LLMs with Chain-of-Thoughts Advantage: Preparing Students for the Future of Problem-Solving and Problem-Posing

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AI is becoming increasingly powerful, making it easier for those who use it effectively to achieve significant advantages. This requires knowing how to interact successfully with artificial agents that, in many domains, are already surpassing human intelligence. This presents an unprecedented challenge to education, which traditionally assumes interaction primarily involves non-intelligent mechanisms. This outdated worldview assumes all intelligent agents have human-like psychology. However, present-day LLM-based artificial agents possess potent language and persuasive manipulation capabilities yet remain unreliable in planning and deductive reasoning—a surprising disconnect. Education must adapt to this new reality by focusing on Chain-of-Thought thinking, a crucial skill for navigating this landscape. This involves teaching strategies that prepare students for effective interaction with artificial agents, including the ability to critically evaluate information, solve complex problems, and even pose insightful questions. This demanding task requires new teaching skills and more complex classroom interactions, potentially increasing the teacher's cognitive load. We propose an app to support teachers during class, easing this burden and facilitating problem-based learning approaches that leverage Chain-of-Thought for deeper understanding. This approach not only equips students with essential skills for human-AI collaboration but also fosters critical thinking, problem-solving, and posing abilities crucial for success in the 21st century.