ETHICS AND PUBLIC POLICY CENTER

August 12, 2025

Via Federal eRulemaking Portal

Linda McMahon
Secretary
U.S. Department of Education
400 Maryland Ave, S.W.
Washington, D.C. 20202

RE: EPPC Comment on Department of Education's Proposed Priority and Definitions "Secretary's Supplemental Priority and Definitions on Advancing Artificial Intelligence in Education," Federal Register: 2025-13650 (90 FR 34203)

Dear Secretary McMahon:

We write in response to the Department of Education's Proposed Priority and Definitions on "Advancing Artificial Intelligence in Education." Clare Morell is a Fellow at the Ethics and Public Policy Center (EPPC), Director of EPPC's Technology and Human Flourishing Project, and author of the book "The Tech Exit." Chloe Lawrence is a Policy Analyst at EPPC and a former Speechwriter in the U.S. Senate.

The proposed priority would prioritize grants for projects or proposals that "promote the appropriate integration of AI into education," including providing AI training for educators and building AI literacy among students. We write to express our support for sections of the proposed priority that encourage increased instruction in computer science, including AI tools, for students in high school and higher education. In addition, we support the sections encouraging AI training for educators to optimize their operations. We also write to express our concern about sections of the proposed priority that may be interpreted broadly to encourage integration of AI into subjects where it may harm learning outcomes, including the humanities and subjects where information retention is important. In addition, we are concerned about sections encouraging individualized or personalized applications of AI for specific students, especially considering research on the harms of personalized education technology thus far. In finalizing this priority and definitions, the Department of Education should include the current sections on computer science education and AI training for teachers. The Department should limit or remove the sections on integrating AI into education more broadly and on individualizing AI for gifted students, struggling students, or students with disabilities.

1. **The emphasis in the proposed priority and definitions on increasing instruction in computer science, including AI tools, to teach students skills, would be beneficial for high school and higher education students. We urge the Department to include these priorities in the final guidance.**

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The priorities to expand offerings to computer science and AI courses in higher education, and to offer high school students the option to take higher education classes in these areas, creating opportunities for high school students through the development or expansion of AI courses and career-relevant, in-demand certification programs will benefit students. We encourage these proposed priorities to be the focus of the guidance, as opposed to encouraging schools to integrate the use of AI for general instruction, especially by incorporating large language models (LLMs) and AI tutors into other subjects beyond computer science.

For example, the below proposed priorities should be adopted:

> (iii) Expand offerings of AI and computer science courses as part of an institution of higher education's general education and/or core curriculum;
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> (iv) Embed AI and computer science into an institution of higher education's general preservice or in-service teacher professional development or teacher preparation programs;
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> (vii) Partner with State educational agencies or local educational agencies to encourage the offering of dual-enrollment course opportunities to earn postsecondary credentials and industry-recognized credentials in AI coursework concurrent with high school education;
>
> (viii) Create opportunities for high school students through the development or expansion of AI courses and career-relevant, in-demand certification programs;

2. **The proposed priorities to "(i) Support the integration of AI literacy skills and concepts into teaching and learning practices to improve educational outcomes for students" and "(ix) Support dissemination of appropriate methods of integrating AI into education" raise significant concerns. The language is overly broad and could encourage schools to integrate AI tools into skills and subjects it is not best used for. We urge the Department to remove these priorities entirely or, at a minimum, add language to focus and limit them to computer or computer science class settings.**

We are concerned about the Department incentivizing schools to incorporate AI tools and AI literacy into every subject, as opposed to integrating AI as a tool to teach in a computer science course or computer lab setting. According to new research, integrating AI tools into humanities subjects will do more harm than good, even at the high school and undergraduate levels. A study titled "Your Brain on ChatGPT" by the MIT Media Lab found that while LLMs offer some "immediate convenience" to essay writers, they also incur "cognitive costs." In the study, LLM users consistently underperformed at neural, linguistic, and behavioral levels. Similarly, a study of undergraduate students enrolled in a Creative Thinking and Problem Solving course concluded: "For those who are still developing divergent thinking skills and lack creative confidence, there is a danger of AI hindering human thinking, as some participants expressed difficulty in coming up with ideas beyond what the AI offered, showing a concerning potential for cognitive fixation and reduced self-efficacy."[1] A third experiment revealed "a

[1] Sabrina Habib, Thomas Vogel, Xiao Anli, Evelyn Thorne, How does generative artificial intelligence impact student creativity?, *Journal of Creativity*, Volume 34, Issue 1, 2024, 100072, ISSN 2713-3745, https://doi.org/10.1016/j.yjoc.2023.100072.

detrimental association betweenChatGPT use and university students' creative writing abilities."[2]

Schools should also be cautious about incorporating AI into other subjects where students need to retain information and develop critical thinking skills. Using AI in these subjects can replace student learning and retention of information in that discipline, as the learning and thinking is outsourced to the AI tool. Studies show that critical thinking, problem solving, and memory skills are all undermined by incorporating AI into education. One study found that use of ChatGPT is correlated to procrastination, memory loss, and poor cumulative grade point average.[3] In a field experiment involving nearly a thousand students, Wharton School researchers found that access to GPT-based tutors initially improved student performance, but once access is taken away, the students perform worse than those who never had access. The researchers concluded that students attempt to use AI as a "crutch" and that access to these technologies can "harm educational outcomes."[4] Another study found a "significant negative correlation between frequent AI tool usage and critical thinking abilities." The study also found that younger participants exhibited higher dependence on AI tools and lower critical thinking scores than older participants.[5]

This research supports our recommendation that AI learning should be limited to computer science class settings, rather than integrated into subjects where students' learning will suffer because of the cognitive costs of outsourcing thinking to AI. American students should learn how to use AI as a tool, but AI should not be the main teacher for students or the main mode of learning.

We therefore urge the Department to not adopt these two broad proposed priorities or, at a minimum, add clarifying language that limits the priorities to computer education (e.g., "(i) Support the integration of AI literacy skills and concepts into teaching and learning practices [for computer education]" and (ix) "Support dissemination of appropriate methods of integrating AI into *computer* education"). If these proposed priorities are adopted, we also ask the Department to add additional clarifying language to the end of both that says "for grades 6-12 and postsecondary education," since the risks of dependence on AI tools and the undermining of critical thinking skills is higher for younger ages.

For the same reasons, we recommend cutting the following priority: "(v) Provide professional development for educators on the integration of the fundamentals of AI into their

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[2] Niloy, Ahnaf & Akter, Salma & Sultana, Nayeema & Sultana, Jakia & Rahman, Sayed. (2023). Is Chatgpt a menace for creative writing ability? An experiment. *Journal of Computer Assisted Learning*. 40. 919-930. 10.1111/jcal.12929.

[3] Abbas, M., Jam, F.A. & Khan, T.I. Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students. *Int J Educ Technol High Educ* 21, 10 (2024). https://doi.org/10.1186/s41239-024-00444-7

[4] Bastani, Hamsa and Bastani, Osbert and Sungu, Alp and Ge, Haosen and Kabakcı, Özge and Mariman, Rei, Generative AI Can Harm Learning (July 15, 2024). The Wharton School Research Paper, Available at SSRN: https://ssrn.com/abstract=4895486 or http://dx.doi.org/10.2139/ssrn.4895486

[5] Gerlich, Michael. 2025. "AI Tools in Society: Impacts on Cognitive Offloading and the Future of Critical Thinking" *Societies* 15, no. 1: 6. https://doi.org/10.3390/soc15010006

respective subject areas;" since we do not recommend incorporating AI into subject areas beyond computer science.
Finally, while we generally support the goal to "(ii) expand offerings of AI and computer science education in K-12 education;" for the reasons mentioned above on the risks to younger learners especially from AI tools, we would recommend modifying it to say "6-12 education" instead.

Overall, the Department of Education should encourage schools to teach students AI literacy and computer science skills in a computer lab class setting, and emphasize that this should be primarily for high school and middle school students. We recommend including throughout the guidance more explicit language about the ideal setting for teaching AI literacy and tools being in computer courses and computer labs, and we recommend removing grades K-6 from these priorities and making them specific to grades 6-12 and post-secondary education.

3. **We support all the proposed priorities to train teachers in the use of AI, especially to make operations and administrative tasks more efficient for teachers, so they can dedicate more time to their main work of teaching and preparing to teach.**

Allowing adults with maturity, like teachers, to find uses for AI that allow them to do their jobs better is a proper use of AI in education. Teachers can harness AI to create lesson plans and streamline normal operations to allow them more time for other tasks. But even here, it is important that AI does not serve as a replacement for teachers' own critical thinking and problem solving. Having AI grade essays, for example, will not provide students with the detailed, targeted feedback that only humans experienced in their field can provide. Teachers would benefit from more guidance on and examples of good ways to use AI in their preparation, grading, and other administrative tasks.

4. **We urge extreme caution in adopting the proposed priorities related to individualized applications of AI for gifted students, struggling students, or students with disabilities, as well as the proposed priority to integrate AI tools into classrooms to personalize learning and support differentiated instruction.**

American students should learn how to use AI as a tool, but AI should not be the main teacher or mode of instruction for students in the classroom, even for gifted or struggling students. Researchers are just beginning to study the effects of AI in education, but there is already a large body of research revealing the harms of integrating digital technology, namely educational screens, into general education and classroom learning. These studies should inform the Department's priorities on integrating AI into education.

Despite the push over the last decade to get every child a laptop or tablet, student math and reading scores have been declining in the United States. The COVID-19 pandemic certainly contributed significantly to the large drops in scores seen in the most recent 2022 assessment, but the numbers have been on the decline since 2012.[6] In 2022, "the math scores for the lowest

[6] Ebony Walton, "Performance Declines in Basic Mathematics and Reading Skills Since the COVID-- 19 Pandemic Are Evident Across Many Racial /Ethnic Groups," NAEP Plus, November 9, 2023, nces.ed.gov/nationsre portcard/blog/pandemic_performance_declines_across_racial_and_ethnic_groups.aspx.

performing students hit levels last seen in the 1970s, while their reading scores were actually lower than the first year the data was collected, in 1971."[7]

A 2020 study from the University of California, Los Angeles examined the impact of a one-laptop-per-child program. It found that increasing children's access to computers and the internet did not improve educational outcomes, such as the number of years of education or enrollment in post-secondary education. "Despite a notable increase in computer access, educational attainment has not increased; the schooling gap between private and public school students has persisted, despite closing the technology gap," the study concluded.[8]

Countries that have invested heavily in computers have seen 'no noticeable improvement' in their results for the Programme for International Student Assessment (PISA) tests, according to a report by the Organisation for Economic Co-operation and Development (OECD). Andreas Schleicher, the OECD's education director, says, "If you look at the best-performing education systems, such as those in East Asia, they've been very cautious about using technology in their classroom. Those students who use tablets and computers very often tend to do worse than those who use them moderately."[9]

A review by J-PAL concurred, finding that initiatives to expand access to computers "do not improve K-12 grades and test scores."[10] According to one study, even small daily amounts, defined as 30 minutes, of digital device use in the classroom are negatively related to reading comprehension scores.[11]

Other research on how screens affect learning may explain why screens haven't solved the educational inequalities as hoped. A study out of Norway found that "students who read texts in print scored significantly better on the reading comprehension tests than students who read the texts digitally."[12] And a study using "MRI scans of eight-to 12-year- olds showed stronger reading circuits in those who spent more time reading paper books than those who spent their time on screens."[13] And just last May, educational neuroscientists at the Teachers College of

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[7] Lauren Camera, "U.S. Teens' Reading and Math Scores Feature Largest Declines Ever," U.S. News & World Report, June 21, 2023, https://www.usnews.com/news/education-news/articles/2023-06-21/u-s-teens-reading-and-math-scores-feature-largest-declines-ever

[8] Maria Lucia Yanguas, "Technology and Educational Choices: Evidence from a One-- Laptop-- per-- Child Program," Economics of Education Review 76 (2020), doi.org/10.1016/j.econedurev.2020.101984.

[9] Matthew Jenkin, "Tablets Out, Imagination In: The Schools That Shun Technology," Guardian, December 2, 2015, theguardian.com/teacher-- network/2015/dec/02/schools-- that-- ban-- tablets-- traditional-- education-- silicon-- valley-- london.

[10] J-PAL Evidence Review. 2019. "Will Technology Transform Education for the Better?" Cambridge, MA: Abdul Latif Jameel Poverty Action Lab.

[11] Salmerón, L., Vargas, C., Delgado, P., & Baron, N. (2023). Relation between digital tool practices in the language arts classroom and reading comprehension scores. *Reading and writing*, *36*(1), 175–194. https://doi.org/10.1007/s11145-022-10295-1

[12] Anne Mangen, Bente R. Walgermo, and Kolbjørn Brønnick, "Reading Linear Texts on Paper Versus Computer Screen: Effects on Reading Comprehension," International Journal of Educational Research 58 (2013): 61–- 68, doi.org/10.1016/j.ijer.2012.12.002.

[13] Holly Korbey, "How to Teach Kids Who Flip Between Book and Screen," MIT Technology Review, April 19, 2023, technologyreview.com/2023/04/19/1071282/digital-- world-- reshaping-- childrens-- education-- reading.

Columbia University found "evidence that children's brains process written texts more deeply when they are presented in print rather than on a digital screen." Brain activations they measured showed that after reading a text in print, children were more able to make connections with new concepts. The authors write that their findings "indicate that the meaning networks built during print reading are richer and deeper than those established during digital reading."[14]

It's not just reading that's being affected; it's writing too. Research shows that handwriting has cognitive benefits that typing on a screen doesn't. One study found that writing out the ABCs, as opposed to typing them, leads to better recognition of letters.[15] Thus, "the clearest consequence of screens and keyboards replacing pen and paper might be on kids' ability to learn the building blocks of literacy—letters."[16] In addition, writing by hand improves memorization of words.[17]

Critically, EdTech-induced learning loss especially affects the lowest-achieving students. The three major educational assessments—NAEP, TIMSS, and PISA—have all revealed growing "achievement gaps" between high-achieving and low-achieving students. This is true across multiple disciplines. The data from all three of these assessments show that the achievement gap in mathematics has widened over the past decade, and this trend began before the pandemic.[18] The lowest-performing students show the steepest declines. NAEP data on reading scores, particularly in 8th grade, shows a high-low gap as well. While the scores of students at or above the 75th percentile in reading stayed relatively the same, scores of students at or below the 25th percentile have declined since 2017.[19] Finally, TIMSS data shows a high-low gap in science scores in 8th grade, particularly between 2015 and 2019.[20]

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[14] "Children Derive Deeper Meaning from Printed Texts Than Screens, According to New Brain Study from Teachers College, Columbia University," Teachers College Columbia University, May 29, 2024, tc.columbia.edu /tcgeneration/what-- we-- do/media-- relations/press-- releases/2024/children -- derive-- deeper-- meaning-- from-- printed-- texts-- than-- screens/.

[15] Marieke Longcamp, Marie-- Thérèse Zerbato-- Poudou, and Jean-- Luc Velay, "The Influence of Writing Practice on Letter Recognition in Preschool Children: A Comparison Between Handwriting and Typing," Acta Psychologica 119, no. 1 (2005): 67–- 79, doi.org/10.1016/j.actpsy.2004.10.019.

[16] Jonathan Lambert, "Why Writing by Hand Beats Typing for Thinking and Learning," NPR, May 11, 2024, npr.org/sections/health-shots/2024/05/11/1250529661/handwriting--cursive-- typing-- schools- learning-- brain.

[17] Aya S. Ihara et al., "Advantage of Handwriting over Typing on Learning Words: Evidence from an N400 Event--Related Potential Index," Frontiers in Human Neuroscience 15 (2021), doi.org/10.3389/fnhum.2021.679191.

[18] International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 1995, 1999, 2003, 2007, 2011, 2015, 2019, 2023; Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2000, 2003, 2006, 2009, 2012, 2015, 2018, and 2022 Mathematics, Reading, and Science Assessments; U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2022, and 2024 Mathematics Assessments.

[19] U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1994, 1998, 2002, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2022, and 2024 Reading Assessments.

[20] International Association for the Evaluation of Educational Achievement (IEA), Trends in International Mathematics and Science Study (TIMSS), 1995, 1999, 2003, 2007, 2011, 2015, 2019, 2023.

The integration of individualized AI tools into education will result in similar negative outcomes. Student use of AI in schools for general classroom instruction and learning will only further replace student reading and writing on paper with more of the screen-based instruction that has already lowered students' test scores and other educational outcomes. And AI tools also introduce new threats to learning beyond further integrating screens into the classroom. Not only do AI tools rob students of the cognitive benefits of reading and writing on paper—they can do the reading and writing for students by summarizing passages or coming up with an essay for them based on a prompt. As we wrote earlier, citing studies by MIT and others, the use of LLMs for educational processes results in significant cognitive costs to student learning.

These are not the only unique challenges posed by AI tools. LLMs are notorious for feeding users inaccurate, untrue, and biased results. A study found that ChatGPT-3 agreed with incorrect statements between 4.8% and 26% of the time, especially with common misconceptions and controversies. The researchers wrote that "model responses are inconsistent across prompts and settings, highlighting GPT-3's unreliability."[21] OpenAI itself, the company behind ChatGPT, found that its models had low levels of accuracy and high rates of "hallucination," or making up false information. The o4-mini model had only a .20 accuracy rate and a .79 hallucination rate. The o3 model had a .49 accuracy rate and a .51 hallucination rate. The o1 model had a .47 accuracy rate and a .44 hallucination rate.[22]

Children whose brains are still developing struggle to discern between reality and fantasy. A 2019 study in Frontiers in Human Neuroscience found that children's brains take a significantly longer time to judge between what is real or fantastical, and their brains require "more cognitive resources" to do so.[23] They have not yet developed the critical thinking skills or neurological hardware necessary to question potentially inaccurate information presented confidently to them by an LLM, or to recognize the difference between truth and error. These technologies take maturity to operate, and users often need to correct AI when it is wrong or to give it very narrow, specific instructions. Children are not developmentally capable of this.

AI can also easily be abused by students to cheat or access harmful content. A Common Sense Media report found that two in five teens have used generative AI to help with school assignments, and half of those teens did so without a teacher's permission. [24] *Forbes* reported that AI-powered study aid chatbots designed for children, such as KnowUnity's SchoolGPT and CourseHero's tutor bot, were easily manipulated to provide users with fentanyl synthesis instructions, extreme dieting advice, pickup artist techniques, instructions for making a date rape drug, and inappropriate content related to suicide.[25]

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[21] Khatun, Aisha, and Daniel G. Brown. "Reliability Check: An Analysis of GPT-3's Response to Sensitive Topics and Prompt Wording." *arXiv preprint arXiv:2306.06199* (2023).

[22] OpenAI, OpenAI o3 and o4-mini System Card, April 16, 2025, https://cdn.openai.com/pdf/2221c875-02dc-4789-800b-e7758f3722c1/o3-and-o4-mini-system-card.pdf.

[23] Woolley, J. D., & E Ghossainy, M., (2013), Revisiting the fantasy-reality distinction: children as naïve skeptics. *Child development*, *84*(5), 1496–1510, https://doi.org/10.1111/cdev.12081.

[24] Madden, M., Calvin, A., Hasse, A., & Lenhart, A. (2024). *The dawn of the AI era: Teens, parents, and the adoption of generative AI at home and school*. San Francisco, CA: Common Sense.

[25] Emily Baker-White, "These AI Tutors For Kids Gave Fentanyl Recipes And Dangerous Diet Advice," *Forbes*, May 12, 2025

Individualized AI tools could thus further contribute to the ways that educational screens and technologies are already distracting students from actual learning and exposing children to harmful content during school. For example, Common Sense Media found that nearly a third of teens have viewed pornography during the school day. Of these teens, 44 percent had viewed it on a school-issued device.[26] Teachers say they can't stop it, because by the time they get to a student's desk, the student clicks away from the site. IT departments try to block sites, but they simply can't stay ahead of it all. How much more difficult will it be for teachers and administrators to effectively oversee what each student's individual AI chatbot is saying to them or exposing them to?

Our overall concern is that integrating AI into general classroom instruction and personalizing it for individual student learning will only accelerate the negative trends caused by the EdTech revolution: lower scores, cognitive problems, access to harmful content, and more. The nascent research on the impacts of AI chatbots and LLMs suggests that AI poses new threats to children's learning as well. If it is not limited to the appropriate classroom settings and age groups, it is poised to undermine the development of children's literacy, problem solving skills, critical thinking, writing, and creativity.

We therefore urge the Department of Education not to further entrench ineffective and harmful educational screens into the classroom by prioritizing integration of AI tools into every class and onto each student's desk. We ask the Department of Education to instead adopt proposals that do not encourage schools to adopt AI tools as the main method of education and student learning. This would also align with the Trump Administration's goals to make American childhood healthy again. The initial Make America Healthy Again (MAHA) report pointed out the many harms to children's health and well-being posed by a screen-based childhood, including the decline in physical activity and the youth mental health crisis.[27]. These harms are not limited to screens used for entertainment; they are also relevant to the regular use of educational screens. If the Department limits the use of educational screens and AI technologies to a computer lab setting or computer class, it will thus also further the goals of the MAHA movement and the Department of Health and Human Services' work to improve children's health and well-being.

Conclusion

In its final priority and definitions, the Department of Education should include the sections in the proposed priority encouraging computer science education and AI training within computer class settings, as well as the sections encouraging training in AI literacy for teachers. The Department should remove or significantly limit the broad priorities on integrating AI literacy skills and concepts into learning practices and disseminating appropriate methods of integrating AI into education more generally, because of the concerns we outlined of students

[26] Robb, M.B., & Mann, S. (2023). Teens and pornography. San Francisco, CA: Common Sense.

[27] Make America Healthy Again Commission, *The MAHA Report: Make Our Children Healthy Again*, May 2025, https://www.whitehouse.gov/wp-content/uploads/2025/05/MAHA-Report-The-White-House.pdf.

using AI in school subjects beyond the computer lab, and the Department should remove the priorities encouraging individualized applications of AI for students.

Sincerely,

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