

Strengthening postgraduate dental education: upholding standards while preserving human-centered care

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Introduction

Postgraduate dental education in Malaysia is undergoing rapid change. Two priorities are essential as the next generation of oral health professionals are educated by the dental profession to ensure the continued delivery of high-quality specialist care: adopting new technology and maintaining human-centered values. In addition to expanding postgraduate dental education beyond local geographic areas and maintaining globally recognized quality standards, postgraduate dental education programs must also be flexible to respond to the different community-based health needs that vary significantly across geographical, socioeconomic, and cultural contexts (Arany *et al.*, 2023). In Malaysia's evolving educational landscape, how can postgraduate dental education ensure that standards of competence remain comparable across countries while remaining responsive to local needs?

International competency frameworks and competency-based programs

Competency-based frameworks of education have become increasingly important in postgraduate dental education because they enable comparisons of the quality of education and graduates' competencies across countries (Şahin & Ural, 2025). Recently the World Federation of Orthodontists (WFO) released international guidelines for postgraduate orthodontic education that utilize a competency-based framework to evaluate postgraduate education on an international basis (Ono *et al.*, 2023). The guidelines identified several core competencies regardless of the training locations of postgraduate orthodontic programs, such as clinical skills, professionalism and communication. In response to the significant variability in program structure, duration and assessment methods in periodontics, the European Federation of Periodontology has similarly undertaken efforts to harmonize competencies and assessment approaches to

promote consistency in specialist periodontic education across Europe (Goldstein *et al.*, 2024).

Although the trend towards developing global standards for education has good intentions, it also runs a risk of favoring some forms of educational models over others. Competency-based frameworks developed by high-resource countries with established assessment systems are less likely to transfer to regions with different scopes of practice, regulation, and patient populations (Shin *et al.*, 2021). The question is not about whether we should go forward with competency-based education, but rather how to implement it that is relevant to our local needs while maintaining international credibility.

The integration of entrustable professional activities (EPAs), a competency-based evaluation method for determining when students are ready to function independently to complete specific professional activities, is a new trend in dental education (Ten Cate & Taylor, 2021). In my opinion, EPAs can be developed for many specialty areas within dental education. They could provide a framework to connect competency domains and specific clinical tasks by defining 'units of professional practice' that can be entrusted to students when they have demonstrated sufficient competence (Sethi *et al.*, 2024). Successful implementation depends on providing extensive faculty development to ensure that all faculty members are trained in a reliable manner to use them to assess their students. This is in agreement with a cross-sectional survey of postgraduate dental faculty and trainees, which reported that 63% of faculty members felt that prior training was necessary for effective implementation of the EPAs, and thus the authors recommended "comprehensive faculty development programs" and faculty calibration sessions to ensure consistency in the evaluation process (Yousuf *et al.*, 2025). However, EPA implementation may also be constrained by the practical challenges associated with incorporating them into current assessment systems without adding additional assessment burden (Andreou *et*

al., 2024). In this context, international collaborations and benchmarking could provide a strategic approach to address the practical limitations by enabling shared development efforts, faculty calibration, and the standardization of assessments across institutions (Encandela *et al.*, 2023).

Value-based education and education for sustainable development: expanding the mandate

Recently, two additional educational components that are becoming increasingly emphasized in postgraduate dental education are Value-Based Education (VBE) (Nafea *et al.*, 2025) and Education for Sustainable Development (ESD) (Dixon *et al.*, 2025). VBE places an emphasis on students developing a sense of ethical responsibility, professional integrity, empathy and social accountability as core competencies that will guide the students' clinical decision-making processes and interactions with patients. VBE could be explicitly included or incorporated in every aspect of a curriculum including the assessment process and clinical supervision to ensure that students demonstrate not only technical competence but also the moral compass that is required to lead the next generation of specialist dental professionals (Rehman *et al.*, 2023).

The incorporation of ESD into the curriculum builds on the foundation of VBE by connecting the training of specialist dental professionals to the United Nations' Sustainable Development Goals (SDGs) specifically related to health equity, quality education and responsible consumption (Chand *et al.*, 2025). The concept of sustainability in health care implies a stewardship of health systems along three complementary dimensions: systems resilience, the promotion of patient welfare, and equitable access to specialized care (Muteb Dgheman Al Shamry *et al.*, 2024). This means having the financial and operational resources necessary to maintain viability in the face of changing populations' needs and an emphasis on long-term health outcomes and preventive efforts, whilst reducing inequities relating to

socioeconomic status and geographical areas.

Furthermore, a case-based and problem-based approach to learning in specialist dental programs is becoming a trend internationally and is supporting the development of ethical reasoning, shared decision-making and reflective practice (Wang *et al.*, 2021). Several Malaysian dental institutions have developed blended models of curriculum design including modules that provide an opportunity for active learning and competency-based curricula in areas such as dental materials science and special care dentistry that can support student-centered approaches (Mohamed Rohani & Mohd Nor, 2021; Lin *et al.*, 2023). These student learning experiences will empower specialists to respond to the rigors of clinical decision making, communicate risks effectively to patients and deliver patient-centered treatment options. As a matter of fact, these are the competencies needed to address the complex health challenges of the 21st century.

While VBE and ESD principles find increasing endorsement in higher education frameworks, the implementation remains a primary obstacle (Kuan, 2025). Dental specialist programs are already pressured to accommodate the ever-expanding components of clinical knowledge and technology in fixed training periods (Bamedhaf *et al.*, 2025). Incorporating specific VBE and ESD components into specialist curricula would require difficult decisions about what existing content might need to be streamlined. Assessing values, attitudes, and behaviors is inherently challenging and Field *et al.* (2023) recognized the need for valid assessment methods that adequately address these dimensions without reverting to self-report or knowledge-based testing.

Integration of artificial intelligence in postgraduate dental education

Artificial Intelligence (AI) is making its way into disease diagnosis, treatment planning and educational resources for the dental profession. Genuine concerns have been

raised about the use of AI. Glick *et al.* (2022) reported that inexperienced dental clinicians using AI assistance to inform their clinical decision-making exhibited an over-reliance on the AI recommendation. A scoping review has identified ongoing issues such as algorithmic bias, data privacy, variability in models and a lack of clinician input in the development of AI, and consideration of its ethical implications (El-Hakim *et al.*, 2025). If these are not resolved, professional judgments of clinicians may be jeopardized and consequently put patients' welfare at risk of harm. Postgraduate dental education should therefore retain its emphasis on critical thinking and reflectivity so that specialists learn to make use of AI as an analytical assistant to professional judgment rather than as a replacement for it. When AI is introduced in a human-centered and ethically governed way, it can facilitate rather than detract from using the principles of VBE in the training of specialists, while protecting professional responsibility, and the ethics of implementing the new technology (Rokhshad *et al.*, 2023).

Keeping the human at the center: rhetoric or reality?

The real question now arises: are humanistic competencies meaningfully implemented in postgraduate education and practice, or do they remain largely "filler" statements within curriculum documents?

Humanistic competencies are often afforded less curricular time, fewer faculty development opportunities and less rigorous assessment frameworks compared with technical and procedural skills (Morrow *et al.*, 2023). Thus, many curricula find assessment of empathy, compassion and ethical reasoning difficult to achieve to the same degree of rigor that clinical competencies are assessed (Naguib *et al.*, 2020).

Sauerbrei *et al.* (2023) highlighted recommendations such as protected curricular time for humanistic skill development, intensive faculty development initiatives modelling and teaching relational competencies, robust assessment

approaches for both empathy and ethical reasoning, and rich institutional cultures recognizing both humanistic and technical competencies. Morrow *et al.* (2023) suggested pairing “relational” skills with “technological” skills through human-AI caring models, demonstrating to students a model of patient care and education that combines high-tech and relationship-centered approaches. However, this is not possible without careful curriculum design, resources, and institutional support for implementation of these educational models. It begs the question of whether the structures that constitute dental postgraduate education today can sustain these dimensions of care in light of healthcare’s rapid technological change, and the degree of substantive changes that we ought to make to cultivate the humanistic dimensions of care in the future. To what extent will we need to change our courses?

Conclusion

Postgraduate dental education needs to balance international standards with local relevancy, embrace new assessment frameworks in resource constraint environments and preserve humanistic competencies in an ever-increasing technological training environment. In Malaysia, this will be based on building upon dental education reforms and translating these reforms into postgraduate specialist training through locally adapted competency frameworks, strengthened faculty capacity, regional collaboration and coordinated partnerships, and responsive accreditation standards. Ultimately, the long-term sustainability of postgraduate dental education relies on a collective effort to produce specialists who are not only technically proficient but also grounded in ethics and social responsibility.

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