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Emerging Trends and Innovations in Medical Education: A Review of Key Messages from AMEE 2026

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Abstract

Background*:* AMEE 2026, held in Vienna under the theme "Educators as Catalysts," addressed how medical education can respond to technological, societal, and environmental change. This review identified its emerging topics and messages, including educators' roles, technologies, authentic assessment, equity, and planetary health, and related them to the literature.

Materials and Methods*:* This narrative review searched PubMed/MEDLINE, Scopus, Web of Science, ERIC, Google Scholar, and Persian databases (SID, Magiran, CIVILICA). Official AMEE 2026 materials, including the conference page, program, and MedEdPublish Gateway, were manually reviewed. Sources were selected for relevance to conference themes, prioritizing peer-reviewed literature and official materials. Findings were synthesized thematically and narratively.

Results: Seven themes emerged: educators as catalysts, generative AI, simulation and extended reality (XR), authentic and programmatic assessment, equity and social accountability, learner well-being, and planetary health. Educators were positioned as leaders of curriculum innovation, with faculty development essential. AI was viewed as a tool to augment, not replace, human judgment; it offers personalized learning and feedback but raises concerns about accuracy, bias, privacy, and academic integrity. XR and AI-enhanced simulation can strengthen skills training, but cost, access, and infrastructure remain barriers. Authentic and programmatic assessment should support learning and patient care while preserving validity and trust. Equity, decolonization, planetary health, and well-being were emphasized alongside clinical competence, with a digital and in-person approach recommended.

Conclusion: Educators must lead curriculum innovation, faculty development, and responsible technology integration. AI and XR offer considerable potential but require ethical governance, AI literacy training, human oversight, and equitable access. Assessment should preserve validity, fairness, and trust. A human-centered approach addressing equity, learner well-being, and planetary health is essential for sustainable healthcare education.

Key Words: AMEE 2026; authentic assessment; extended reality; generative artificial intelligence; medical education.

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1- INTRODUCTION

The annual conference of the Association for Medical Education in Europe (AMEE) is one of the most important international events in health professions education. It provides a platform for knowledge exchange, presentation of educational innovations, discussion of challenges facing medical education systems, and exploration of future directions in the field. The AMEE 2026 Conference was held in Vienna, Austria, under the theme "Educators as Catalysts: Building the Future of Health" (1, 2). In parallel, the Integrated Ottawa Event focused on "Authentic Assessment to Improve Healthcare and Learning Outcomes" (1, 2).

The main aim of AMEE 2026 was to highlight the role of educators as agents of change within health systems and to examine strategies that can align medical education with rapid technological developments, societal needs, environmental change, and the increasing expectations placed on healthcare professionals (1, 3). The conference brought together educators, researchers, policymakers, and healthcare professionals through workshops, symposia, oral presentations, posters, and specialized sessions. These formats created opportunities to share experiences and identify global educational and research priorities (2, 3).

The aim of this review was to identify and analyze the emerging topics presented at the AMEE 2026 Conference and to explain the key messages of the conference for medical education. Specifically, this review sought to examine the main conference themes, including the role of educators, emerging technologies, authentic assessment, educational equity, and planetary health. It also sought to relate these themes to the existing scientific literature.

Given the rapid developments in artificial intelligence (AI), digital technologies, assessment practices, and educational equity, a timely review of the key messages from AMEE 2026 can support a better understanding of the future direction of medical education and inform evidence-based decision-making (4-6). This review may be useful for policymakers, educational leaders, faculty members, and researchers in curriculum design, faculty development, selection of appropriate technologies, and prioritization of future research.

2- MATERIALS AND METHODS

2-1. Study Design

This narrative review examined contemporary literature and official materials related to the AMEE 2026 Conference. It aimed to identify the emerging themes, innovations, and key messages presented at the conference and to place them within recent peer-reviewed literature in medical and health professions education.

2-2. Search Strategy

A purposeful search strategy was used rather than a systematic review protocol. English-language literature was identified through PubMed/MEDLINE, Scopus, Web of Science, ERIC, and Google Scholar. Persian-language literature was searched in the Scientific Information Database (SID), Magiran, CIVILICA, and Google Scholar, using Persian equivalents of the main English keywords.

Search terms combined "AMEE 2026" with the principal review themes. These included "medical education," "health professions education," "artificial intelligence," "generative artificial intelligence," "large language models," "virtual reality," "augmented reality," "extended reality," "simulation," "authentic assessment," "programmatic assessment," "competency-based medical

education," "faculty development," "educational equity," "planetary health," and "social accountability." Boolean operators (AND, OR) combined the terms. The themes were informed by the official AMEE 2026 materials (1–3) and by recent evidence on artificial intelligence in medical education (4–6). The search focused on recent publications relevant to the conference themes.

In addition, the official AMEE website was manually reviewed. This included the AMEE 2026 Conference page, the conference program, and related official documents (1–3). The review used these to identify keynote themes, symposia, workshops, oral presentations, posters, and other conference-related materials. The MedEdPublish AMEE 2026 Conference Gateway was consulted as a supplementary source of conference-related publications and presentations.

2-3. Source Selection

Sources were selected for their relevance to the review objectives and their alignment with the main conference themes. Priority went to peer-reviewed articles, systematic and narrative reviews, empirical studies, authoritative guidelines, and official conference materials. Conference abstracts, posters, and presentation slides served as supplementary sources. The synthesis distinguished them from peer-reviewed publications.

2-4. Data Extraction and Synthesis

Relevant information from the selected sources was extracted and organized according to seven themes: educators as catalysts; artificial intelligence and generative AI; simulation and extended reality; authentic and programmatic assessment; equity and social accountability; learner well-being; and planetary health. Because the sources were heterogeneous, a narrative and thematic synthesis was performed instead of a meta-analysis. Findings were compared across themes to identify similarities, differences, emerging patterns, practical implications, and research gaps.

2-5. Ethical Considerations

Ethical approval and informed consent were not required, as this study reviewed only published literature and publicly available conference materials and involved no human participants or patient-identifiable data.

3- RESULTS

In line with the aim of this review, the findings are presented by the main themes identified from the AMEE 2026 Conference and the related literature. These were the role of educators as catalysts, artificial intelligence (AI) and generative AI, simulation and extended reality, authentic and programmatic assessment, equity and social accountability, learner well-being, and planetary health (1, 2).

3-1. Educators as catalysts

A central theme of AMEE 2026 was the role of educators as catalysts for change in health systems and medical education (1, 2). The conference theme, "Educators as Catalysts: Building the Future of Health," emphasized that educators should move beyond knowledge transmission. It called on them to take an active role in curriculum design, leadership, educational innovation, and responding to the changing needs of healthcare systems (1–3).

Sessions and workshops highlighted faculty development, educational leadership, and the ability of educators to facilitate learning in complex and uncertain environments. The conference also stressed the need to empower educators to lead change in the era of AI and digital transformation (1–3).

This theme is consistent with the wider literature, which identifies faculty development as essential for successful educational innovation and for maintaining quality in rapidly changing environments (4–6). Recent reviews also identify limited AI training, uneven institutional readiness, and gaps in faculty competence as barriers to responsible implementation (6, 7).

3-2. Artificial intelligence and generative AI

AI, particularly generative AI and large language models, was among the most prominent topics at AMEE 2026 (1–3). The conference explored its potential to support personalized learning, clinical reasoning, content generation, feedback, and administrative tasks (1, 2, 8).

The literature also supports a growing role for AI in medical education. Studies show that generative AI can assist knowledge acquisition, clinical reasoning, and formative feedback (5, 8, 9). Concerns remain about accuracy, hallucinations, bias, data privacy, academic integrity, and the need for human oversight (5, 7–9).

The key message from AMEE 2026 was that AI should augment, not replace, human judgment and clinical reasoning (1–3). This aligns with recent reviews that call for ethical frameworks, AI literacy, transparent institutional policies, and careful integration of AI into curricula (5, 7–9).

3-3. Simulation and extended reality

Simulation and extended reality (XR), including virtual reality (VR), augmented reality (AR), and mixed reality (MR), were also important themes (1–3). These technologies were discussed in relation to clinical skills training, anatomy education, communication skills, immersive learning, and hybrid or remote simulation (1–3).

The literature indicates that VR and AR can enhance experiential learning, knowledge retention, engagement, and procedural skill acquisition (10, 11). Remote AR simulation has shown feasibility and acceptability for communication-skills training. Hybrid systems may support tele-simulation and global medical education, particularly in resource-limited settings (10, 11).

Cost, accessibility, technical infrastructure, and the need for evidence-based implementation remain significant challenges (10, 11). AMEE 2026 highlighted the potential of combining AI with simulation to create more interactive and personalized learning (1–3). This is consistent with emerging research on integrating AI and XR in medical education (5, 10, 11).

3-4. Authentic and programmatic assessment

The Integrated Ottawa Event focused on authentic assessment as a means to improve healthcare and learning outcomes (1, 2, 12). Authentic assessment refers to evaluation methods that reflect real-world clinical tasks, professional responsibilities, and complex decision-making (1, 2, 12).

The conference also emphasized programmatic assessment, which integrates multiple data points to support learner development, feedback, progression decisions, and reflective practice (1, 2, 13). This is consistent with recent literature on programmatic assessment and competency-based medical education (13). The key message was that assessment should measure knowledge and also support learning, professional growth, and improved patient care (1, 2, 12).

Generative AI creates both opportunities and risks for assessment. It may support real-time feedback, objective scoring, and efficiency, but it raises concerns about validity, reliability, fairness, and integrity (3, 5, 8). AMEE 2026 therefore highlighted the need to reassess assessment design in the generative AI era

while preserving trust, transparency, and human judgment (1–3).

3-5. Equity, social accountability, and planetary health

AMEE 2026 also addressed equity, diversity, inclusion, social accountability, decolonization, language equity, and planetary health (1–3). Sessions on decolonizing health professions education, language equity, and climate and health were prominent in the program (1–3).

These themes reflect a growing recognition that medical education must prepare future professionals to respond to social, cultural, environmental, and global health challenges (1–3). The literature also supports integrating social accountability and planetary health into curricula (4, 10).

The key message was that medical education should focus on professionalism, equity, sustainability, and social responsibility as well as clinical competence (1–3). Future curricula should therefore integrate planetary health literacy and social accountability alongside clinical and technological competence (3, 4, 10).

3-6. Learner well-being

Learner well-being was another important topic (1–3). The conference addressed the effect of digital learning, online education, and technological change on student well-being and mental health (1–3). The literature indicates that online learning offers flexibility but can also contribute to digital fatigue, isolation, and reduced hands-on training (14). A balanced approach combining digital and in-person learning is therefore recommended (14). AMEE 2026 emphasized supporting learner well-being amid increasing digitalization (1–3). Innovations should be evaluated for their effects on well-being, professional identity formation, empathy, and the quality of human relationships in care, as well as for efficiency and knowledge outcomes (3, 5, 14).

4- DISCUSSION

The findings of this review indicate that health professions education is undergoing a substantial transformation. Educator-led innovation, generative artificial intelligence (AI), immersive technologies, authentic assessment, and a stronger focus on equity and planetary health are driving it. The AMEE 2026 Conference, under the theme "Educators as Catalysts: Building the Future of Health," positioned educators as key agents in translating technological and educational innovations into meaningful improvements in learning, professional development, and healthcare delivery (1–3).

A central message is that successful adoption of AI depends heavily on educators' capacity to lead, evaluate, and responsibly integrate these technologies. Generative AI and large language models may support personalized learning, interactive clinical scenarios, content generation, formative feedback, and administrative tasks. However, their educational value is not automatic and requires careful pedagogical design (5, 6, 8). A recent systematic review reports benefits such as efficiency and accessibility (15). Other systematic and scoping reviews note that evidence on educational outcomes is still developing and often comes from small, short-term, or single-institution studies (16, 17).

The literature also identifies important risks of generative AI, including hallucinations, inaccurate output, algorithmic bias, and data privacy concerns (8, 9, 18). Overreliance on AI may weaken critical thinking and reduce peer interaction if learners use it as a substitute for active reasoning (15, 18). AI literacy, clear institutional policies, ethical governance, and faculty development are therefore essential prerequisites for responsible implementation (6, 7, 19, 20).

The integration of AI with simulation and extended reality (XR) is a promising but still developing area. Virtual, augmented, and mixed reality can create immersive, repeatable learning environments that support procedural skills, anatomy education, communication skills, and clinical decision-making (10, 11, 21). Remote and hybrid simulation may also extend access to education, particularly in resource-limited settings. However, high equipment costs, technical infrastructure requirements, and unequal digital access may widen existing inequities if implementation is not carefully planned (10, 11, 19–21).

Assessment emerged as another major priority. The Integrated Ottawa Event at AMEE 2026 emphasized authentic assessment as a means of aligning educational evaluation with real-world clinical practice and improving both learning and healthcare outcomes (1, 2, 12). Programmatic assessment can complement this approach by integrating multiple data points over time to support feedback, reflection, progression decisions, and competency-based education (13). However, using generative AI in assessment raises concerns about validity, reliability, fairness, and academic integrity (3, 5, 8, 13). Assessment systems should therefore combine technological tools with transparent criteria, multiple sources of evidence, and human judgment.

Educational innovation must also be understood within its wider social and environmental context. AMEE 2026 addressed decolonization, language equity, diversity and inclusion, social accountability, climate and health, and planetary health literacy (1–3). These priorities reflect a growing recognition that medical education should prepare graduates for clinical competence and also for responding to health inequities, cultural diversity, environmental sustainability, and the social determinants of health (4, 10). Integrating these themes into curricula may help future professionals contribute to more equitable and sustainable health systems.

Learner well-being is another essential consideration in digital transformation. Online and technology-enhanced learning can increase flexibility and access, but it may also contribute to digital fatigue, reduced peer interaction, and decreased hands-on clinical experience (14, 15). A balanced model should therefore combine digital tools with in-person learning, supervised clinical exposure, peer collaboration, and adequate psychological and academic support (3, 5, 14).

Overall, AI, XR, and programmatic assessment have substantial potential to improve health professions education, but their impact will depend on how they are implemented. Educators and institutions must balance innovation with ethical safeguards, equity, learner well-being, humanistic values, and rigorous evaluation of educational and patient-related outcomes (1, 2, 5, 13, 22).

4-1.Study limitations

This review has several limitations. Its purposeful, non-systematic search may have missed relevant studies, and no formal quality appraisal was performed. Conference materials, including abstracts and programs, are not peer reviewed and may not reflect the full range of sessions. Restricting sources to English and Persian may have introduced language bias. Findings therefore represent a narrative interpretation of conference themes, not a comprehensive evidence synthesis.

5- CONCLUSION

This review highlights the main educational priorities emerging from AMEE 2026 and the related literature. Educators are increasingly expected to act as catalysts for change by leading curriculum innovation, supporting faculty

development, and guiding the responsible integration of emerging technologies into health professions education. Generative artificial intelligence (AI) and large language models offer considerable potential to support personalized learning, clinical reasoning, feedback, and assessment. Their use must be guided by ethical frameworks, AI literacy, data privacy protections, and human oversight to prevent misinformation, bias, and erosion of critical thinking.

Simulation and extended reality can enhance experiential learning and clinical skills development, particularly when combined with AI-enabled personalization. Equitable access, cost, infrastructure, and evidence of long-term effectiveness must be carefully considered. Authentic and programmatic assessment should be prioritized so that assessment supports learning, professional development, and improved patient care. As generative AI becomes more widely used, assessment systems must be redesigned to preserve validity, fairness, transparency, and trust.

Finally, medical education must move beyond technological innovation alone and address equity, social accountability, decolonization, learner well-being, and planetary health. A balanced, human-centered, and socially responsible approach will be essential to ensure that educational innovation strengthens, rather than undermines, the quality, humanity, and sustainability of healthcare.

6- AUTHORS' CONTRIBUTIONS

Study conception and design: AHS and MS. Data analysis and initial manuscript drafting: AP, and OJ. Critical revision of the manuscript: AHS. Supervision of the research: AP and MS. Final approval of the version to be published: AHS, AP, OJ, and MS.

7- CONFLICT OF INTEREST: None.

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