Editorial

Ghost in the Machine: Artificial Intelligence in Medical Education

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How to cite: Hashmi AM. Ghost in the Machine: Artificial Intelligence in Medical Education. Ann King Edw Med Univ.2025;31(spi2): 97-98

Introduction

"I think, therefore I am" -Rene Descartes(1637)

I debated whether I should get ChatGPT or MetaAI (the two versions of Artificial Intelligence (AI) I am somewhat familiar with) to write an initial draft of this editorial. It seems simple enough: a few basic prompts and you get a nice, structured write up which although a little 'bland', can serve the purpose. After the initial work has been done by AI, one can always edit or modify to one's liking. Ultimately, I decided to write it the old-fashioned way, by sitting at my computer and typing. My hesitation about using AI was also because of a recent discussion at a friend's house. My friend, a science fiction writer and novelist of some renown, spoke vocally against the use of all AI and his arguments were two-fold: by using AI, we are, of course, doing huge corporations a favor by training their LLMs (large language models) for free. These are a certain type of artificial intelligence, specifically machine learning models trained on massive amounts of text data to understand, generate and manipulate human language. Every time you send a query to Chat GPT, Gemini, Llama or others, the model 'learns' more about the world of humans and can then build on it. My friend's other objection though, was more concerning: if a machine is writing an essay or an article or even a book, where is my own unique 'voice'? The answer, of course, is 'nowhere'! And if I am not forced to reach deep into my brain and tap into my own creativity, will that not ultimately lead to the 'dumbing down' of the human brain. The machines get smarter while we go the other way? It is a scary thought.

There is now a significant amount of data about AI in medical education in Pakistan. It used to be that we were forced to look to data from the West or neighboring countries and try and extrapolate the finding to Pakistan. In the last few years though, with dedicated efforts to ramp up research training, national and international collaborations and increased funding, a robust research culture has finally begun to develop in Pakistani medical institutions. AI in medical education is no exception. We now have data to show our student readiness about AI,[1] faculty perceptions and gaps,[2] medical student perceptions about AI,[3] barriers to AI adoption in our institutions[4] and some initial recommendations on how to integrate AI into our medical education systems[5] (full disclosure: I used a free version of ChatGPT to summarize the latest research on AI in Medical Education. My initial query was 'Summarize AI in medical education in Pakistan in 1000 words or less' followed by 'give me 5 of the most relevant references from the last 3 years').

Despite my friend's misgivings, I am hopeful that AI can help us overcome some fundamental challenges in our medical education system, both undergraduate and postgraduate. For instance, most of us complain that students are poorly trained in basic communication, both verbal and written. This is one reason that those wishing to go abroad have to pass

Production and Hosting by KEMU

https://doi.org/10.21649/akemu.v31iSpl2.6163
2079-7192/

English language proficiency tests and it is a sad commentary on our primary and higher education system. At a meeting of this Journal the other day, some teachers were bemoaning the fact that many submissions to Annals of KEMU or our sister student journal (JSPARK) are so poorly written that they are hard to even read, let alone review. I pointed out that perhaps an AI application like Grammarly (paid versions are available for a nominal price) can help to correct the English before an article is sent for peer review. Similarly, in my medical education course a couple of years ago, I found MetaAI very helpful when I was asked, for instance, to design a course of learning with various modalities of instruction, assessment and program evaluation built in. Since I was unfamiliar with what I was doing, the AI provided a basic 'scaffold' on which I could then begin my own learning. Similarly, when preparing a lecture or class, I often find it helpful to do a general search on AI (I prefer Chat GPT so far, the only one I am familiar with) to summarize the state of knowledge about the subject and pin point any obvious gaps in my own knowledge. Our students are, I am sure, using AI far more extensively to write essays, papers, projects, proposals etc since young people are usually far quicker to adopt any new technology. And while we remain concerned that they may use AI for unethical reasons, the same can be said for teachers.[6]

At the moment though, we are still in the 'early era' of AI and, just like the internet changed the world in ways that no one could have imagined 20 or 30 years ago, the same is set to happen with AI except even faster. Today, none of us can imagine a world without search engines, social media or video on demand. In 10 years or less, AI will revolutionize the world again, in ways that are hard to imagine today. But we need to remember that technology is a tool in the hands of humans and any tool is only as useful or as harmful as the person wielding it. Just as Google can bring up misinformation or disinformation which then needs to be verified, the same is true of AI. It can confabulate or even 'hallucinate' information which may be wrong, misleading or even dangerous. It cannot replace human effort and especially human creativity (yet). And, like any tool, it has the potential for misuse and abuse. AI is already built into the tools we all use every day to teach and learn. From Google and Microsoft Word to Powerpoint and Zoom, AI is everywhere and getting more sophisticated and ubiquitous by the day. Just like the internet, AI is here to stay and it is up to us to figure out how to integrate it in the work that we do for the benefit of our students, our patients and the world at large.

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