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Special Editorial

AI in Medical Education Curriculum: The Future of Healthcare Learning

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To address the evolving, quantitative nature of healthcare in the twenty-first century, it is imperative to integrate artificial intelligence (AI) with healthcare education. To bridge this educational gap, it is imperative to impart practical skills for the utilisation and interpretation of AI in healthcare settings, integrate technology into clinical operations, develop AI technologies, and enhance human competencies [1].

The swift rise of AI in contemporary society can be ascribed to the progress of intricate algorithms, cost-effective graphic processors, and huge annotated databases. AI has been a crucial component of healthcare education in recent years and has been implemented by numerous medical institutions globally. AI is widely prevalent in medical education in Western countries, in contrast to developing countries. The disparity could be mitigated through more infrastructural assistance from medical institutions in underdeveloped nations. It is crucial to raise awareness among medical educators and students regarding AI tools to facilitate the development and integration of AI-based technologies in medical education [2]. AI can impact the student learning process through three methods: direct instruction (transferring knowledge to the student in a teacher-like role), instructional support (assisting students as they learn), and learner empowerment (facilitating collaboration among multiple students to solve complex problems based on teacher feedback). Incorporating artificial intelligence (AI) tools into education can augment students' knowledge, foster skill acquisition, and deepen comprehension of intricate medical topics [2,3].

Virtual reality (VR) can enhance the immersion of learning sessions with virtual patients. Virtual Reality (VR) is a software-driven technology that generates a virtual environment with three-dimensional characteristics. Virtual Reality (VR) uses a head-mounted display or glasses to build a computer-simulated environment that provides a convincing and lifelike experience for the user. Conversely, augmented reality (AR) enhances the real-world environment by superimposing virtual elements onto a user's perspective of the actual world through a smartphone or similar device. By integrating these technologies, learners are

able to investigate and actively participate in intricate clinical situations, resulting in a more pleasurable and efficient learning experience [4,5].

AI-powered games utilise data mining methodologies to examine the data gathered during gameplay and enhance the player's knowledge and abilities. In addition, they provide a personalised and engaging encounter that adapts the speed and level of challenge according to the player's achievements. Incorporating game components such as points, badges, and leaderboards enhances the enjoyment and engagement of the learning process. The implementation of gamification in the learning process boosts student engagement, fosters collaborative efforts, and optimises learning results. Additionally, they offer chances for clinical decision-making without any potential risks and provide instant feedback to the students, thereby becoming an essential component of undergraduate medical education [6].

By incorporating artificial intelligence (AI) techniques into learning management systems (LMS), learners are equipped with the necessary resources to achieve mastery at their own individualised pace. These computer algorithms assess the learner's level of understanding and deliver personalised educational material to help them achieve mastery of the content. The AI-powered platforms guide learners by effectively organising and arranging learning experiences, and then implementing targeted remedial actions. These customised and adaptable teaching techniques enhance the effectiveness and efficiency of learning.

Virtual patients are computer-based simulations that replicate real-life clinical events and are used for training and education in health professions. Virtual patients are built to simulate authentic symptoms, react to students' treatments, and create dynamic therapeutic encounters. The student assumes the position of a healthcare provider and engages in activities such as gathering information, proposing potential diagnoses, implementing medical treatment, and monitoring the patient's progress. These simulations can accurately reproduce a range of medical settings and expose trainees to the problems they might encounter in real-world situations. Medical students can enhance their communication and clinical reasoning skills by engaging with virtual patients in a simulated environment that closely resembles real-life situations [6,7].

Furthermore, AI-driven solutions can be advantageous for educational purposes in diagnostic fields such as radiology, pathology, and microbiology. Content-based image retrieval (CBIR) is a highly promising method utilised in the field of radiology for educational and research purposes. CBIR facilitates the search for photos that have similar content with a reference image, utilising information extracted from the images [8]. Moreover, artificial intelligence (AI) integrated with machine learning techniques is currently being employed to accurately diagnose microbial illnesses. This application of AI has significant potential in training and educating specialists in the field of microbiology. Conversely, the current progress in AI-driven deep learning technologies that specifically target cellular imaging has the potential to revolutionise education in diagnostic pathology [9].

Ultimately, incorporating AI training into the medical education curriculum is a transformative step that will shape the future of healthcare practitioners. This sequence provides enhanced diagnostic precision, personalised learning prospects, and heightened ethical awareness. These potential benefits surpass the obstacles, initiating a new era in medical education where human beings and technology collaborate to deliver optimal patient care. The purposeful and calculated integration of AI into medical education will have a pivotal impact on shaping the future of healthcare as we navigate this unexplored territory.

Keywords: Medical education, Artificial intelligence, Curriculum development, Healthcare technology, Adaptive learning

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