

How Depending on AI Can Impact the Analytical Skills and Critical Thinking of Young People

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Introduction

The debate about AI in education usually asks whether students should use these tools at all, but that misses the real issue. The problem is not the technology; it is how student work gets evaluated. When grades reward a polished output and tight deadlines leave no room for slow thinking, reaching for a tool that finishes the task in seconds feels like the only sensible choice. This essay argues that dependence on AI is a response to how learning is measured rather than a sign of laziness, and that it quietly erodes critical thinking. Drawing on my experience as an Industrial Engineering student, I will explain why banning these tools solves nothing and suggest a simple change that keeps the student's reasoning at the center.

Analysis

The main problem does not start with the technology by itself, but with the rewards. Students' work is evaluated based on the output, and there is big pressure because of the tight deadlines, so they take the easy way and use AI to finish tasks far faster than doing it themselves. When the evaluation is linked to the final result instead of the effort paid to reach it, that effort seems like a waste of time. Supporting this, there is a term some psychologists use called cognitive offloading, which simply means letting external tools handle the work that we should do ourselves (Gerlich, 2025). It is not always bad, since its impact depends on how far we include it in our work. A calculator, for example, only handles a small part of the whole task. A tool like ChatGPT or Claude, on the other hand, can conduct all the work, from problem identification to the final decision, in one prompt. Ultimately, this leads students to gradually lose their ability of critical thinking (Gerlich, 2025).

I experienced this myself in my second year, in an Operations Research course, when we had linear programming problems to solve for production planning. I just let ChatGPT work them on behalf of me, which made my work look correct and well

organized. But the story does not stop here. A lab took place after the theory part, so I had to build and explain the same model in a software. That situation was so hard to overcome. I could see the answer was right, but I could not rebuild the reasoning that got me there. I took the lesson from that, and from that moment I decided to go through any problem thoroughly and use critical thinking to reach the correct answer. This decision really helped me master the skill of modelling messy real-world systems and designing solutions for them, which is the core concept of my major.

Students who get into college with strong reasoning and analyzing skills usually use AI as just a supporting tool to enhance their work. But students who lack these skills tend to rely completely on it, and they accept whatever it gives them because they cannot analyze whether the results are true or false (Gerlich, 2025). Over time, this makes a real difference between the two groups. The strong thinkers keep developing their skills, while the others become more dependent on AI. Some lecturers respond to this concern by comparing AI with older technologies like spellcheckers and search engines, which also created concerns when they first appeared (Sparrow et al., 2011) but which people eventually learned to use. To some extent this comparison is reasonable. However, there is a very significant difference. Spellcheckers and search engines helped people with just small parts of the task, while current AI tools do the whole thing from beginning to end.

Solution

Banning these tools is not the right option, since that just pushes the usage out of sight. Changing the order of the work and its evaluation would be better, by putting the student's thinking first and the AI usage after it. In this order, the learner tries their best initially and records how they went through the problem, before using any external tools. After that first step, AI is no longer a replacement, since it attacks that reasoning, finds the holes, and asks harder questions, which maximizes the quality of the results and sharpens the student's critical thinking. This is very practical because it needs no big invention, it is just a change in the working process of ordinary assignments. It also aligns with the reality that accepts AI in a student's life and stops pretending the technology will go away.

Students should be responsible for how they use AI, whether as a learning tool or a shortcut, and they should not just depend on universities to create strict rules. Instead they can build their own standards. For instance, they could organize study groups where everyone shows their own attempt to solve a problem before asking AI for help. They

could also change the way of prompting, by asking AI for just hints or guidance rather than a complete answer. By doing this, students can definitely improve their analytical and critical skills, and more importantly they take responsibility for their own learning instead of depending entirely on rules made by teachers or universities.

Conclusion

AI does not weaken critical thinking on its own, the reward structure around student work is what pushes learners to treat it as a replacement instead of a support. My experience in Operations Research showed me how easy it is to produce a correct answer while losing the reasoning behind it, and how costly that gap becomes when you have to rebuild the logic yourself. The way forward is not to ban the technology but to reorder the process, so the student thinks first and AI comes in afterward to challenge and sharpen that thinking. This needs no major reform, only a shift in how assignments are structured, and it depends on students taking ownership rather than waiting for universities to write the rules.

References

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