
| RESEARCH ARTICLE

Can Reinvigorated Faculty Recommit to Elevating Health Science Learning Experiences? Exploratory Perspectives from G20 and GCC Countries

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| ABSTRACT

Synthesizing literature across Group of Twenty (G20) and Gulf Cooperation Council (GCC) countries, this study examines whether reinvigorated faculty can recommit successfully to elevating undergraduate learning experiences for Gen Z students in health science programs. Driven by rapid global innovation, this transformation centers on competency-based learning, which overhauls traditional teaching models. This review assesses the transition to activity-based, experiential, and technology-driven approaches, specifically considering artificial intelligence, machine learning, virtual reality, and gamification in the optimization of educational experiences and outcomes. Furthermore, it addresses essential structural and psychological barriers, examining targeted training programs to mitigate tech anxiety alongside faculty networking and peer review to facilitate transitions that are crucial to reinvigoration. Finally, the study highlights the leadership prerequisites of clear governance, accountability structures, and mental health referral systems to support faculty in managing contemporary student dynamics, including Gen Z attributes and students with Attention Deficit Hyperactivity Disorder (ADHD). Ultimately, this landscape of international insights positions systemic faculty development as a critical strategic priority for advancing health science education and enriching the undergraduate learning journey and experiences.

| KEYWORDS

Faculty development; faculty reinvigoration; learning experiences; Gen Z students; health science education; G20 and GCC countries.

| ARTICLE INFORMATION

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Introductory Overview

Faculty reinvigoration embraces transformation that is driven by reforms in competency-based education, rapid technological innovation, demographic changes among faculty and learners, and heightened attention to wellbeing and inclusion. Furthermore, faculty development has been identified as a significant enabler of transformation. The literature study and review provide international perspectives on faculty development and support systems across the Group of Twenty (G20) and Gulf Cooperation Council (GCC) countries. It primarily focuses on undergraduate programs in medicine, dentistry, pharmacy, nursing, and allied health. There is a global push for active competency-based learning in the healthcare profession. For instance, the World Health Organization directs that graduates must gain collaborative and adaptable competencies, as well as a habit of lifelong learning, after completing their graduate studies. These demands call for new teaching and learning strategies, such as interprofessional education, problem-based learning, and effective use of technology. Institutions can achieve these learning outcomes through faculty development. This approach ensures that teachers and trainers are prepared to engage as learning facilitators in their responsibilities as educators. Historically, teaching has perhaps not had as focused attention as practice and

research in the health sciences. However, integrating similar incentives into any reinvigoration effort focused on advancing education roles might not necessarily meet the needs of undergraduate learners in the absence of the necessary corresponding elements in the ecosystem to shift the mindset to meet contemporary education contexts.

Faculty Reinvigoration by Transforming/Transitioning from Traditional Teaching to Activity-Based and Experiential Teaching Approaches

An important theme in the transition from traditional teaching to activity-based and experimental teaching approaches is the shifting of faculty instructional methods from passive lectures to active and experiential learning. Active learning means moving students from being passive recipients of facts to active participants in applying knowledge. The transition involves practicing problem-based learning, team-based learning, clinical simulations, lab practicals, peer teaching, and community-based projects. Heck et al. (2023) indicate that active learning improves students' critical thinking, comprehension, and even exam performance when compared to lecture methods. Some Saudi Arabian institutions, like King Saud University, King Khalid University, and Alfaisal University, have shifted their learning modality from teacher-centred learning to student-centred learning (Alhawiti, 2023). They have blended-learning and self-regulated learning strategies. Importantly, fostering self-regulated learning skills improved student performance. Further, Mani (2025) reports that providing training in active learning strategies and skills in curriculum planning, giving feedback, and understanding competency-based education can help improve the transition. In the study, collaboration and well-rounded development were considered integral in the transition process to achieve seasoned students (Mani, 2025). However, Heck et al. (2023) found that implementing active learning is challenging because of a lack of time to develop new active-learning materials and a lack of in-class time to cover content. Faculty also lack proper training, leading to resistance to change (Mounisamy et al., 2025). Another study asserted that faculty feel ill-prepared to implement active learning and fear losing control of the classroom, as was found in the University of Padua in Italy (Fedeli & Taylor, 2023). Other challenges include a lack of skills, confidence, and resources. Despite the challenges, active learning is considered a way of transitioning to activity-based and experiential learning in the GCC and G20 nations.

Faculty Development that Embraces Technological Approaches

Technological development is a key reinvigoration driver in transforming both clinical practice and education. Although the G20 and GCC countries are investing in education technologies, they are still grappling with how to train and support faculty in using them effectively. One way they have incorporated technology is through online and blended learning. Blended learning denotes combining in-person and online experiences. Notably, both online learning and blended learning have become standard approaches to learning in these countries. The approaches are facilitated by online platforms, learning management systems, and video conferencing (Bailey & Hillman, 2023). An unexpected outcome of online modalities is its role in international faculty development collaboration. Gardner et al. (2024) found that online modalities complement hands-on training and help to accommodate dynamic faculty schedules and time zones. US institutions have adopted this technology, and its uptake accelerated during COVID-19. Another technology that has been incorporated in education is simulation-based training. Schools in the Health Sciences, particularly Medicine and Nursing, are using high-fidelity manikins, standardized patient actors, virtual reality (VR) scenarios, and other simulation modalities to provide experiential learning. The presence of these technologies means that educators must also be trained to use simulation techniques (Gardner et al., 2024). Notably, US medical schools like Harvard and Yale provide intensive programs to train faculty in simulation teaching. The training enables faculty members to gain confidence and first-hand insights into facilitation techniques. So, simulation and blended learning have become crucial for faculty development.

Other critical technologies incorporated in health professional education are artificial intelligence (AI), machine learning, virtual reality (VR), and gamification. The use of AI is poised to revolutionize education across the Health Sciences. However, faculty members trained decades ago may feel out of touch with these new technologies. The G20 and some GCC countries have introduced training programs for faculty members. The programs range from learning sessions to structured programs. For example, US medical schools were skeptical about the technologies, but those who were introduced to them became advocates, reflecting peer-led faculty training on emerging tech (Boyle, 2025) that adopted a co-mentoring approach. Well-resourced G20 and GCC members are experimenting with virtual and augmented reality for medical training. The UK and other countries are providing training on how educators can embed VR in teaching. Another critical theme is bridging the digital divide. Not all faculty members are digital natives and therefore vary in openness to using technology. Joshi and Nyaupane (2024) found that faculty members under 40 tend to use digital tools while older members prefer traditional tools, although not all. The findings call for targeted support by enabling professional development and resource accessibility (Joshi & Nyaupane, 2024). Thus, technology development is a double-edged sword because it provides benefits but also demands new skills.

Faculty Support Programs for Faculty Who are Challenged by Modern Technology

The reviewed literature on support programs highlights the importance of ensuring that no educators are left behind. Faculty members may have vast clinical and practice experience but possibly struggle with combining digital technologies and learner-

centered approaches. These individuals lack digital literacy and confidence because most of them have never received formal training or supported students with particular needs, such as Attention Deficit Hyperactivity Disorder (ADHD). Younger members may pick skills up on their own, but veterans benefit more from structured programs. Different countries have used diverse approaches. Japan and South Korea have national programs, while in Europe, some provide incentive grants or release time for mid-career and senior faculty to enrol in courses on e-learning. Therefore, providing national programs or grants can help to support faculty members in adopting digital technologies although this is not a solution by itself.

Tech anxiety is an important psychological aspect to consider when providing training. Almutairi (2025) claims that in Saudi Arabia, the reluctance to teach online or use technology is rooted in anxiety about failure or looking incompetent. It can also be due to stress and pressures associated with using the technological tools. Beneficially, the study suggests strategies, such as training and mentorship programs for online teaching, together with ongoing coaching, which can reduce anxiety, stress, and pressure associated with the tools (Almutairi, 2025). Experience and clinical anecdotes can also be harnessed into case-based learning and mentorship opportunities or be used to train using simulation scenarios. For example, India engaged in a large-scale upscaling effort where trained senior professors became trainers in national workshops. Creating and normalizing a supportive culture is essential. Mentoring programs for junior and senior faculty members have been found to be effective, especially where they form an organic, ongoing group of practice observing each other teaching and giving feedback (Tugman et al., 2025). Finally, another effective support strategy is incentives and recognition. This approach involves explicitly rewarding efforts to innovate through participating in promotion criteria. The approach encourages faculty members to step outside their comfort zones. GCC countries like the UAE and Qatar have started offering awards and innovation grants targeting faculty members adopting new pedagogies. For sustainability, however, the focus has to be beyond mere incentives so that reinvigoration captures recommitment in the role of being a learning facilitator in the education ecosystem.

Faculty Networking Across Regions, Countries, and Globally

Educational reinvigoration can be accelerated using faculty networking and collaboration. These approaches enable educators to learn from peers within and across institutions, countries, and regions. The literature shows that networking supports the transition from traditional teaching to active and experiential pedagogies by facilitating knowledge exchange, peer support, and collective problem-solving (Tugman et al., 2025). At the institutional level, many universities have established faculty learning communities (FLCs) or academies of educators to promote teaching excellence. For example, the University of Padua in Italy used community-of-practice models to foster sustained engagement with active learning (Al Amoush & Farhat, 2025). Canada and the UK have national forums and digital communities where medical schools and faculty developers exchange best practices. Peer observation and peer review programs also combine quality assurance with professional learning to strengthen the networks. Studies from nursing and medical schools demonstrate that, when framed developmentally rather than evaluatively, peer observation enhances reflective practice and cross-departmental collaboration (Tugman et al., 2025). Professional associations are also powerful hubs for international faculty collaboration. For instance, the Association for Medical Education in Europe and the International Association of Medical Science Educators provide conferences, webinars, and fellowship programs that connect educators across G20 and GCC countries (Wolters Kluwer, 2025). These networks facilitate the diffusion of pedagogical innovation and collaborative educational research.

Faculty Associations and Agency for Collaboration

Institutions like the World Federation for Medical Education (WFME) further promote networking through regional faculty development activities aligned with global standards. A particularly influential model is the Foundation for Advancement of International Medical Education and Research (FAIMER). The model has developed a worldwide network of health professions educators through longitudinal faculty development institutes operating across multiple regions (Vyas et al., 2023). FAIMER fellows frequently translate global learning into local impact. The translation influences institutional practice and national faculty development policies (Vyas et al., 2023). Faculty networking also enables global benchmarking through exchanges and collaborative projects. The networks link institutions to co-develop faculty training modules. In the GCC countries, international conferences and partnerships with global medical schools also embed faculty development within transnational collaboration. Consequently, the presence of faculty association and collaboration enhances the transition of the faculty.

Faculty Peer Review Programs for Monitoring the Effectiveness of Transitions and Transformation

The establishment of new teaching methods demands effective maintenance and monitoring of teaching quality. The complexity of active and experimental teaching has led many institutions to implement peer review of teaching and other quality assurance processes to ensure the transition improves learning. Peer observation of teaching is used in G20 universities as both a developmental and evaluative tool. Peer observation involves a colleague observing a teacher's class and providing formative feedback. Notably, when the practice is done in a collegial, supportive way, it strengthens the teaching practice of both observer and observed. In the United States, an ad hoc peer observation initiative transformed into a structured, supportive program. Peer

review also helps to evaluate active learning because it can assess facilitation skills, student engagement, questioning strategies, and debriefing quality. Therefore, peer review is essential to monitor and assess experimental teaching.

Students' feedback and learning outcomes are also vital assessment tools, but they are to be cautiously interpreted. For instance, student satisfaction can decrease after the introduction of active learning, even when outcomes have improved (Alcalde & Nagel, 2019). Governance and accreditation also assure quality during transition. Some institutions demand that teachers have formal faculty training before implementing high-stakes methods such as simulation-based assessment. Others link faculty development participation to promotion and reappointment. For instance, Indonesia and India require certified teacher training for medical faculty. External accrediting bodies, including the WFME and the Liaison Committee on Medical Education, demand evidence of faculty development, peer review, and active learning integration. Monitoring is also about continuous improvement. The statement shows that faculty development is moving towards a cyclical model. Singh et al. (2025) emphasize applying theory when dealing with large-scale development to identify barriers at all levels and iteratively address them. Thus, students' feedback, learning outcomes and government accreditation are essential in the transition process.

Implementation Strategies, Monitoring and Effectiveness, Governance, and Policy Initiatives

Implementing faculty development at scale requires coordinated strategies supported by governance and policy frameworks. The G20 and GCC countries normally use an evolving approach to policy, ranging from centralized mandates to decentralized, incentive-based models. Each policy shapes how effectively institutions transition to active and experiential teaching. Another prominent example of a mandate-driven approach is India's national faculty development strategy. Notably, through the former Medical Council of India (now the National Medical Commission), all medical faculty were required to complete certified training in modern pedagogy (Vagha, 2020). The pedagogy was delivered through a national network of regional training centres using a cascading "train-the-trainer" model (Vagha, 2020). Compliance was explicitly linked to accreditation, creating accountability while ensuring nationwide coverage (Medical Council of India, 2020). Although not compulsory, national programs have been explored in other centrally governed systems, such as Mexico. Conversely, decentralized higher education systems normally use incentives rather than mandates. For example, in the United States and Canada, faculty development is encouraged through innovation grants, protected time, teaching academies, and promotion criteria that reward educational excellence. Germany and several other European countries use hybrid approaches that require new faculty to complete teaching certification programs that include training in learner-centred and technology-enhanced pedagogy (Kikbanova & Zhiyenbayeva, 2026). Therefore, government policies provide a coordinated approach to implementing the transition.

Governance structures also play a critical role. Centres for teaching and learning or offices of faculty development typically coordinate strategy and align faculty development with accreditation requirements and institutional goals. Governance structures such as faculty development committees with departmental representation enhance relevance and buy-in. Regional bodies and accrediting bodies, like the WFME, embed faculty development expectations within quality standards (Coria et al., 2023). These expectations make training and innovation a condition of institutional legitimacy. Monitoring and accountability mechanisms reinforce implementation. Ministries and accrediting agencies demand that institutions report faculty development participation rates and evidence of active learning integration. The WFME Global Standards explicitly mandate staff development programs and encourage faculty exchange, reinforcing policy alignment across national systems (Kelly et al., 2026). Hence, international evidence suggests that the most effective implementation strategies combine high-level commitment, adequate resources, faculty ownership, and accountability mechanisms.

Faculty Managing Generation Z, Diversity and Students with ADHD

Modern undergraduate classrooms are diverse in terms of generation, neurodiversity, culture, and mental health needs. Faculty development programs across G20 and GCC countries now recognize that effective teaching requires adapting to Generation Z (Gen Z) learners, supporting students with ADHD and other learning differences, and fostering inclusive, culturally responsive environments, and to explore gamification as part of learning strategies. Gen Z learners (born ~1997–2012) are digital natives accustomed to rapid information access, multimedia content, and constant connectivity. This generation prefers interactive, visually rich, and technology-enhanced learning over traditional lectures (Shirazian et al., 2025). They expect frequent feedback and clear links between learning activities and future career outcomes. Faculty development initiatives emphasize active learning, purposeful use of technology, and transparent communication about learning objectives. Faculty members are trained to manage digital distraction through negotiated technology norms rather than rigid bans. So, faculty development should evolve to support dissimilar teaching practices that meet the diverse needs of modern undergraduate learners.

ADHD and neurodiversity are visible in health professions. Many faculty members lack formal training in this area. Teachers tend to misinterpret behaviours such as restlessness or missed deadlines. Development programmes incorporate Universal Design for Learning principles to encourage multiple ways of engaging with content and demonstrating learning (Ismailov & Chiu, 2022). Practical strategies include breaking lectures into shorter segments, providing clear structure and reminders, integrating

movement or active breaks, and offering flexibility where appropriate. Collaborating with disability services and mental health professionals helps faculty build both knowledge and empathy. Cultural diversity and student well-being are also central. GCC countries' multicultural classrooms demand training in culturally responsive teaching to ensure equitable participation. Canada and Australia have also embedded indigenous cultural competence in faculty development. Additionally, given high levels of anxiety among Gen Z students, faculty are often trained to recognize distress and refer students to appropriate support, sometimes through Mental Health First Aid programmes. Overall, these approaches point towards the importance of having faculty development programs that ensure educators have the right skills and expertise to handle learners with diverse needs.

Referral Systems for Faculty to Mental Health Professionals

Amid intensified expectations for pedagogical innovation, faculty well-being has emerged as a critical dimension of sustainable faculty development. Academic staff face escalating pressures from heavy teaching loads, research demands, administrative work, and the need to redesign courses using active and technology-enhanced methods. Burnout in academia is now widely recognized in health professions education. Empirical studies show that faculty stress, anxiety, and depression equal or exceed student levels (Liu & Wang, 2024). Further, Nechita et al. (2025) reported that healthcare educators experienced moderate to severe burnout and also showed symptoms such as exhaustion, sleep disturbance, emotional detachment, and declining motivation. Chronic stress undermines teaching quality, increases turnover, and poses serious health risks, therefore making burnout both a human and institutional concern.

Many G20 universities have expanded employee assistance programmes. They have introduced on-campus counselling and faculty-specific wellness services. Faculty development centres offer workshops on time management, mindfulness, and work-life balance (Nurunnabi et al., 2020). Professional bodies emphasize that mental health support must be paired with structural reforms, such as reasonable workloads, supportive leadership, and faculty participation in decision-making. Integrating wellness into faculty development is also crucial (Keskin et al., 2026). Forward-looking programmes embed well-being into teaching development rather than treating it as separate. Facilitators openly acknowledge the stress of pedagogical change, encourage peer discussion, and establish ongoing faculty cohorts that provide both instructional and emotional support. Additional interventions include peer support circles, mental-health days, encouraging training department heads to recognize burnout, and providing access to counselling and stress-management resources. Some institutions now include faculty well-being in strategic plans, limit excessive teaching assignments, and promote sabbaticals or professional leave. Burned-out faculty are less likely to implement interactive, student-centred teaching, whereas supported educators are more innovative and engaged.

Conclusion

The transition from traditional to activity-based and experiential teaching in health sciences is complex, but necessary to grasp the rapidly evolving contexts in a digital world that is not static. The benchmarking across G20 and GCC countries has shown convergence on core principles, such as active learning, technology integration, collaboration, and inclusivity. However, there are also divergent paths in implementation shaped by local context. This review established that faculty development is vital for sustainability of educational advancement. Therefore, countries that regard faculty development and reinvigoration as a strategic priority will be better positioned to cope with the complexity of contemporary dynamics, making allocating funding and institutional support crucial in tandem with combining top-down and bottom-up approaches. In essence, faculty development and reinvigoration is a strategic investment that can lead to a future education system across the health sciences that is inclusive, innovative, and resilient.

Disclaimer:

The views expressed are entirely those of the coauthors, and therefore are not necessarily perspectives of the institutions associated with the coauthors. It is declared that there are no conflicts of interest. Furthermore, the coauthors are not responsible for any errors or omissions, and/or for the results obtained from the sources used to generate this review publication. The coauthors therefore bear no liability to any person for any loss or damage arising out of the inaccurate use of the information provided in the review.

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