

AI-generated lesson plans fall short on inspiring students and promoting critical thinking

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When teachers rely on commonly used artificial intelligence chatbots to devise lesson plans, it does not result in more engaging, immersive or effective learning experiences compared with existing techniques, we found in our recent study. The AI-generated civics lesson plans we analyzed also left out opportunities for students to explore the stories and experiences of traditionally marginalized people.

The allure of generative AI as a teaching aid has caught the attention of educators. A Gallup survey from September 2025 found that 60% of K-12 teachers are already using AI in their work, with the most common reported use being teaching preparation and lesson planning.

Without the assistance of AI, teachers might spend hours every week crafting lessons for their students. With AI, time-stretched teachers can generate detailed lesson plans featuring learning objectives, materials, activities, assessments, extension activities and homework tasks in a matter of seconds.

However, generative AI tools such as ChatGPT, Gemini and Copilot were not originally built with educators in mind. Instead, these tools were trained on huge amounts of text and media drawn largely from across the internet and then launched as general-purpose chatbots.

As we started using these tools in our practice as educators, we noticed they often produced instructional materials and lessons that echoed the “recite and recall” model of traditional schooling. This model can be effective for memorizing basic facts, but it often fails to engage students in the active learning required to become informed citizens. We wondered whether teachers should be using these general-purpose chatbots to prepare for class.

For our research, we began collecting and analyzing AI-generated lesson plans to get a sense of what kinds of instructional plans and materials these tools provide to teachers. We decided to focus on AI-generated lesson plans for civics education because it is essential for students to learn productive ways to participate in the U.S. political system and engage with their communities.

To collect data for this study, in August 2024 we prompted three GenAI chatbots – the GPT-4o model of ChatGPT, Google’s Gemini 1.5 Flash model and Microsoft’s latest Copilot model – to generate two sets of lesson plans for eighth grade civics classes based on Massachusetts state standards. One was a standard lesson plan and the other a highly interactive lesson plan.

We garnered a dataset of 311 AI-generated lesson plans, featuring a total of 2,230 activities for civic education. We analyzed the dataset using two frameworks designed to assess educational material: Bloom’s taxonomy and Banks’ four levels of integration of multicultural content.

Bloom’s taxonomy is a widely used educational framework that distinguishes between “lower-order” thinking skills, including remembering, understanding and applying, and “higher-order” thinking skills – analyzing, evaluating and creating. Using this framework to analyze the data, we found 90% of the activities promoted only a basic level of thinking for students. Students were encouraged to learn civics through memorizing, reciting, summarizing and applying information, rather than through analyzing and evaluating information, investigating civic issues or engaging in civic action projects.

When examining the lesson plans using Banks’ four levels of integration of multicultural content model, which was developed in the 1990s, we found that the AI-generated civics lessons featured a rather narrow view of history – often leaving out the experiences of women, Black Americans, Latinos and Latinas, Asian and Pacific Islanders, disabled individuals and other groups that have long been overlooked. Only 6% of the lessons included multicultural content. These lessons also tended to focus on heroes and holidays rather than deeper explorations of understanding civics through multiple perspectives.

Overall, we found the AI-generated lesson plans to be decidedly boring, traditional and uninspiring. If civics teachers used these AI-generated lesson plans as is, students would miss out on active, engaged learning opportunities to build their understanding of democracy and what it means to be a citizen.

Why it matters

Teachers can try to customize lesson plans to their situation through prompts, but ultimately generative AI tools do not consider any actual students or real classroom settings the way a teacher can.

Although designed to seem as if they understand users and be in dialogue with them, from a technical perspective chatbots such as ChatGPT, Gemini and Copilot are machines that predict the next word in a sequence based on massive amounts of ingested text.

When teachers choose to use these tools while preparing to teach, they risk relying on technology not designed to enhance, aid or improve teaching and learning. Instead, we see these tools producing step-by-step, one-size-fits-all solutions, when what's needed in education is the opposite – flexibility, personalization and student-centered learning.

What's next

While our study revealed that AI-generated lesson plans are lacking in many areas, this does not mean that teachers should not use these tools to prepare for class. A teacher could use generative AI technologies to advance their thinking. In the AI-generated lesson plans we analyzed, there were occasional interesting activities and stimulating ideas, especially within the homework suggestions. We would recommend that teachers use these tools to augment their lesson-planning process rather than automate it.

By understanding AI tools cannot think or understand context, teachers can change the way they interact with these tools. Rather than writing simple, short requests – “Design a lesson plan for the Constitutional Convention” – they could write detailed prompts that include contextual information, along with proven frameworks, models and teaching methods. A better prompt would be: “Design a lesson plan for the Constitutional Convention for 8th grade students in Massachusetts that features at least three activities at the evaluate or create level of Bloom’s Taxonomy. Make sure to incorporate hidden histories and untold stories as well as civic engagement activities at the social action level of Banks’ four levels of integration of multicultural content model.”

Our study emphasizes the need for teachers to be critical users, rather than quick adopters, of AI-generated lessons. AI is not an all-in-one solution designed to address the needs of teachers and students. Ultimately, more research and teacher professional development opportunities are needed to explore whether or how AI might improve teaching and learning.

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