ADEE 2017: The Profile of Undergraduate Dental Education in Europe

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The Profile of Undergraduate Dental Education in Europe

Introduction

The Association for Dental Education in Europe (ADEE) has represented dental schools throughout Europe since 1975 and has become an international voice of dental education. In 1998, a successful European Union-funded Thematic Network Project (DentEd) commenced, which initially aimed to facilitate convergence of Dental Education in Europe. The initiative eventually ran over a 9-year period as 3 interlinked projects. A network of dental educators was established, which closely aligned to the mission of ADEE (Harzer 2017, Reynolds 2008).

Project development

The DentEd project was timely, as the Bologna declaration set out the steps needed to harmonise higher educational systems in Europe only one year later, in 1999. The strategic importance of the project was therefore aligned with European legislation and, as a result, ADEE commissioned the following Taskforces:

- Profile and Competences for the Graduating European Dentist Taskforce (TF1)
- Curriculum Structure, Content, Learning & Assessment in European Undergraduate Dental Education Taskforce (TF2)
- Quality Assurance & Benchmarking. An Approach for European Dental Schools Taskforce (TF3)

The value of core competences in ensuring patient care was already well-documented (McPherson et al. 2001) and the aim of TF1 was to provide a profile of the competences that a newly graduated dentist should be able to demonstrate. It was expected that this competence 'profile' would serve as a useful benchmark for both student education and safe and effective patient care. The objectivity that this provided has since been shown to be incredibly useful when claryfying performance standards and ensuring quality (Verma et al. 2006). Alongside the modular curriculum described by TF2, TF3 provided a quality assurance framework that was designed to deliver high standards in dental education, resulting in safe and effective patient care.

All three Taskforces engaged widely through pan-European consultation, inviting specialist groups and societies to shape the final documents. Upon publication, stakeholders were encouraged to use the documents as a basis from which to produce their own frameworks, curricula or guidelines. This pan-European taskforce approach is supported by the recognition that similar social partnerships (involving a wide range of stakeholders) have been shown to increase the validity of curricula, facilitate the transition of students to a vocational work environment, and to help students develop into proficient and effective practitioners (Billett et al. 2007, Holt et al. 2010).

Project impact

Upon completion, the original Taskforce outputs were individually published and some of these have since been updated (Cowpe et al 2010, Manogue et al 2011, Jones et al 2007); all three are accessible on the ADEE website (ADEE 2017). Their popularity and influence is demonstrated by the number of downloads and citations that have taken place and they have been used by many schools, educational establishments and professional organisations globally (Tables I and II). Whilst the 'Profiles and Competences' document was the most popular in isolation, the three documents were designed to complement one another in practice.

Updating the Taskforce documentation

Since the time of publication, several organisations, institutions and societies are now showing a preference for a 'Learning Outcomes' approach to undergraduate dental education. This is particularly evident within the UK General Dental Council's document 'Standards for Education' (GDC 2016). It is now relatively commonplace to use 'outcome measures' as an accreditation tool, and the most widespread medical example of this at present is the Accreditation Council for Graduate Medical Education in the United States. The approach is supported by several principles, as described by Leach (2001) and Harden & Laidlaw (2012):

1. Programmes need to be responsive to the needs and expectations of their graduates
2. Patient safety and accountability
3. Ensures assessments are valid
4. Provides continuity across the continuum of medical education
5. Helps to identify problems within the curriculum
6. Enables curricula worldwide to be compared

Further, the importance of the 'dental team' and a 'team approach' to the delivery of patient-centred oral healthcare is being increasingly emphasised, and it could be argued that this is also best managed through an outcome-based approach (Harden & Laidlaw 2012). Teaching excellence is increasingly in the spotlight, with various metrics being proposed at institution, discipline and school level. Whilst many of the ways in which excellence is measured will depend upon graduate performance and success, there is also a growing interest in measuring levels of student satisfaction and support. As such, curricula need to be communicated clearly and effectively to both staff and students, and schools must be capable of implementing measures to ensure teaching quality. There is a growing body of research surrounding the self-perceived 'preparedness' of graduates, and educators should be mindful of how their curricula shape the 'safe-beginner'. A recent questionnaire-based study of dental graduates in the United Kingdom showed that dentists felt adequately prepared to carry out simple clinical procedures, and communicate effectively – however graduates reported feeling relatively ill-prepared to use an evidence-informed approach, to take responsibility for their own continued professional development, and in raising concerns about the behaviour of their colleagues (Ali *et al* 2017).

With these developments in mind, the time is right to not only update the current suite of publications, but also to inject a fresh new approach that reflects best academic practice for European dental education. ADEE and its membership continue to strive to refine and harmonise the delivery, structure and quality of dental undergraduate educational programmes. In so doing, the objective is also to promote mobility on a European level. ADEE is recognised in Dentistry as representing the views of European Dental education and the organisation is in a strategic position to oversee the process.

The aim of this document is to outline the updating process that has taken place regarding the original ADEE Taskforce publications, and in so doing, establish a useful framework that supports dental education and training across Europe. The objectives are to:

- link 'Learning Outcomes' more explicitly with the defined curriculum
- include methods of learning and methods of assessment

- update the methods of quality assurance for the delivery of undergraduate dental education and training

Document structure

The original 'Profiles and Competence' document outlined seven different Domains (Cowpe et al 2010). These comprised:

i. Professionalism
ii. Interpersonal, Communication and Social Skills
iii. Knowledge Base, Information and Information literacy
iv. Clinical Information Gathering
v. Diagnosis and Treatment Planning
vi. Therapy: Establishing and Maintaining Oral Health
vii. Prevention and Health Promotion

Whilst attempting to allocate the existing 'Competences' and 'Learning Outcomes' to the original seven domains, it became clear that there was considerable overlap of their remit, and significant regional variation surrounding the expectations of a modern European Dental graduate. After reclassifying and clarifying all 'Learning Outcomes', the original Domains have been simplified into four, reflecting modern dental educational practice, and introducing more clarity and utility for educators:

i. Professionalism
ii. Safe and Effective Clinical Practice
iii. Patient-Centred Care
iv. Dentistry in Society

It is worth noting that in many cases, a graduating dentist is classified as a 'safe beginner'. As such, there is a need for sustained supervised practice during a period of vocational (or foundation) training (Allen 1993). The Domains and their defined 'Major Competences' provide a basis from which graduates can build confidence and competence towards becoming an independent practitioner, who accepts the importance of continuing professional development throughout their career. The framework has been updated primarily, but not exclusively, for Dentists; as such, we would encourage utility across allied professions and across geographical boundaries.

This new Profile of Undergraduate Dental Education in Europe describes a Framework for use by dental educators and other stakeholders. The Framework, displayed in Figure 1 and Table 3, comprises four Domains covering topics referred to as 'Major Competences'. These are accompanied by a series of associated 'Learning Outcomes'. Subsequent guidance is provided relating to 'Methods of Teaching and Learning' and 'Methods of Assessment', reflecting the necessarily diverse and broad range of educational methods that might be successfully employed.

For the purposes of consistency and clarity, the terms 'Competences' and 'Learning Outcomes' are described below:

> Competences
> *'Professional behaviours and skills required by a graduating dentist in order to respond to the full range of circumstances encountered in general professional practice (Cowpe et al 2010)).'*

Learning Outcomes

'A series of individual and objective outcomes, with shared ownership between students and staff, designed to facilitate the learning and assessment process'.

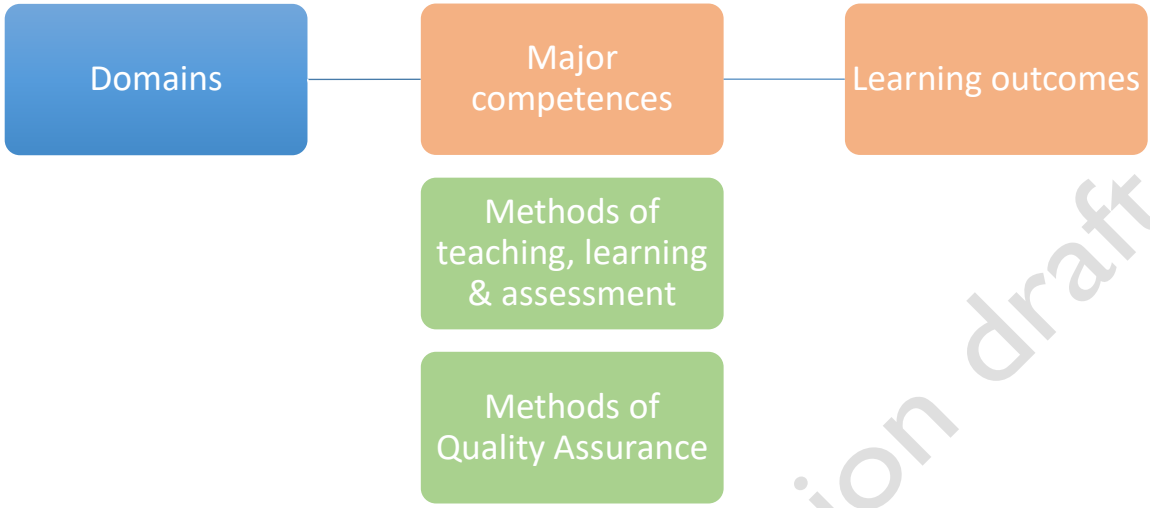

Figure 1 – A Framework for Dental Undergraduate Education & Training

Quality assuring the delivery of dental education

Education and training must not take place in environments where fundamental standards of quality and safety are not adhered to (Francis 2013). Quality assurance processes are therefore fundamentally important to the delivery of effective education and patient-centred care. As such, we have chosen to summarise the following important considerations within this introductory document:

- Staff appraisal, training and development
- Policies and procedures
- Disciplinary processes including fitness to practice and fitness to study
- Examiner feedback, calibration and training
- Feedback (from staff, students and patients)
- A supportive infrastructure

Staff appraisal, Training and Development: The example demonstrated by staff is hugely influential in forming students' attitudes to professionalism (Cruess et al 2008 and Passi et al 2010). Teaching staff may be unaware of their potential impact in this respect. Structured and regular staff training provides a useful method to ensure all staff are providing the same level of teaching, and are familiar with the curriculum. It is expected that a dental school will ensure that all policies, procedures and protocols are updated and aligned to a contemporaneous evidence base – and that teaching staff adopt a professional attitude in adhering to these requirements.

Policies, Procedures and Disciplinary processes: It is the role of dental educators to produce clinicians who are patient-centred, who will act as advocates for high-quality patient care, and

who will be resilient enough to maintain professional standards in challenging circumstances (Bissell & Felix 2015). The challenge is to identify students who (despite passing written, practical and clinical assessments) fail to engage in professional behaviour over a longitudinal period. A fair and robust process, with a range of possible interventions and sanctions, is required in order to deal with these students.

Feedback: The validation of school educational processes is very important, particularly those surrounding assessment. As well as considering the opinions and experiences of staff and students internally, external review is valuable to an institution because it allows programmes and student cohorts to be compared with the wider educational community. External review can also provide reassurance for students about the fairness of assessment processes. Involving students in the quality assurance of assessment is becoming increasingly common. At the same time, staff involved in examining need to be trained and calibrated appropriately - this also extends to staff who are assessing formatively as part of a more longitudinal process, such as the recording of portfolio grades (Driessen et al 2007). Patient feedback is a potentially valuable source of information for individual students, although as yet there is limited data showing any correlation with the development of professional attitudes and behaviours (Ferguson et al 2014). Nonetheless it is important that strategies are in place to record comments, and inform students of positive and negative feedback. This data can be held by the student and used as part of the reflective process, and held by the institution and used as to facilitate progression, or fitness to practice inquiries. Equally as important is the need for all stakeholders to be able to listen effectively to feedback, and formulate appropriate responses (Field 2015). The dialogue should be transparent, and inviting, between staff, student and patients alike. Demonstrating a willingness to take views on board, and showing a desire to act on those views where necessary, is paramount.

Of course, many of the quality assurance measures mentioned above are not possible without a safe and effective infrastructure, both physically and financially. It is critical that teaching institutions develop a rolling programme of improvements, not least in order to ensure continued and safe patient-centred care. Equally as critical, is an accessible and appropriate patient base, which gives students the opportunity to:

- provide holistic care
- demonstrate an adequate portfolio of longitudinal activity
- demonstrate a suitable range of clinical competence

<u>Intended impact</u>

Given the success of the original 'Profiles and Competences' and its associated publications, ADEE strongly asserts that these updated documents will provide clear guidance and support for dental education and training on a European scale. The 'Major Competences' and associated 'Learning Outcomes' are by no means exhaustive and this Framework may be instrumental in delivering dental education in a variety of environments and to a range of other dental care professionals. Further, it is anticipated that the new documents are shared with all stakeholders of dental education, including the students themselves. Only then, will students be able to take true ownership of their learning and contribute to meaningful and necessary curriculum development.

It is expected that this new Framework will:

- Further refine and harmonise dental undergraduate curricula across Europe, whilst respecting regional, socio-economic and cultural variation.
- Reinforce the importance of an outcome-based curriculum, which is informed by a robust and effective system of student and staff feedback.
- Facilitate the transition from a student to a practitioner who is considered 'a safe beginner', and able to build confidence and further competence as part of a workplace-based training programme.
- Provide a clear Framework that is accessible to all stakeholders of dental undergraduate education, including students themselves.
- Enhance patient safety through a high standard of clinical and professional care on a European and global level.
- Provide guidance and support for educators who are developing curricula for undergraduate dental education and training.
- Promote peer support and parity across educational institutions.
- Support the mobility of staff and students across institutions.
- Reinforce the DentCPD initiative (Cowpe 2013), by promoting reflection, life-long learning and further academic/clinical training.

Summary
This document provides a new approach that reflects best academic practice for European dental education. ADEE is in a strategic position to oversee this process, ensuring that European graduates are prepared to provide oral healthcare for patients aspiring to high standards of professional and clinical care. The importance of the dental team approach to patient care is paramount and the need to engender the importance of life-long learning through continuing professional development (CPD) throughout the training programme should be encouraged.

The updated Framework will see 'Learning Outcomes' linked more explicitly within the defined curriculum and accompanying guidance specific to each Domain, relating to 'Methods of Teaching and Learning' and 'Methods of Assessment'. It is anticipated that this new format will further increase the accessibility and utility of this Framework.

Finally, whilst this document has been written for the European Dentist, the contents are applicable to the international arena. ADEE is happy to see this document disseminated widely and the outcome will be future derivations which take account of local cultural and patient needs in different areas of the world.

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Table 1
Undergraduate Competences that were cited in 'Profile and competences for the graduating European Dentist – update 2009

Speciality	Year	Publication
Oral Surgery	2008	Macluskey M, Durham J, et al. UK national curriculum for undergraduate oral surgery subgroup for teaching of the Association of British Academic Oral and Maxillofacial Surgeons. Eur J Dent Educ 2008: 12: 48–58.
Endodontics	2001	Saunders W, Heidemann D, et al. European Society of Endodontology: Undergraduate curriculum guidelines for endodontology. Int Endodont J 2001: 34: 574–580.
Endodontics	2006	Pitt Ford T, Riccucci D, et al. European Society of Endodontology: Quality guidelines for endodontic treatment: consensus report of the European Society of Endodontology. Int Endodont J 2006: 39: 921–930.
Oral Pathology	2004	Odell E, Farthing P, et al. British Society for Oral and Maxillofacial Pathology, UK: minimum curriculum in oral pathology. Eur J Dent Educ 2004: 8: 177–184.
Gerodontology	2009	Kossioni A, Vanobbergen J, et al European College of Gerodontology: undergraduate curriculum guidelines in Gerodontology. Gerodontology 2009: 26: 165–171.
Paediatric Dentistry	2009	Marks L, Duggal M, et al European Academy of Paediatric Dentistry: A guideline framework for undergraduate education in paediatric Dentistry. Eur Archs Paediatr Dent 2009: 10; 114–119.

Table 2
Papers that have been published since the publication of the Profile and competences for the graduating European dentist update in 2009

Periodontology	2010	Sanz M, Chapple I. *Consensus statement*
	2010	Sanz M, Meyle J. *Consensus statement*
	2016	Madianos P, Papaioannou W, et al *Delphi study*
	2016	Schoonheim-Klein M, Ong T, et al *Competency paper*
Cariology	2011	Schulte A, Pitts N, et al *Curriculum paper*
	2011	Anderson P, Beeley J, et al *Curriculum paper*
	2011	Splieth C, Innes N, et al *Curriculum paper*
	2014	Martignon S, Marín L, et al *Curriculum paper*
	2016	Fontana M, Guzmán-Armstrong S, et al *Curriculum paper*
Prosthodontics	2014	Hey J, Stimmelmayr M, et al *Curriculum paper*
Dental Technology	2013	Evans J, Henderson A, et al *Curriculum paper*
Implant Dentistry	2009	Mattheos N, Nattestad A. *Curriculum paper*
	2009	De Bruyn H, Koole S, et al *Curriculum paper*
	2010	Mattheos N, Ivanovski S, et al *Curriculum paper*
	2014	Mattheos N. *Narrative paper*
Gerodontology	2009	Kossioni A, Vanobbergen J, et al *Curriculum paper*
	2016	León S, Araya-Bustos F, et al *Curriculum paper*
Oral Surgery	2011	Stelzle F, Farhoumand D, et al *Curriculum paper*
	2011	Macluskey M, Hanson C, *Curriculum paper*
	2012	Christensen J, Matzen L, et al *Curriculum paper*
	2012	Carbone M, Manno E. *Curriculum paper*
Oral Medicine	2010	Kragelund C, Reibel J, et al *Consensus statement*
	2015	Steele J, Hadleigh J, et al

		Competency paper
Dental Public Health	2011	Holmes R, Waterhouse P, et al *Curriculum paper*
Special Care Dentistry	2014	Dougall A, Thompson S, et al *Curriculum paper*
Continuing Professional Development (CPD)	2011	*Heiderman D, Harzer W.* *Curriculum paper*
	2013	Cowpe J. *Reference manual*
	2013	Suomalainen K, Karaharju-Suvanto T, et al *Curriculum document*
Pre-clinical skills	2017	Field J, Stone S, et al *Curriculum paper*
Dental Hygiene	2015	Sunell S, Asadoorian J, et al *Delphi study*
General Dental Education	2011	Hugger A, Hugger S, et al *Curriculum paper*
	2012	Kadagad P, Tekian A, et al *Curriculum paper*
	2017	Harzer W, Tausche E, et al *Narrative review*
Curriculum design	2014	Mumghamba E. *Curriculum paper*
	2016	Bridges S, Yiu C, et al *Curriculum paper*

Table 3

Revised structure of the educational Domains and their Major Competences: A Framework for Dental Undergraduate Education & Training

Domain I: Professionalism

1.1 Ethics
1.2 Regulation
1.3 Professionalism

Domain II: Safe and effective clinical practice

2.1 Evidence-based Practice
2.2 Management and Leadership
2.3 Team-working and Communication
2.4 Audit and Risk Management
2.5 Professional Education and Training

Domain III: Patient-centered Care

3.1 Applying the Scientific Basis of Oral Healthcare
3.2 Clinical Information Gathering and Diagnosis
3.3 Treatment Planning
3.4 Establishing and Maintaining Oral Health

Domain IV: Dentistry in Society

4.1 Dental Public Health
4.2 Prevention and Health Promotion
4.3 Inter-Professional Collaboration
4.4 Health Advocacy

For each 'Major Competence' there will a series of:

- Defined 'Learning Outcomes'

In addition, there will be guidance provided in support of the Domains for the following:

- 'Methods of Teaching'
- 'Methods of Assessment'