Review of: "An Explorative Review of Artificial Intelligence Software (Chatbot) Impact on Education System"

Santo Di Nuovo[1]

1 University of Catania

Potential competing interests: No potential competing interests to declare.

The advantages of new technologies derived from A.I. in education are well known, as are their shortcomings and risks. The current world generation of "digital natives" can benefit from technologies like Chatbot that offer a wide availability of linguistic, auditory, and visual stimuli, allowing customization and constant monitoring of progress. Students are engaged at their own pace and needs and can take control of their own learning processes (Selwyn, 2011; Schindler & al., 2017).

A.I.-based technologies can help to develop so-called *soft skills* - such as communication, relational competence, self-confidence, and anxiety management - and improve mental and behavioral models with which the student faces problems and actively adapts to the demands of the environment.

More attention should be devoted to the great potential of technologies also for the inclusion and facilitation of learning for students with disabilities or other neuro-developmental deficits, or with special educational needs (e.g., language problems).

An issue to be explored is the *acceptability* of new educational technologies. They can be useful in schools if the attitude of teachers and educators overcomes the prejudicial concerns that they 'depersonalize' the educational process and are artificial substitutes for traditional education (the controversies against ChatGPT are well known). Technologies are 'intelligent' - and intelligently programmable - collaborators, not substitutes, to be used when human support is not sufficient (e.g., big classrooms, learning online, language problems) or it is not fully effective (e.g., for disabilities or special educational needs).

But it should be also avoided, on the contrary, the uncritical acceptance that delegates to technology the solution to school problems that cannot otherwise be tackled.

Specific studies have investigated teachers' and educators' perceptions of technologies, using the *Unified Theory of Acceptance and Use of Technology* (UTAUT) model, which examines the factors that influence the decision to use technology in educational practice. It has been hypothesized that A.I.-based technologies may be better accepted if they are more closely integrated with standard educational protocols, and the overall benefits may outweigh the costs.

Ethical aspects (i.e., problems of control of technologies) and *social issues* (assuring to all students the right to education through new technologies) should be treated more in detail.

Postman wrote in 1992 that we need to know in what ways technologies are modifying our conception of learning and

teaching. Now we have to understand how technologies can contribute to the right to education through a democratic diffusion of the digital world.

To this end, a theoretical foundation of didactic and psychology of cognitive and social learning is necessary, which allows technologies to be organically inserted into the educational programming for which the school “of all and for all” is responsible.

But educational technology, including Chatbots for their positive aspects, risks becoming a further object of the “digital divide”, i.e., a gap between those (families, schools, educational systems) who have easy access to digital technologies and those who are excluded, for variables as social status, income, geographical location (Jenkins, 2009; Wei & Hindman, 2011; Ragnedda & Muschert, 2013).

Easy usability and generalized acceptability by potential users must be added to economic sustainability, which should be explored experimentally in different contexts and for specific users (Klang & Murray, 2005).

And, last but not least, the ethical and legal problems concerning the security and protection of computer data, their illegal diffusion, and cheating or plagiarism, should be considered.

Bolarinwa & al.’s (2023) review should address more deeply these issues by reviewing the pertinent updated studies present in psycho-social literature, both in general and specifically regarding Chatbot.

References

Bolarinwa, J.D., Vincent O.R., Adenusi C.A. (2023) An Explorative Review of Artificial Intelligence Software (Chatbot) Impact on Education System, *QEIOS*, 3HIYE1 https://doi.org/10.32388/3HIYE1

Jenkins, H. (2009). *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century* Cambridge: MIT Press.

Klang, M. & Murray, A. (2005). *Human rights in the digital age.* London: Routledge.

Postman, N. (1992). *Technopoly: the surrender of culture to technology*.New York, NY: Vintage Books.

Ragnedda, M. & Muschert, G.W. (eds) (2013). *The digital divide: the internet and social inequality in international perspective*. London: Routledge.

Schindler, L.A., Burkholder, G.J., Morad, O. A., Marsh, C. (2017). Computer-based technology and student engagement: a critical review of the literature. International Journal of Educational Technology in Higher Education. 14 (1): 25. doi:10.1186/s41239-017-0063-0.

Selwyn, N. (2011). Education and Technology: Key Issues and Debates, London: Continuum International.

Wei, L. & Hindman, D. (2011). Does the digital divide matter more? Comparing the effects of new media and old media use on the education-based knowledge gap. *Mass Communication and Society 14*: 216–235.