Professional Competencies and the Dental Curriculum – A View from 'Down Under'

by

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Abstract

Contemporary dental education requires a student-centred, competence-based curriculum that facilitates training for our next generation of practitioners, emphasising in particular their roles as clinician scientists, critical thinkers, oral health team leaders and life-long learners. In this article, Peter Thomson presents a view of dental education from ‘down under’ and reviews the Australian Dental Council’s 2023 approach to defining the professional competencies required of newly qualified dental practitioners and reflects upon how dental curricula must continually change and adapt to deliver the precise knowledge and skills required of modern dental practitioners.

Introduction

Dental graduates must acquire extensive knowledge and have to develop substantive clinical and practical skills during their undergraduate studies in order to practice successfully as dental practitioners. Contemporary dental education is based upon a student-centred, competence-based learning approach that facilitates training for our next generation of practitioners, and emphasises their roles as clinician scientists, critical thinkers, oral health team leaders and life-long learners. Lifelong learning for the providers of oral healthcare services is now recognised as a fundamental component of a dental school's educational mission and is, of course, a continuum during which undergraduate education and subsequent graduation as a dental practitioner merely heralds the beginning of their professional journey[1,2].

Whilst accepting the autonomy of educational providers to design and deliver courses independently, curricula for dental education are increasingly based upon the achievement of professional competencies defined and articulated by the various regulators of the oral healthcare professions. Course learning outcomes, objectives shared between staff and students to facilitate the learning and assessment process, are thus aligned to the required professional competencies that students must demonstrate at graduation to facilitate registration and to then enter fully independent or partially supervised clinical practice[2].

Dentistry Regulation in Australia

Unlike the United Kingdom (UK), there are no foundational training programmes for newly qualified practitioners in Australia. At James Cook University (JCU), therefore, the overarching aim of our 5-year BDS programme is to develop well-qualified, experienced, and confident dental graduates capable of independent practice who possess the knowledge and practical skills to deliver comprehensive dental health care in a variety of settings; the latter is of especial importance in fulfilling JCU's stated mission to serve rural and remote communities and to enhance Tropical and Indigenous oral health in our underserved populations[3].

The Australian Health Practitioner Regulation Agency (AHPRA) is the organization responsible for implementing the National Registration and Accreditation Scheme (NRAS), or National Law, across all states and territories in Australia. The role of the Dental Board of Australia (DBA), one of 15 national health practitioner boards overseen by AHPRA, is to register practitioners and to regulate and define their scope of practice within the Australian healthcare system. As listed in Table 1, the DBA recognizes 5 main dental practitioner divisions under the category of general registration. Dentists with specialist training, who may belong to one of 13 dental specialties recognized in Australia, can be formally registered as dental specialists, but are considered separately in terms of their required entry-level competencies and registration requirements[3].

The Australian Dental Council (ADC) is the independent accreditation authority appointed by the DBA to help protect public health and safety by ensuring that all practitioners in Australia meet the standards required of dental professionals. Table 2 summarizes the specified responsibilities of the ADC under the National Law[4].

Competency

The ADC defines a dental practitioner as a scientifically grounded, technically skilled, socially responsible, professionally minded individual who adheres to high standards of professional conduct and ethics and who functions safely and effectively as a member of the healthcare team from initial registration and throughout their professional career. In particular, practitioners are expected to understand the oral health needs of Australian citizens and communities and to apply both knowledge and skill in delivering safe and effective person-centred care[4].

Following consultation within the profession and with various community representatives and other stakeholders, the ADC published a list of professional competencies expected of newly qualified practitioners in each dental division to ensure eligibility for registration. Since 2016, education providers seeking to have programmes accredited by the ADC have been required to demonstrate not only that students achieve all the required professional competencies during their studies, but also that course learning outcomes and assessment tools are clearly aligned and address each specific competency.

Taken together, the competencies encompass all the knowledge, experience, critical thinking and problem-solving skills, professionalism, ethical values, diagnostic and technical procedural skills necessary to ensure treatment effectiveness and patient well-being in contemporary dental practice in Australia.

Professional Competencies of the Newly Qualified Dental Practitioner

Approved during 2022, and applicable to the accreditation process from 2023 onwards, the ADC released a series of revised competencies for the newly qualified practitioner. Clustered into six, broad domains, these are listed in Table 3 along with a description of their contributing attributes. Whilst domains 1 to 3 describe competencies applicable to all practitioner divisions under general registration, domains 4 to 6 contain descriptors in which the application of knowledge and skills may vary slightly between the different divisions of dental practitioner. For the purposes of this article, we will review the competencies as applicable to ‘dentists’ and how they have informed the JCU BDS curriculum[4].

1. Social Responsibility & Professionalism

This first domain includes 12 statements focusing upon the personal values, attitudes and behaviours of newly qualified dental practitioners. In particular, the domain emphasises that the interests of the person receiving dental care should always remain paramount, that practitioners should acknowledge and address the influence of both systemic and individual racism impacting health and healthcare delivery, and that culturally safe care must be provided to the many diverse groups and populations within Australia. In this context, culturally safe practice is defined by AHPRA as the ongoing critical reflection of health practitioners' knowledge, skills, attitudes, practising behaviours and potential power differentials in delivering safe, accessible, and responsive healthcare free of bias or prejudice. It also emphasizes the importance of recognising barriers to accessing healthcare and responding to the needs of those at increased risk of poor oral health. The latter is considered of especial importance by the ADC and Table 4 summarizes several 'at-risk' population groups. Domain 1 also details the importance of practitioner's recognising their individual scope of practice arrangements, the relevance of self-reflective, ethical practice and the need to adhere to all Commonwealth, State and Territory legislation and regulatory requirements[4].

Professionalism is, of course, of fundamental importance to the delivery of safe and effective healthcare and, traditionally, has been based upon the concepts of trust, respect, self-regulation and the assumption that practitioners will always act in the best interests of their patients. Cultural and societal norms and health service practices all continue to change and evolve, of course, and Hanks et al have recently reflected upon the difficulties in defining professionalism in contemporary clinical practice, highlighting the fascinating challenges in effectively teaching, learning and assessing professionalism within dental education[5].

2. Communication & Leadership

Domain 2 lists 9 competencies highlighting the practitioner's ability to work cooperatively within and also to lead healthcare teams, to engage in interprofessional collaborative practice and to communicate in a manner that enables a person to fully understand the care and treatment options available to them. Maintaining personal health and wellbeing, risk management and the use of informatics to improve care delivery are also referenced here. Importantly, and uniquely, Domain 2 also highlights the need for dental practitioners to recognise, assess and respond to domestic and family violence[4].

In 2015, JCU developed, through close collaboration between Dentistry, Social Work and Community Services, an innovative Dentists and Domestic Violence – Recognise, Respond and Refer (DDV-RRR) programme. Based upon a research-informed, scaffolded educational approach in Years 3 to 5 of the BDS curriculum, students learn how to apply a trauma-informed approach to clinical practice as they appropriately recognise, respond and refer in cases of domestic violence. This award-winning

programme has placed JCU BDS students at the forefront of professional development in this important area of work in Australia[6].

3. Critical Thinking

The 3 described competencies in this domain cover both the acquisition and application of knowledge. Practitioners are thus expected to be competent at assimilating and analysing information, critically appraising scientific literature, and to be able to apply clinical reasoning and judgement in a reflective practice approach to deliver effective oral health care. The abilities to distinguish between fact and opinion, and to understand the role of research in advancing knowledge and clinical practice are considered fundamental to contemporary professional life.

To ensure competency in research literacy, all JCU BDS students receive didactic teaching in health professional research during Years 1 and 2 of the course and, during Year 4, undertake a formal research project as part of the Clinical Dentistry programme. Students demonstrating an interest or aptitude for research may then undertake an 'add-on' Honours or MPhil degree during their final undergraduate year and first qualifying year, to develop their individual research skills further. In this way, JCU Dentistry hopes to encourage the development of our next generation of clinical academics[3].

4. Health Promotion

In this domain, comprising 4 defined competencies, the ADC clearly emphasises that practitioners should understand not only individual patient risk factors and behaviours, but also the social determinants that influence health. Practitioners are expected to understand the links between health promotion and health policy development and to be able to design and implement evidence-based health promotion strategies to improve oral and general health.

As discussed in a recent FDJ article, health promotion requires enablement of individuals and populations to increase control over the determinants of health and often requires significant environmental, social, political, and economic change to reduce deleterious effects upon health[7].

5. Scientific & Clinical Knowledge

Domain 5 covers the application of underlying knowledge required by dental practitioners in the clinical environment and, utilising 7 competencies, covers much of the didactic teaching component of the BDS course. It includes the application of social, cultural, biological, physical and behavioural sciences to oral health care provision and disease prevention. Specific competencies also highlight the ability to apply the principles and practice of population oral health, to understand the science of infection prevention and control, appropriate use of dental materials, understanding of pharmacology and dental

prescribing, the safe use of ionising radiation, as well as being able to apply the principles of risk management and quality improvement in practice.

6. Person-Centred Care

Person-centred care is recognised as fundamental to high-quality, contemporary healthcare provision, and, by definition, is respectful and responsive to the needs, values and preferences of individual patients. Domain 6 is thus the most extensive domain in the ADC document, comprising 28 clinically orientated competencies structured within the 3 sub-domains of clinical information gathering, diagnosis and management planning and delivery of clinical treatment. Listed for clarity in Table 5, these competencies provide the basic framework for the clinical curriculum and education delivered to our BDS students at JCU and, unsurprisingly, are very similar to the educational requirements highlighted by the General Dental Council's (GDC) Preparing for Practice in the UK and the Graduating European Dentist curriculum proposed by the Association for Dental Education in Europe (ADEE)[2,8].

The Curriculum

An educational curriculum should provide a standards-based sequence of planned experiences to allow students to practice and achieve proficiency in academic content and applied learning skills. Successful curricula guide both educators and students in developing appropriate teaching and learning activities; efficient organization, lack of subject omission and/or unwanted repetition and purposeful content alignment all help to deliver programme coherence. Increasingly, educators are encouraged to undertake detailed curriculum mapping to ensure what is taught in practice matches academic expectation, and that assessment items properly address learning outcomes and are appropriately positioned throughout the course timetable[3].

Dental curricula continue to evolve, of course, and are heavily influenced by contemporary developments in oral health science and clinical practice. There is a need to balance the ever-expanding scientific knowledge base with the effective preparation of new graduates for safe, and ultimately, independent practice. This is particularly pertinent in view of oft-quoted professional concerns that new graduates lack clinical experience compared to their predecessors, although it is recognised that generational differences inevitably influence such opinion[1,2,8].

Ensuring success in delivering a competency-based curriculum relies upon several salient components. These are based upon both the educational environment provided and the approach to student assessment. As highlighted in Table 6, the environment requires a culture of clinical excellence, placing student practitioners at the centre of all activity, providing early and consistent

clinical training whilst ensuring delivery of a high-quality, externally peer reviewed and accredited clinical programme. Successful student assessment requires students to undertake self-reflectance, to identify their own learning goals, ideally in the context of defined specialist-led learning outcomes, and to ensure appropriate structure and support using effective formative and summative assessment methods. Demonstrable acquisition of operative skills in the simulation clinic environment, prior to undertaking clinical treatment on patients, forms an especially important component of all competency-based curricula and is a major feature of JCU's Dentistry programme[1,9].

The Future

It is inevitable that the oral health needs of our populations will continue to change and develop over time, but there undoubtedly remains an enormous and unmet global demand for oral healthcare in the modern World[10]. Curriculum development and reform will thus play a crucial role in the future to ensure dental education remains relevant to contemporary clinical practice and delivers the oral healthcare workforce required by our various societies. Whilst curriculum reform is recognised as a complex task, requiring cognisance of societal change, technical innovation, developments in adult learning and health science, Reis detailed a pragmatic step-by-step approach to introducing and evaluating change within a health sciences curriculum; this approach is summarised in Table 7[11]. It is also important to note that resistance to change, inertia and internal political issues are often factors that prevent or delay change within an educational institute.

Conclusions

There has rarely been a more exciting and challenging time in oral health science. The delivery of effective competency-based clinical education remains fundamental to the future of the dental profession. Our ability to embrace an expanding scientific knowledge base whilst at the same time ensuring the effective preparation of new graduates for independent practice requires a proactive, on-going process of curriculum review and development by all educational providers.

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TABLES

Table 1: 'General' Dental Practitioner Divisions in Australia

- Dentists
- Oral Health Therapists
- Dental Therapists
- Dental Hygienists
- Dental Prosthetists

Table 2: Responsibilities of the Australian Dental Council[4]

- Accrediting education and training programmes leading to registration as a dental practitioner.
- Developing accreditation standards, policies, and procedures for Australian-based dental practitioner programmes.
- Assessing the professional qualifications, knowledge, judgement, and clinical skills of overseas trained dental practitioners, excluding dental specialists, for the purposes of eligibility to apply for registration to practise in Australia.
- Developing standards, policies, and procedures for the assessment of qualifications and skills of overseas qualified dental practitioners, excluding dental specialists, seeking registration to practise in Australia.

Table 3: Australian Dental Council Competency Domains[4]

Domain	Attributes
1. Social Responsibility & Professionalism	Personal Values, Attitudes & Behaviours
2. Communication & Leadership	Cooperative Working & Effective Communication
3. Critical Thinking	Knowledge Acquisition & Application
4. Health Promotion	Enhancing Community Health
5. Scientific & Clinical Knowledge	Application of Knowledge in Clinical Practice
6. Person-Centred Care (i) Clinical Information Gathering (ii) Diagnosis & Management Planning (iii) Clinical Treatment & Evaluation	 Relevant Information Collection & Recording Disease Identification Provision of Evidence-Based, Person-Centred Care

Table 4: Population Sub-Groups at Risk of Poor Oral Health*

- Socially Disadvantaged / Low Income
- Sensory, Psycho-Social, Progressive, Physical & Intellectual Disability
- Acquired Brain Injury
- Autistic & Neurodiverse
- Regional & Remote
- Aboriginal & Torres Strait Islander People
- Cultural & Linguistically Diverse Background
- Lesbian, Gay, Bisexual+, Transgender & Gender Diverse, Intersex, Queer & Asexual+
- Ageing Requiring Additional or Residential Care
- Children & Adolescents
- Pregnant Women
- People who have experienced Trauma, Violence & Abuse

***Modified from the Australian Dental Council[4]**

Table 5: Person-Centred Care Domain[4]

Sub-Domain	Competencies
Clinical Information Gathering	1. History Taking – Medical, Social, Dietary, Oral 2. Examination of Mouth & Associated Structures 3. Diagnostic Procedures & Interpretation of Test Results 4. Maintenance of Accurate, Contemporaneous Patient Records 5. Evaluation of Patient Risk Factors for Oral Disease 6. Request Or Take Dental Radiographs
Diagnosis & Management Planning	1. Medical, Social & Cultural Aspects of Health 2. Diagnosis of Disease or Abnormalities of Dentition, Mouth & Associated Structures 3. Impact of Risk Factors, Systemic Disease & Medications on Oral Health & Treatment 4. When & How to Refer Patients 5. Informed & Financial Consent for Treatment 6. Comprehensive Person-Centred, Evidence-Based Treatment Planning
Clinical Treatment & Evaluation	1. Delivery of Preventive & Early Interventional Treatment 2. Person-Centred Care 3. Monitoring of Treatment & Outcomes 4. Managing Dental Emergencies 5. Managing Medical Emergencies 6. Managing Disorders of Dentition, Orofacial Complex & Associated Structures 7. Administering & Prescribing Medicines 8. Managing Dental Caries 9. Managing Periodontal Disease 10. Managing Skeletal & Occlusal Discrepancies 11. Managing Removal of Teeth & Oral Surgical Procedures 12. Managing Diseases of Pulp & Periapical Tissues 13. Restoring Dentition with Direct & Indirect Restorations 14. Utilising Removable Prostheses to Restore Appearance, Function & Stabilise Occlusion 15. Utilising Fixed Prostheses to Restore Appearance, Function & Stabilise Occlusion 16. Managing Pain & Anxiety

Table 6: Components of a Competency-Based Curriculum

Educational Environment:	Places Students at the Centre
	Delivers Early Clinical Exposure
	Ensures Quality Assurance of the Programme
	Provides Comprehensive Training for Clinical Educators
	Undertakes External Programme Review & Accreditation
Student Assessment:	Ability to Self-Reflect & Self-Assess
	Identification of Own Learning Goals
	Defined Specialist-Led Learning Outcomes
	Basic Skill Acquisition in Simulation Clinic Environment
	Specific Formative & Summative Assessment Criteria
	Supportive Patient Management Software

Table 7: An Approach to Curriculum Reform*

Establish Clarity of Educational Vision & Mission

Define the Educational Paradigm

Develop A Strategy for Change

Consider Cultural & Political Influences

Effective Communication with Internal & External Stakeholders

Steering the Change Process

Evaluation & Review

***Modified from Reis[11]**