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Editorial

# Redefining Faculty in the Age of Artificial Intelligence: Implications for Medical Education

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## Introduction

The rapid embrace of digital technology, particularly artificial intelligence (AI), is leading to a paradigm shift for medical education. Peer-to-peer interactions, patient interactions, and human faculty have traditionally been the pillars of medical education. But increasingly, AI systems, from generative language models to intelligent tutoring platforms, assumed faculty-like roles, including lecturing, simulating clinical scenarios, providing feedback, and even advising students. Raising the issue of whether AI tutors should be recognised as "faculty" in medical education, this development does.

## The Development of AI Tutors

From basic e-learning systems to advanced systems with competency-based testing, adaptive learning, and individualised feedback, AI-driven tools have evolved. Natural language processing-based models can generate case studies, quiz items, and explanations depending on the levels of proficiency of the learners.[1] In parallel, AI-driven clinical case generators and virtual patient simulations provide realistic training environments that mirror the complexity of real healthcare.[2] AI instructors now become interactive mentors as well as providing content. Anatomical and physiological simulations by AI provide individualised instruction previously only provided by human instructors, while conversational agents probe diagnostic reasoning.[3,4] Such features suggest that AI's role may go beyond the role of a simple "tool" and begin to approach that of a faculty member.

## Justifications for Recognition

The scalability of AI tutors is among the strongest arguments in favour of their recognition as faculty. One well-established obstacle to medical education globally, especially in low-resource environments, is the lack of human faculty. AI tutors are available around the clock, which could democratise access to high-quality education in areas with a shortage of human resources.[5] AI tutors are excellent at personalisation in addition to accessibility. Personalised learning experiences lacking in conventional lectures are enabled by adaptive systems that can adjust to the pace, strengths, and weaknesses of every learner.[6]

Instructional consistency is another advantage. AI tutors provide standardised presentation, ensuring consistent abilities across diverse cohorts, compared to human teachers who might differ in interpretation and quality of instruction.[7] Besides, instead of replacing teachers, AI can complement them. AI enables human faculty to dedicate themselves to advising, crafting their professional personas, and engaging students in empathy building by taking away routine teaching tasks such as feedback and grading.[8] Lastly, recognising AI in a formal faculty role captures the reality of its inputs and can prompt organisations to implement, monitor, and govern AI ethically and responsibly.

## Arguments against Recognition

Strident arguments caution against granting faculty status to AI in light of these advantages. Preparing doctors involves the development of empathy, professional behaviour, and role modelling as well as knowledge transmission. These human values are foundational to the teacher-student relationship and cannot be substituted by technology.[9]

Over-reliance poses another problem. Students relying excessively on AI tutors risk losing their capacity for critical thinking and problem-solving. The cognitive intensity of medical training can be undermined by a process called "cognitive offloading", wherein students over-rely on external systems.[10] Reliability and bias are also crucial issues. Since AI systems are only as impartial as the information they are trained with, errors or inaccuracies in the outputs could perpetuate adverse inequalities.[11] AI tutors are not personally liable for false information, in contrast to human educators.

Recognition becomes more complicated by accreditation, ethics, and legal issues. No one knows who will be responsible if an AI tutor provides inaccurate advice: the developer, the institution, or the accreditor.[12] In addition, awarding faculty status may cause physicians to lose their sense of professional identity and possibly decrease the value of the human factor in teaching.[13]

## A Middle Ground for AI as Adjunct Faculty

Based on the benefits and limitations, it may be more convenient to conceptualise AI as an adjunct faculty instead of a substitute. AI tutors can be noted for their restricted roles under the immediate guidance of human instructors, similar to adjunct or visiting professors.[14] This approach maintains protections while also being truthful about their contributions. Under such a paradigm, AI systems provide scalability, adaptive learning, and consistent teaching, while human faculty still deliver the empathy, mentorship, and ethical modelling that are essential in medicine. Human and artificial intelligence thus play complementary parts in a cooperative pedagogy.

## Regulatory and Ethical Considerations

Tough frameworks need to be developed if AI is to be formally recognised in faculty roles. Transparency is key: students must know the limitations of AI tutors and be notified when they are dealing with them.[15] To ensure that all content provided through AI meets curriculum requirements and instructional standards, human intervention is still of prime importance.[16] It may become necessary for accrediting bodies such as the World Federation for Medical Education (WFME) to update their definitions of faculty credentials so that the closely managed incorporation of AI can be allowed.[17] Ethical standards for privacy, reliability, and proper AI usage in teaching should also be set by institutions.[18]

## Looking Ahead

AI tutoring looks positively toward the future beyond undergraduate studies. By scaling content to career phases and lifelong learning requirements, they would be an asset in residency programmes and continuing medical education.[19] AI literacy would need to take a top position in faculty development in order to prepare teachers to supervise and collaborate with AI systems effectively in the future.[20] Societal trust in technology on the regional level will likely be mirrored in cultural acceptance of AI as faculty. Institutions can negotiate these cultural idiosyncrasies with the help of comparative studies.[21]

## Conclusion

In the education of physicians, AI is rapidly transforming from a supporting tool to a central one. AI most definitely performs faculty-like roles in content provision, learner direction, and performance assessment, despite the fact that AI does not replace human faculty when it comes to empathy, advising, and modelling. The most reasonable approach could be to consider AI as adjunct faculty supervised by human faculty, rather than denying or embracing AI as faculty entirely. Such recognition promotes accountability, ethical conduct, and the indispensable humanistic aspects of medical education while affirming their contributions.

Ultimately, the question is not if AI can teach, but how it can collaborate with human educators to educate the next generation of competent, compassionate physicians.

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