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Fellowship Capstone | Policy Brief

The Modern Day Pandora's Box: Artificial Intelligence and Cognition

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I. Executive summary

Artificial intelligence is an issue that has only grown in presence within the public conscience since the release of popular AI chatbots such as ChatGPT, Gemini, and Deepseek. Not only have these applications become household names, they have also become common fixtures of learning in everyday life. This brief will analyze the benefits and costs of relying upon AI for knowledge upon users' cognitive abilities and policy recommendations to optimize AI usage.

II. Overview

As the oceans, space, and the Internet once were humanity's newest frontiers, AI is rapidly overtaking that mantle. Despite general awareness and usage of AI chatbots, there is a persistent question behind the true effects of such usage. As more of the general public turns to ChatGPT for common queries that one would have previously turned to Google for or to complete academic assignments, polarizing approaches have formed: AI can be an effective and optimizing supplement to learning vs. AI reliance can be detracting from people's regular neurological functions. This analysis investigates such tension in the specific phenomena of AI's potential for reducing educational friction and risking cognitive collateral damage in the present approach to AI in learning. This paper will also explore how legislative policy may be used to direct the future of AI to foster critical thinking along with advancing technology.

A. Relevance

In the professional world at large, AI usage has skyrocketed. In Gallup polls[1] in both 2023 and 2025, the percentage of employees using AI in their work has doubled from 21% to 40%, with frequent use and daily use also doubling (11% to 19% and 4% to 8% respectively). While this pattern is attributable to companies increasingly investing in AI so as to not technologically fall behind competitors, a similar trend is occurring amongst adolescents who are not subject to the same market pressures. In a survey conducted by the Digital Education Council, 86% of students were found to be relying upon AI tools, with 66% of total responders noting that they had used ChatGPT specifically[2]. However, such a trend that can be observed both anecdotally amongst teens and statistically has garnered caution. Observed negative effects upon cognitive abilities are likely to "disproportionately affect the younger generation, particularly those prioritizing convenient access" and those that had not attained complete mastery of a subject.[3] Given broad reservations surrounding AI usage and potential implications for adolescents, understanding different approaches to the AI-education partnership become ever-more

relevant.

III. History

A. Current Stances

Responses to AI have varied dramatically across federal and state lines. With OpenAI's release of ChatGPT in November 2022[4] during President Joe Biden's term, the Biden administration had put forth executive orders with general AI guidelines in response[5,6]. Now under President Donald Trump, similar executive order-based actions have also occurred.[7] Across both administrations, such actions had an affinity for continuing to cultivate American AI development and progression. In contrast, state governments have frequently proven to be more hesitant.

Colorado is one state with a new AI law developed in 2024[8]. Colorado's Consumer Protections for Artificial Intelligence bill approved in May 2024 emphasized risk-prevention and transparency. This was a variation from recent federal orders that emphasized AI development more affirmatively than restrictively.

A similar tune is also reflected in recent Californian AI laws passed by the end of 2024. Several Californian bills included those that also clarified transparency, privacy, and risk management while also addressing AI usage by healthcare providers, undisclosed deepfakes, and the California Board of Education's consideration of AI literacy in state curriculum.[9]

Despite the latter, it should be observed that while there is historical precedent for AI regulation and development, there is significantly less within the specific realm of AI in relation to education and learning.

IV. Policy Problem

A. Stakeholders

By and large, the stakeholders in this issue are a complex audience of AI entrepreneurs and investors, teachers and school administrators, and the underage students themselves.

The first group, the developers and direct beneficiaries of AI usage and growth, would benefit from a lack of restrictions upon AI in technology. The reasons are twofold: allowing an entire demographic (adolescents) to use the technology creates an immediate market, and allowing early reliance upon such a technology guarantees that market in the future.

Contrastingly, the second and third stakeholders in this issue tend to be more aligned with a different facet of this issue: that being the potential harm to cognition as aforementioned. Across the board, these stakeholders seem to benefit from an outcome that would be undesirable to the first group of stakeholders.

There is an interesting dynamic at play, one that appears at first glance to be in complete opposition. This leads to questions of which stakeholders to prioritize, to what degree, and whether or not a compromise is possible.

B. Risks of Indifference

The cost of indifference is potentially paid by a loss of learning for future generations. Frequent usage of AI to supplement difficult learning

reduces a factor of learning called "desirable difficulty:" the necessary level of difficulty in learning concept that ultimately results in enhanced retention and understanding because of the additional attention and effort poured into that subject.[10] However, uninhibited usage of AI allows students to transfer the critical thinking to their electronic counterparts, thereby circumventing the entire power of "desirable difficulty." Unfortunately, this degree of reliance may result in "underutilization and subsequent loss of cognitive abilities"[3] — an ill omen for the mental fortitude of future generations that would be responsible for leading and innovating the future world. This is an especially pressing issue as worldwide issues, namely climate change, grow closer and closer to inevitable consequence[11].

C. Nonpartisan Reasoning

Education and the widespread impact AI will have on recipients of education will result in impact that reach across political aisles. This includes changes to both political and 'apolitical' institutions.

1) Changes to the future landscape of politics: The consequences of a loss of critical thinking for youth bode poorly for the future for all political ideologies; every party's future hinges on the future generation. Without regulation, AI may increasingly become the preferred vehicle for communication (in whatever future shape it may take), leading to 'old world' political parties needing to undergo a swift transition to maintain relevance—not unlike how modern day entities have sought to harness social media to the same effect with the current youth. While this specific change may not be inherently negative, it is worth noting that difficulty with messaging may lead to a faction bottleneck, with only the political parties that transition to the most successfully to survive in an AI age. Yet, this reliance may also result in the same downturn in cognitive abilities observed earlier in this paper—but to a greater degree. Such a decline may end up impacting the popularity and success of up and coming policies, a change potentially compounded by the loss of previous political factions during the transition.

2) Unemployment in future AI-focused job markets: the development and usage of AI will likely force the human workforce to different jobs than conventionally pursued. These will likely include roles that focus on human-specific attributes that machines cannot easily replicate, the first of which being "logical thinking and problem solving."[12] However, this is the exact "innate" human talent that would be at risk with unregulated AI usage amongst society's youngest demographics in an education setting. Therefore, as job markets continue to transition over to automation and reliance upon AI, it becomes increasingly important to ensure that humans retain these skills.

V. Tried Policy

Most recently, two key policies were passed by the State of California that attempt to address the issue of minimal regulation: from the CA Senate,

SB-1288, and from the CA Assembly, AB-2876. Both were passed in September 2024 and are two education=focused bills in a slew of many other AI bills passed that month. SB-1288 creates a body that would monitor AI usage in school districts across CA in order to develop a "model policy … regarding the safe and effective use of artificial intelligence"[13]. AB-2876, in contrast, narrows its scope further to introducing AI literacy to the state Department of Education's frameworks for "mathematics, science, and history-social science instructional materials"[14].

While the full effect of these laws are yet to be seen as both bills mandated change to begin January 1, 2026. However, in reviewing the approach itself, it becomes evident that even a total completion of both initiatives may not effectively shield AI's negative effects on youth's cognition.

In regards to SB-1288, there is an obvious limitation: AI usage that occurs off school grounds that still impacts students' work on campus. This bill creates a body which focuses only on examining the campus itself. However, AI is likely to be abundantly used at home to complete assignments or prepare for any other form of evaluatory assessment in the classroom. Despite being off-campus, such usage has the same detrimental impacts upon critical thinking as would AI usage on the school grounds itself.

AB-2876 experiences a similar issue as well: AI literacy, defined by the bill as an "ability to access, evaluate, analyze, and use media and information," Yet, it is unclear whether or not mere literacy is capable of fending off the cognitive harms of usage. To know its effectiveness for certain risks waiting until it may be too late to reverse potential harm done.

Policy options, therefore, must adequately allow AI to have room to develop in other crucial sectors, while giving youth enough space in their development via educational institutions. Ultimately, this may result in the most potent change coming from both school districts and level higher: the AI itself.

VI. Policy Options

Mandated AI literacy

While AB-2876 has some flaws, including both the uncertainty of literacy's effectiveness and its gentle, recommendation-focused language, it is ultimately a promising piece of legislation. AI literacy, even if not the complete solution as the situation stands, is likely to at least be a piece of the puzzle, therefore it is important to proceed with developing an AI literacy curriculum. In order to achieve this measure, AB-2876 should be amended to use more affirmative language, veering away from the more passive verb "consider" and instead towards actions like "require." While a small change, it is a surer step towards ensuring no members of the future generations in the public school system will be left behind in a time of uncertainty and change.

Increase AI transparency

Part of the irresponsible AI usage that may result in cognitive stagnation is potentially an effect of an incomplete understanding of what generative

AI actually is. LLMs like ChatGPT (which are by and large the kind of AI that critical thinking tasks are passed on to) are ultimately not sentient or intelligent in the same way humans; in fact, they are arguably simply predicting the next best word or phrase in response to the prompt.15 Understanding this distinction may dissuade improper educational usage.

While this is certainly an aspect of AI literacy, I propose that comprehensive understanding of what is under the 'AI hood' is best cultivated under new transparency laws. One of the September 2024 AI laws passed in CA includes SB- 942, a mandate for all generative AI providers to provide disclosures that the product is AI on and in their content and to create free-to-use AI detectors. Yet, it overlooks the educational aspect of transparency: this bill (and other laws) have yet to encourage let alone require a layman's explanation of what the generative AI providers' technology actually is. Such a mandate may come in the form of a separate law, requires disclosures about the generative process in addition to disclosures that content is AI-produced. This would better transition to an enforcement of ethical IA usage and help define the line between human thinking and technological mimicry.

Age restrict LLMs

When social media became widespread, concerns arose about the data exploitation towards children. This was where a piece of legislation stepped in: Children's Online Privacy Protection Act (COPPA) in 2000.16 COPPA continued to shape and enforce the social media ecosystem, sometimes resulting in wildly successful lawsuits that changed the trajectory of a platform. For instance, with a lawsuit against Google and YouTube in 2019, resulting in the latter company implementing a 'made for kids' feature, heavily restricting the interactiveness of posts identified as such (e.g. limiting comments). While COPPA does not necessarily extend to adolescent usage of AI for learning, it is possible and even helpful to take a page from COPPA's book.

One such way may be creating a law that restricts the usage of powerful LLMs (e.g. ChatGPT) by potentially forcing providers to create a 'kids' version with some of the same intelligence but with restrictions and training wheels to filter usage that is known to lead to a loss in critical thinking. While this is certainly not a complete solution and is subject to evasion, it does provide another opportunity for the next generation to familiarize itself with up-and-coming technology while avoiding some of its most harmful impacts.

VII. Conclusions

In this paper, I have analyzed the many effects of AI usage, particularly in neurological ramifications for younger demographics. Subsequently, the concerns raised by such research prompted a number of developing policy solutions already enacted as well as predicting future laws for proactive defense. With AI and its newest iteration being as novel as they are in the world, a sure way forward is admittedly murky. Yet, as usage explodes, one thing remains clear: the importance of education. While this was frequently discussed in this paper as something to be shielded from the impacts of AI, it is also part of the solutions. Previous policy suggestions such as an expansion of AB-2876 to foster AI literacy and new policies to ensure continued

transparency behind how generated text and images are created in the first place remain the most feasible solutions in both scale as well as ability to directly impact education. Even as the world continues to undergo extensive transformation, I believe it is possible to embrace—cautiously—rising technology given the use of the right guardrails, pragmatism, and proactiveness.

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References

[1] Pendell, Ryan. 2025. "AI Use at Work Has Nearly Doubled in Two Years." Gallup.com. Gallup. June 15, 2025. https://www.gallup.com/workplace/691643/work-nearly-doubled-two-years.aspx.

[2] Banerjee, Duhita. 2025. "Humanize AI." Humanizeai.com. Humanize AI. April 27, 2025. https://humanizeai.com/blog/ai-in-school-statistics/.

[3] Ismail Dergaa, Helmi Ben Saad, Jordan M Glenn, Badii Amamou, Mohamed Ben Aissa, Noomen Guelmami, Feten Fekih-Romdhane, and Karim Chamari. 2024. "From Tools to Threats: A Reflection on the Impact of Artificial-Intelligence Chatbots on Cognitive Health." Frontiers in Psychology 15 (April). https://doi.org/10.3389/fpsyg.2024.1259845.

[4] OpenAI. 2022. "Introducing ChatGPT." OpenAI. November 30, 2022. https://openai.com/index/chatgpt/.

[5] Boak, Josh, and Matt O'Brien. 2023. "Biden Wants to Move Fast on AI Safeguards and Will Sign an Executive Order to Address His Concerns." AP News. October 30, 2023. https://apnews.com/article/biden-ai-artificial-intelligence-executive-order-cb86162000d894f238f28ac029005059.

[6] The White House. 2025. "Executive Order on Advancing United States Leadership in Artificial Intelligence Infrastructure | the White House." The White House. January 14, 2025. https://bidenwhitehouse.archives.gov/briefing-room/presidential-actions/2025/01/14/executive-order-on-advancing-united-states-leadership-in-artificial-intelligence-infrastructure/.

[7] The White House. 2025. "Removing Barriers to American Leadership in Artificial Intelligence." The White House. January 23, 2025. https://www.whitehouse.gov/presidential-actions/2025/01/removing-barriers-to-american-leadership-in-artificial-intelligence/.

[8] Rodriguez, Robert. 2024. "Consumer Protections for Artificial Intelligence." Colorado General Assembly. May 17, 2024. https://leg.colorado.gov/bills/sb24-205.

[9] Talagala, Nisha. 2024. "California's New AI Laws - What You Should Know." Forbes. October 14, 2024. https://www.forbes.com/sites/nishatalagala/2024/10/14/californias-new-ai-lawswhat-you-should-know/.

[10] Snyder, Jason. 2025. "Friction Is the Point: What AI Will Never Understand about Being Human." Forbes, June 15, 2025. https://www.forbes.com/sites/jasonsnyder/20

25/06/15/friction-is-the-point-what-ai-will-never-understand-about-being-human/.

[11] "Climate Tipping Points May Have Been Reached Already, Experts Say." n.d. Www.cbsnews.com. https://www.cbsnews.com/news/climate-change-tipping-points-amazon-rainforest-antarctic-ice-gulf-stream/.

[12] Manyika, James, Michael Chui, et. al. 2017. Review of A Future That Works: Automation, Employment, and Productivity. McKinsey & Company. McKinsey Global Institute. January 2017. https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Digital%20Disruption/Harnessing%20automation%20for%20a%20future%20that%20works/MGI-A-future-that-works_Full-report.ashx.

[13] "Bill Text - SB-1288 Public Schools: Artificial Intelligence Working Group." 2023. Ca.gov. 2023. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB1288.

[14] "Bill Text - AB-2876 Pupil Instruction: Media Literacy: Artificial Intelligence Literacy: Curriculum Frameworks: Instructional Materials." 2023. Ca.gov. 2023. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240AB2876.

[15] Stöffelbauer, Andreas. 2023. "How Large Language Models Work." Data Science at Microsoft. Medium. October 24, 2023. https://medium.com/data-science-at-microsoft/how-large-language-models-work-91c362f5b78f.

[16] GovFacts. 2025. "U.S. Social Media Regulations for Minors." GovFacts. July 7, 2025. https://govfacts.org/explainer/u-s-social-media-regulations-for-minors/.