the critical thinking, creative thinking, and problem-solving skills** of college students (Vazquez- ´ Table 7. Effects of Intervention Duration on Effect Size. Moderator variables N Hedges’ g SE 95% CI Two-tailed test LL UL Z p Group differences Intervention duration 65 0.508 0.061 0.390 0.627 8.394 0.000 Q = 3.651 p = .455 <1 week 16 0.526 0.093 0.343 0.709 5.633 0.000 1–5 weeks 30 0.444 0.096 0.255 0.633 4.608 0.000 6–10 weeks 9 0.458 0.169 0.127 0.790 2.713 0.000 11–15 weeks 4 1.087 0.406 0.291 1.882 2.677 0.007 >15 weeks 6 0.848 0.329 0.202 1.493 2.573 0.010 Table 8. Effects of Generate Content on Effect Size. Moderator variables N Hedges’ g SE 95% CI Two-tailed test LL UL Z p Group differences Generate content 65 0.454 0.051 0.354 0.555 8.848 0.000 Q = 5.862 Code 9 0.473 0.097 0.283 0.663 4.876 0.000 p = .046 Image 2 0.248 0.103 0.047 0.449 2.413 0.016 Text 54 0.554 0.075 0.407 0.701 7.386 0.000 22 Journal of Educational Computing Research 0(0) Cano et al., 2021; Chang et al., 2022). At the same time, **Gen-AI also contributes to the development of non-cognitive aspects** of college students, **such as boosting confidence** (Essel et al., 2022; Sanchez-Ruiz et al., 2023 ´ ), **motivation and self-efficacy** (Kim & Lee, 2023). Overall, Gen-AI is effective in improving college students’ academic achievement, and this effect varies significantly depending on the moderating variables. If the moderating variables are properly combined, Gen-AI may be highly effective in improving the academic achievement of college students.

**Overall, education is key**

**UNESCO 17** — (UNESCO [Global Education Monitoring Report], 2-6-2017, "World poverty could be cut in half if all adults completed secondary education", No Publication, https://www.unesco.org/gem-report/en/articles/world-poverty-could-be-cut-half-if-all-adults-completed-secondary-education, accessed 3-2-2025) //FK

The new analysis on education’s impact on poverty by UNESCO’s Global Education Monitoring (GEM) Report team is based on the average effects of education on growth and poverty reduction in developing countries from 1965 to 2010. It shows that nearly 60 million people could escape poverty if all adults had just two more years of schooling. **If all adults completed secondary education, 420 million could be lifted out of poverty**, reducing the total number of poor people by more than half globally and by almost two-thirds in sub-Saharan Africa and South Asia. Studies have shown that education has direct and indirect impacts on both economic growth and poverty. **Education provides skills that boost employment opportunities and incomes** while helping to protect people from socio-economic vulnerabilities. A more equitable expansion of education is likely to reduce inequality, lifting the poorest from the bottom of the ladder.

**2AC**

no evidence---analytical type action