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THE ROLE OF ARTIFICIAL INTELLIGENCE IN SCHOOL EDUCATION: SUPPORT OR DEPENDENCE?

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Abstract

Artificial intelligence tools have quietly become part of everyday school life. Students turn to them for explanations, homework help, and even ideas for essays. The question is no longer whether AI belongs in education, but what kind of relationship students are forming with it. This paper reviews open academic sources on the topic and tries to understand whether these tools mostly support learning or gradually create dependence. The literature shows clear benefits - faster feedback, more personalized explanations, and help when a teacher is not available. At the same time, researchers keep warning about cognitive offloading and the slow weakening of independent thinking, especially among younger students. The paper also looks at practical ways to keep students active, such as treating AI as a coach rather than an answer machine and developing real AI literacy. In the end, the value of AI seems to depend less on the technology itself and more on the pedagogical choices that surround it.

Keywords: artificial intelligence, school education, student dependence, critical thinking, cognitive offloading, AI literacy, independent learning, generative AI, educational technology, student agency.

INTRODUCTION

Over the last few years artificial intelligence has moved into school classrooms with surprising speed. Many students now open a chatbot almost as automatically as they used to open a textbook. They ask for explanations, request examples, check their answers, or look for ideas when they get stuck. Teachers, too, have started using AI to prepare materials and give feedback more quickly.

At first glance this looks like progress. Students can get help outside lesson time, and teachers can save hours on routine tasks. Yet a growing number of researchers and teachers feel uneasy. They notice that some students accept AI answers without much thought, copy them with only minor changes, and gradually lose the habit of struggling with a problem on their own. UNESCO has repeatedly stated that AI should support human learning, not replace the mental work that learning requires (Miao & Holmes, 2023). The real issue, therefore, is not whether schools should allow AI, but how to keep its useful sides while limiting the damage it can do to independent thinking.

This paper asks three related questions. Does regular use of AI reduce students' ability to work without help? How does it affect critical thinking? And what practical steps can schools take so that AI

remains a support rather than a source of dependence? The answers are based on a review of open research articles and policy documents.

MATERIALS AND METHODS

This work is a literature review. It does not present new classroom data. Instead it examines existing open studies on AI in education, with particular attention to school-level issues where possible. The main sources include UNESCO policy guidance (Miao & Holmes, 2023), research on large language models in education (Kasneci et al., 2023), studies of cognitive offloading (Gerlich, 2025), work on student agency (Darvishi et al., 2024), papers on AI literacy (Ng et al., 2021), practical classroom suggestions (Mollick & Mollick, 2023), and reviews of ChatGPT's impact (Lo, 2023).

Only freely available texts were used. Each source was read carefully, and the main claims about benefits, risks and recommendations were noted. These ideas were then compared and grouped around three themes: independent problem-solving, critical thinking, and ways of keeping students mentally active when they use AI. No special software was involved. The method is a straightforward qualitative content analysis, which seemed appropriate for a student paper of this kind.

RESULTS

The reviewed sources present a mixed but fairly consistent picture.

On the positive side, AI can offer personalised explanations and practice tasks that match a student's current level. Teachers can generate feedback ideas more quickly and free up time for other work (Kasneci et al., 2023; Lo, 2023). Some frameworks, such as the IDEE model (Su & Yang, 2023), try to give clear steps for using generative AI productively. Mollick and Mollick (2023) describe several useful roles for AI - tutor, coach, mentor - in which the tool supports the student instead of doing the work for them.

The risks, however, appear regularly. Gerlich (2025) found that frequent AI use was linked to lower critical thinking scores, largely through cognitive offloading - the habit of handing difficult thinking over to the machine. Darvishi and colleagues (2024) observed that many students rely on AI assistance rather than learn from it; when the help is later removed, performance often drops. Ng et al. (2021) argue that without proper AI literacy, students cannot judge the quality of the answers they receive and may simply accept incorrect or shallow information.

Policy documents stress the need for balance. UNESCO recommends age-appropriate limits and designs that keep human agency at the centre (Miao & Holmes, 2023). Taken together, the sources suggest that AI can support learning, but only when it is deliberately used as a tool for thinking rather than a replacement for it.

DISCUSSION

Reading these studies, one starts to feel that the technology itself is less important than the habits it encourages. When students treat AI as a machine that always provides the final answer, they practise less of the mental effort that builds real understanding. Critical thinking and independent problem-solving require a certain amount of struggle. If that struggle is repeatedly outsourced, the skills do not develop in the same way. The research on cognitive offloading and student agency points in this direction (Gerlich, 2025; Darvishi et al., 2024).

At the same time, the evidence should be treated carefully. A correlation between heavy AI use and weaker critical thinking does not automatically prove that AI causes the decline. It is possible that students who already find independent work difficult simply turn to AI more often. Many of the studies were also conducted with university students or adults. We cannot be certain that the same patterns appear with the same strength among schoolchildren, although the risk for younger learners may actually be higher.

Fortunately, the literature also offers practical suggestions. Teachers can ask students to critique and improve AI-generated answers instead of accepting them. They can design prompts that turn AI into a questioning coach rather than an answer provider (Mollick & Mollick, 2023). Schools can introduce

AI literacy so that students understand both the strengths and the clear limits of these tools (Ng et al., 2021). Assessment practices may also need to change. Tasks that require explanation, discussion, or personal reflection are harder to complete with AI alone (Lo, 2023). This last point seems especially important. If homework remains the same as it was ten years ago, students will naturally choose the easiest available path.

These issues are already relevant in Uzbekistan. Digital tools are spreading through the education system, and many students use AI chatbots in their daily studies. Questions about classroom rules, teacher preparation, and AI literacy are no longer theoretical. It makes sense to think about them now, before certain habits become fixed.

This paper has clear limitations. It relies only on secondary sources and contains no data from Uzbek schools. Future work could usefully observe real classrooms and talk to both students and teachers. Even so, the current review gives a reasonably clear picture of the main risks and of some ways to keep AI in a supporting role.

CONCLUSION

Artificial intelligence is now part of school education whether we like it or not. It can help students learn more efficiently and give teachers useful practical support. The same technology, however, can also encourage dependence and reduce the amount of genuine thinking students do, if it is used carelessly.

The sources examined here suggest that the outcome depends largely on pedagogical decisions. When AI is positioned as a tutor or coach and students remain active participants, it can support learning. When students simply copy answers, their independent skills weaken over time.

What becomes clear is that AI is neither inherently good nor inherently bad for students. It tends to amplify the habits of the person using it. A student who wants to understand more deeply can use it as a thinking partner. A student looking for the shortest path can use it to avoid learning altogether. For this reason, schools need clearer rules, systematic AI literacy education, and forms of assessment that still require real intellectual work. Teachers have to keep the student, not the tool, at the centre of the process. Only then can artificial intelligence become a genuine support for education rather than a quiet source of dependence.

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