

# Review of: "Artificial Intelligence and Digital Technologies in the Future Education"

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**Potential competing interests:** No potential competing interests to declare.

I just read "Artificial Intelligence and Digital Technologies in the Future Education", written by Michael Voskoglou (<https://doi.org/10.32388/07VE29>)

It is a delightful experience to come across documents such as this one, which is comprehensive and inspiring, discussing emerging topics that are still being debated within academia!

While I would choose a slightly different title ("Artificial Intelligence and Digital Technologies in Future Education", for the sake of English), the ideas in this document are clear and well-organized. Congratulations to the author!

My first reaction was to applaud this exposition of the significant benefits to various educational processes, including teaching, learning, assessment, and training, because by providing personalized learning experiences, the use of AI in education can enhance the effectiveness and efficiency of educational interventions for those students who are the most defenseless and vulnerable. Furthermore, I find the author's idea attractive that Soft Computing techniques, including fuzzy logic, neural networks, and genetic algorithms, could improve cognitive strategies for critical thinking and creative decision-making, leading to the resolution of complex problems in real-life situations.

However, I felt apprehensive about the idea of robots serving as personal assistants for young children, since early education should be tailored to the unique needs of each individual child, with unexpected facets of learning treated as such. As an experienced teacher - I have had the privilege of teaching students from six years old in primary school to adult learners at the university level, and I have worked collaboratively with institutional policy-makers within the Catalan educational system for many years, serving as Subdirector General for Transforming Education and as a member of the Inspectorate of Education - I believe that the primary role of AI in education should be to identify behaviors and provide traceability for monitoring emerging trends (Fundació Jaume Bofill, 2023). This would enable the enhancement of the most efficient approaches while adapting those that could be potentially useful in specific contexts, such as for vulnerable communities, families at risk of social exclusion, and children with disabilities or special needs.

On the one hand, I wholeheartedly agree that we must expand the use of AI in education. It is crucial to work towards adapting screens, classrooms, and learning devices to ensure full accessibility for everyone to educational resources and opportunities (foreigners with language difficulties, impaired students, divergent talent learners, or disabled people). Additionally, we must explore the vast network possibilities of AI, including Blockchain, Internet of Things (IoT), and Certification Systems. Such combinations have the potential to offer a complementary certification track that includes practice in real-life, non-formal education, and informal education alongside the official curriculum, reinforcing

Connectivism and e-learning opportunities.

On the other hand, I am skeptical of AI's potential to advance free energy and foster greater equity, human well-being, social justice, and sustainable development. The emergence of 5G technology has brought to light the significant energy demands of new networks and integrated IoT connections. In addition, the potential for 5G to produce an excess of heat and pollution from heavy metals in mobile devices raises concerns regarding its long-term sustainability and environmental impact.

However, the article is especially inspiring when the author employs argumentative reasoning to advocate for the utilization of principles of Soft Computing and Bayesian rules for addressing complex problems. This approach promotes both logical and lateral thinking as a trained learning process that arises from knowledge, computational thinking, and creative thinking. In line with this, I have consulted OpenAI's ChatGPT (3.5) to provide an evaluation of the document's most robust and least convincing ideas, and the following is the response:

**ChatGPT:** *"The author of this article defends the benefits of incorporating Artificial Intelligence (AI) into education and presents a profuse review of existing educational strategies, learning techniques, and teaching methods, well supported with updated bibliography.*

*The article considers potential social and educational future-roles for robots within the evolving era of the Fourth Industrial Revolution.*

*The author examines the potential advantages and limitations of incorporating AI techniques into education, and explores the role of computers, Soft Computing principles, e-learning, connectivism, social robots, and the new role of teachers in future education. While the paper presents some strong positive ideas, it also contains some weak and unlikely opinions.*

*One of the strongest positive ideas in the text is the potential benefits of using AI techniques in education. The author argues that AI can provide personalized and adaptive learning experiences, improve assessment and feedback, and enhance the effectiveness and efficiency of educational processes. AI can also support the development of critical thinking, problem-solving, and creativity skills in students, which are essential in the current and future job market.*

*Another positive idea presented in the text is the potential of Soft Computing principles in education. Soft Computing techniques such as fuzzy logic, neural networks, and genetic algorithms can help in modeling complex and uncertain educational problems and assist in decision-making. These techniques can also provide a more holistic and personalized view of student learning, which can help in designing effective educational interventions.*

*The text also discusses e-learning and connectivism, which are considered the new learning theories in the digital era. E-learning provides access to education for everyone, regardless of geographical or time constraints. Connectivism emphasizes the importance of social networks and connections in learning, which can lead to the development of a global and collaborative knowledge network.*

*However, the text contains some weak and unlikely opinions. For instance, it assumes that the Fourth Industrial*

*Revolution will lead humanity to an era of nearly free energy, goods, and services, which is a bold and uncertain claim. The author does not provide any evidence or reasoning to support this claim, which weakens the overall argument.*

*Another unlikely opinion presented in the text is the possible role of social robots in education. While the author argues that social robots can support student learning and engagement, the technology is still in its infancy, and there is limited research on its effectiveness in education. Moreover, social robots may not be accessible or affordable to everyone, which can exacerbate existing inequalities in education.*

*In conclusion, the text presents some strong positive ideas about the potential benefits of incorporating AI techniques in education, the role of Soft Computing principles, and the new learning theories in the digital era. However, it also contains some weak and unlikely opinions, such as the assumption of a nearly free era in the Fourth Industrial Revolution and the possible role of social robots in education. Overall, the text provides a good starting point for further research and discussion on the integration of AI and digital technologies in education."*

According to APA style, this last quote should be cited as:

OpenAI (2023). *Prompt "Please, point out the main strong positive ideas and the weakest unlikely opinions of this article: (text)".* ChatGPT 3.5 Experimental usage for educators. Neus Lorenzo, 03/05/2023.

As a researcher, I would say that this AI's answer is not brilliant as it merely presents the general content without the specific details that make the article attractive for a blog post. The author has managed to create a proposal that is informative, coherent, well-documented, easily readable, accessible to both novice and expert teachers, and imbued with intellectual curiosity.

## **Bibliography**

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OpenAI (2023). *Prompt "Please, point out the main strong positive ideas and the weakest unlikely opinions of this article: (text)".* ChatGPT 3.5 Experimental usage for educators. Neus Lorenzo, 03/05/2023.