

## THE ROLE OF AI IN FOSTERING CRITICAL THINKING AMONG STUDENTS

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**Annotation.** The article explores the benefits of hope for using AI in education as well as the consequences of consulting technology too much. The author calls for a balanced approach to AI integration, emphasizing the importance of maintaining traditional learning methods and fostering critical thinking.

**Keywords:** artificial intelligence, neural networks, critical thinking, higher education.

**Introduction.** In recent years, artificial intelligence (AI) technologies have had a significant impact on various areas of human life [3]. The field of higher education is also being influenced by AI, which is revealed in the active use of neural networks by students and teachers. For example, teachers consult neuronets to prepare for classes, and students use AI primarily to do home assignment [1]. AI can facilitate the learning process by providing students with required information, solving questions, and even doing different tasks [6]. A number of factors determines the use of a particular AI for educational purposes, therefore, the article provides a brief description of neural networks that can act as a virtual assistant for both teachers and students (Table 1).

Table 1 – neural networks and their application

Name of the neural network	Application of the neural network
ChatGPT, Gemini	creation and analysis of any kinds of texts on request, real-time dialogue with the user
Midjourney, Stable Diffusion, DALL-E	image creation and processing on request
Elicit, Explainpaper	search and analysis of scientific literature, creation of annotations, explanation of scientific articles
Smodin	creation and correction of any kinds of texts on a given topic, assistance in research work

However, it is crucial to recognize that AI is a tool and its effectiveness depends on how it is used. Teachers play a vital role in guiding students to use AI responsibly and ethically. Students must learn to question and analyse AI-generated information, rather than passively accepting it. Teachers also should emphasize the importance of developing digital literacy among students. Students must learn to navigate and evaluate digital information sources. Moreover, thanks to the promotion of the ethical AI use, young people will understand the potential biases and limitations of it. Most often, the disadvantages of AI include uncontrolled dependence, for example, on neural networks and chatbots. Unquestioning acceptance of AI results, no matter how inaccurate they may be, can have a very negative impact on both students' academic achievement and their mental abilities in general [2].

**Main part.** AI technologies in education provides students with customized learning opportunities because it analyses their performance and assigns tasks which correspond to their skills. For example, in mathematics, intelligent tutoring systems can provide learners with more than one method of solving a problem so that students can try solving the problem in so many different ways [5]. Such systems help create students who are more analytical and more critically conscious. The dilemma arises when students start relying on these aids too much because the balance tends to shift the opposite way and that is not good.

One of the most problematic aspects stems from the fact that having AI technology do all the work makes it difficult to hone autonomous critical thinking skills. Students using AI for everything tend to pose serious challenges in as much as they may refuse to check the information

against other reputable documents to test its credibility. They make conclusions based on what is termed “automation bias”, where learners blindly accept AI produced content as infallible truth despite the fact that the content presented may be biased or incomplete. As is the case with all information, data, or AI content produced from the algorithms trained on enormous databases, which are usually populated with outdated, biased, or erroneous information, the AI system problematics of spreading and validating wrong information and controlling systems on which humans are too reliant.

Frequently, these systems cannot explain how they got to the answers they produce. Students are less likely to do so if they do not have insight into the underlying reasoning [7]. A general inability for learners to see why specific conclusions were reached, leaves them drawing their own conclusions based on partial information that could carry detrimental consequences for their academic development and evaluation skills for many years to come. A significant number of students treat technological tools as sacrosanct, a factor that accentuates the problem. When students are not directed well, they can fail to appreciate the necessity to check through and validate all information generated by AI.

Therefore, the challenge that teachers face is one of incorporating AI into their curricula whilst also instructing students on validation and evaluation of the data it produces. It should be highlighted here that AI is not the absolute answer; it should be considered as one of the resources. Cognitive abilities and digital literacy should be honed in culture, so the students can differentiate between the right and the wrong set of information [8]. Overreliance on AI may mean less active engagement with the learning material. In providing all the information on a given subject as a single page with barely any work being done by a student in terms of studying, analysis, and synthesis, students may be losing the opportunity to develop strong critical and analytical skills. The overshifting by AI in the educational context would entail a passage from a dynamic and inquiry-based experience to a more passive consumption, thus stunting intellectual growth and curiosity [4].

**Conclusion.** Artificial Intelligence is an innovation capable of promising improvement in education through personalized learning and the promotion of critical thinking. However, the apparent excessive dependence on AI poses a threat. Students may uncritically accept tech information generated by AI-even when biased or erroneous-when technology dependence becomes predominant. Such addictive behavior prevents them from developing independent analytical skills and reduces the standards of academia. This demands teachers to mediate the risks posed by the preponderance of technology in education with a return to more traditional modes of independent research and critical evaluation. The active promotion of a culture in which AI-support is not the crutch but rather an enhancement to decision making will help empower students to be discerning and accountable in confronting the challenges posed by the world that continues to grow in digitalness [8].

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