

Review Article

The Education System at the Faculty of Dentistry, The University of Hong Kong: A Global Standard in Dental Education

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Abstract: Globalization in dental education is an important issue in Japan. However, implementing strategies for globalization related to aspects such as infrastructure, educational goals and content, educational methodologies, and standards is not easy. The dental training programmes at the Faculty of Dentistry at The University of Hong Kong can offer some insight into the process. While The University of Hong Kong is world-renowned and has embraced globalization, it is located in Asia, where English is not the native language. The latter reflects the same situation as in Japan, but the Hong Kong and Japanese dental schools differ considerably in the medium of education, teaching styles, undergraduate curriculum, postgraduate education system, character of the students, and duties of the academic staff. Dental education at The University of Hong Kong may thus provide a role model for the planning and integration of globalization within the tertiary dental education system in Japan.

Key words: dental education, global standard, Japan, Hong Kong.

In today's interconnected world, global awareness, global reputation, and global participation are becoming a necessity for universities to remain relevant, competitive, and innovative. These ongoing processes could be termed globalization, or internationalization, and can relate to all aspects of an institution, such as buildings and facilities, organizational infrastructure, staff and student intake, missions and outlook, course content, and educational and assessment methods, such that the institution, courses, and graduates all reach world-class standards. In the health care professions, wide and deep implementation of globalization in the training institution should allow it to attract the best talents, and to take full advantage of and build on the most recent technological advances, effective educational methodologies, and clinical research evidence.

Globalization in dental education in Japan is a particularly important issue. However, implementing strategies for globalization is not easy. The dental training programmes at the Faculty of Dentistry at The

University of Hong Kong (HKU) can offer some insights into the process. While HKU is world-renowned and has embraced globalization, it is located in Asia, where English is not the native language. The latter reflects the same situation as in Japan, but the Hong Kong and Japanese dental schools differ considerably in the medium of education, teaching styles, undergraduate curriculum, postgraduate education system, character of the students, and duties of the academic staff. Dental education at HKU may thus provide a role model for the planning and integration of globalization within the tertiary dental education system in Japan.

The University of Hong Kong

Hong Kong's development, and that of its education system, has been strongly influenced by British culture. As the oldest tertiary education institution in Hong Kong, HKU uses English as its medium of instruction. It was at first incorporated as a self-governing body of scholars by the University Ordinance in 1911.¹⁾

HKU has gained a proud reputation as a world-class comprehensive research university. The QS World University Rankings (2013/14) placed HKU at 26th worldwide (Tokyo University is 32nd, the Hong Kong University of Science and Technology is 34th, and Kyoto University is the 35th).²⁾

HKU Faculty of Dentistry

Formally established in 1982, the Faculty of Dentistry at HKU is the only university dental school in Hong Kong. Because English is the *lingua franca*, the HKU Faculty of Dentistry is an international dental school, and it attracts staff from all over the world (from at least 20 countries in 2013).³⁾

The Faculty is housed at The Prince Philip Dental Hospital, which was established in 1981 as Hong Kong's sole clinical and research-based dental teaching hospital. Patients come from the general public. The Prince Philip Dental Hospital implements patient screening to assess if the patients are suitable for teaching purposes, as well as treatment by senior students and junior hospital dental officers. Treatment fees at the hospital are much lower than those in the private market. Therefore, patients are very cooperative in contributing to dental education. The Queen Mary Hospital (HKU's medical teaching hospital) and the Duchess of Kent Children's Hospital are affiliated hospitals.

1. Undergraduate Dental Education

1) Student population

Each year, the HKU Faculty of Dentistry admits approximately 50 undergraduate students. Roughly 60% are called local students, who have obtained the Hong Kong Diploma of Secondary Education or HKDSE (Hong Kong's public entrance examination to its universities, which was introduced in 2012). Non-local students consist of those who have gained International Baccalaureate or General Certificate of Education Advanced Level qualifications, as well as those who already hold a university degree.

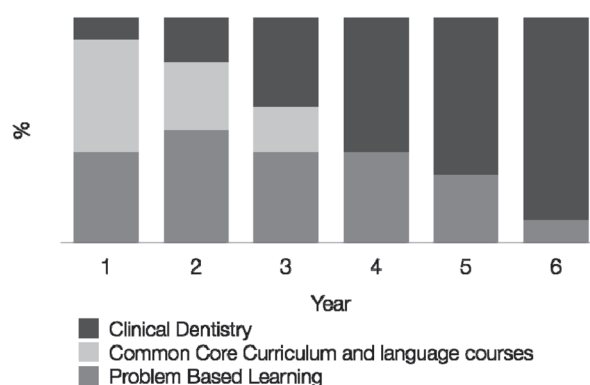


Fig. 1 Curriculum profile of the 6-year Bachelor of Dental Surgery at The University of Hong Kong.

2) Overview of Bachelor of Dental Surgery degree

The Bachelor of Dental Surgery at HKU lasts 6 years and involves three types of education so as to promote whole-person development. The three learning modalities are clinical training (imparting clinical and professional knowledge and skills needed to be a general dentist), HKU Common Core Curriculum in the early years (areas include global awareness and knowledge in a different field), and problem-based learning (PBL) tutorials (integrated academic knowledge in a small-group setting and based on especially designed problems).

The proportion of the three learning modalities during the 6-year curriculum is shown in Fig. 1. The proportion of the curriculum devoted to clinical training increases during the 6 years, while the PBL content decreases.⁴⁾

3) Common Core Curriculum

The HKU Common Core Curriculum is a requirement for all HKU undergraduate students. It is designed to provide a key common learning experience for all students and to broaden their horizons beyond their chosen disciplinary fields of study. Dental students choose six courses from the courses on offer, all of which focus on issues that have been, and continue to be, of deeply profound significance to humankind. Through the courses, HKU hopes to impart core intellectual skills that all undergraduates should acquire and the core values that they should uphold.

The major focus of the Common Core Curriculum is on globalization. The courses help to develop learning

skills to apply in students' main studies, develop global citizenship, appreciate students' own culture, and broaden students' horizons. Students learn from group projects, tutorials, field trips, essays, poster presentations, and guest speaker lectures. Courses to be offered to students are selected by HKU through very competitive application procedures. The Oral Radiology Unit will run the first and only Common Core Curriculum course from the Faculty of Dentistry. Students from various Faculties will attend that.⁵⁾

4) *Problem-based Learning*

There are no traditional lectures in the HKU undergraduate dental curriculum, and learning is instead achieved through PBL tutorials and various related activities to promote life-long learning skills. The focus of each set of PBL tutorials is a real-life situation or "problem" that is addressed by the students themselves, in small groups. The problem acts as a "trigger" to activate existing knowledge and identify learning issues, which will form the basis for research and understanding of new, relevant content knowledge. As in real life, the problem may be open-ended and have no fixed, easy, correct answers—only appropriately supported and argued conclusions. The basic format of the PBL process is as follows:

- *The first tutorial*, where the problem is presented and discussed and areas of exploration are identified
- *Self-directed learning*, during which students seek information to address learning issues related to the problem
- *The second tutorial*, where the group meets to discuss the information gathered by each member, and to discuss how this contributes to a better understanding of the problem and possible solutions
- *Creation of a "product" (group assignment)*, to consolidate learning and bring the problem to a conclusion.

Tutorials take place in special, purpose-built classrooms that are equipped with electronic interactive whiteboards, basic reference books, and wireless Internet access. Each student is expected to take part in the

group discussion and to critically respond to classmates' contributions. Once comfortable with this environment, students enjoy the experience, become more confident, and build valuable teamwork, critical, and analytical skills.

5) *Journal-based Learning*

As an extension of PBL, the HKU Faculty of Dentistry has initiated a journal-based learning programme for final-year dental students. The aim is to facilitate students' understanding of research and reporting principles, statistics in practice, and scientific evidence, so as to prepare them for self-study of professional journals during independent professional practice. From a curriculum design perspective, the journal-based learning programme is intended to form a logical continuum from the existing PBL, while offering another learning experience in a journal club-like environment to show how dental research evidence shapes good clinical practice.

The main goal of journal-based learning is to allow students to develop the necessary skills to understand conventions and meanings of different peer-reviewed research publications. This long-term core competence is necessary for contemporary practice, continuing professional development, postgraduate study, and research literacy. Eventually, patients would benefit, because students would be able to keep up-to-date with the latest evidence base related to disease aetiology, diagnosis, treatment, and prevention, which in turn would support positive oral health care outcomes.⁶⁾

6) *Clinical training*

Clinical training is mainly carried out at the Prince Philip Dental Hospital. Mannequin heads in a Simulation Laboratory and virtual reality units (Moog Simodont Dental Trainers) in a Virtual-Reality (Haptics) Training are used for initial skills training. Students must pass a test in the Simulation Laboratory before carrying out actual treatment. In the second year, students start patient management by oral diagnosis and treatment planning. Notably, this takes place earlier than in Japan. In addition to hands-on clinical management in polyclinics and

discipline-based clinics, training takes place through case-based learning, dental fabrication sessions, observation in medical wards, dental outreach service, and dental practice management sessions. Another large difference from Japanese dental schools is that parts of dental teaching at HKU is conducted by many part-time clinical lecturers whereas full-time academic staffs take care most parts of teaching in Japan.

7) *Students' activities*

All second-year dental students take part in online international exchange with students overseas through the International Peer Review Project that is organized by the dental schools participating in the international "Universitas 21" consortium, of which HKU is a member. All fifth-year dental students take part in a community research and service project. All final-year students undertake an elective exchange visit to a dental school abroad for 3 weeks to experience a different country's health and education systems. Through the HKU research scholarship scheme, undergraduates also have the opportunity to conduct dental research mentored by a Faculty researcher under one of the Faculty's three research themes (Biomedical & Tissue Engineering, Infection & Immunity, and Public Health & Healthy Ageing).

All students can interact with others from different majors and nationalities by living in the dormitories and by taking part in sports activities, group projects, and international conferences.

8) *Assessments*

Assessment includes continuous assessment throughout each year to record performance in PBL tutorials and also, from the second year onwards, in clinical performance. Examinations are held for clinical key skills in all years, and in various years there are examinations involving essays, case scenarios, structured clinical assessment, mini cases, case-based clinical practice, and vivas (interviews). There are formal assignments in years 2 and 5, and a Capstone Portfolio (based on the international elective visit, patient care synopses, and dental practice visits) in year 6. The examinations are

reviewed by local and overseas examiners.

High-achieving students are awarded with Honours at graduation, which can be beneficial when applying for entry to a postgraduate course. The Bachelor of Dental Surgery degree is also itself periodically reviewed by internal and external examiners, as well as the Dental Council of Hong Kong.

2. **Postgraduate education**

The HKU Faculty of Dentistry offers English-medium postgraduate dental programmes and continuing education courses. There are two different types of postgraduate programmes, research postgraduate and taught postgraduate. The current enrolment of research and taught postgraduate programmes is about 200 from about 30 countries.

1) *Research postgraduate programmes*

The Faculty provides research training at MPhil (Master of Philosophy), and PhD (Doctor of Philosophy) levels. Both require a dissertation (thesis) and a viva. It is also expected that a peer-reviewed journal publication should be written for the MPhil degree and three to four journal papers for the PhD degree.

Full-time MPhil and PhD students who hold a first degree at a level of at least upper second-class honours (or equivalent) are normally considered eligible to receive a Postgraduate Scholarship during their normative study period (2 years for full-time MPhil, 4 years for full-time PhD or 3 years if candidates already hold a research Master's degree). The basic level of scholarship is currently HK\$14,600 (JPY193,000) per month. The primary supervisor in Faculty of Dentistry covers one-sixth of HK\$14,600 in addition to the research budget for each research postgraduate student. Therefore, as for faculties and universities worldwide, applying for and acquiring research grants is a burdensome duty for academic staff.

2) *Taught postgraduate programmes*

The HKU Faculty of Dentistry offers Master of Science (MSc) and Master of Dental Surgery (MDS) degrees in various disciplines. HKU Bachelor of Dental

Surgery graduates or people from overseas have strong competition for the taught postgraduate programmes and the adoption rate was 26% (enrolled 48 in 184 applicants) last year.

One year of clinical experience is required before admission to an MDS programme. Only the MDS is accepted as part of the pathway to be a specialist in Hong Kong. Students pay about JPY10 million for a 3-year MDS course. There is also a more advanced postgraduate qualification in some disciplines, in the form of a 1-year Advanced Diploma.

To be a specialist in Hong Kong, a total of 6 years of institutional training is required to sit the exit examination. That is, a BDS graduate needs to have gained postgraduate dental practice (1 year), an MDS degree (3 years), and higher training (2 years).

3. Career Prospects of Dentists in Hong Kong

1) Private practice dentist

Graduates of the Bachelor of Dental Surgery degree are reported to consistently enjoy a 100% or near-100% employment rate in the year of graduation. Most are initially employed as private general dentists. Some dentists eventually go into hospital dentistry, government dental service, institutional general practice, or, after appropriate further study, specialist practice. The starting salary of a dentist in Hong Kong is consistently among the top in all HKU graduates.⁷⁾

2) Academic staff

For suitably qualified dentists, academic posts at the HKU Faculty of Dentistry are an option. Staff with a research track record may conduct research as well as teach (as clinical assistant professors, clinical associate professors, and clinical professors), while a new type of clinical teaching post has recently been introduced (practice-track teaching staff, known as clinical dental instructors and principal clinical dental instructors).

In general, the salary increases every year until a salary bar is reached, according to performance in teaching, research, and knowledge exchange (the three missions of HKU), patient care (an additional mission of the Faculty),

and administrative contribution. Internal and external annual research grants; awards in teaching, research, and knowledge exchange; and research publications in international peer-reviewed journals support staff's portfolios. In any case, staff must constantly and proactively seize opportunities to win grants and awards, because otherwise they will lack resources for future activities and projects. Academic staffs also make efforts to meet globalization criteria, such as membership of international editorial boards and advisory panels of international professional societies, collaborations and exchange visits with overseas institutions, and participation in international conferences. For promotion to Professor, six external reviewers assess the candidate.

Global Standard of Dental Education

As the above brief review has shown, long-term globalization has been embraced at multiple levels at the HKU Faculty of Dentistry: in use of English as the *lingua franca*, in the advanced technologies and methodologies used in education, in student recruitment and examination, in curriculum planning, in encouraging international participation among staff and students, and in staff hiring and appraisal.

1. English

Because HKU is a world-famous research-led university that uses English institution-wide, it demands that applicants for programmes be proficient in English (TOEFL paper-based score of not less than 550 or computer-based score of not less than 213 or IELTS not less than 5.5). The system of studying English in Hong Kong is that (1) the majority of students in elementary school and kindergarten learn subjects in Cantonese, and (2) from junior high school, students will be divided into English medium and Cantonese medium schools. Students must at that moment get used to reading textbooks written in English. For students already at HKU, HKU pays the test fee of IELTS in the final year of undergraduate studies, so as to encourage students to further improve English skills for the job market.

Therefore, for HKU students, it is natural to take the IELTS test during the undergraduate degree.

At the HKU Faculty of Dentistry, undergraduates study compulsory English courses in the main campus, including a course on dental terminology. Postgraduates also study dissertation-writing courses in the main campus.

2. Globalization

To achieve globalization, it is important for an individual and an institution alike to mark out a global strategy, experience different cultures, show leadership in global development, and have a proven track record in global awareness and participation. With these skills and mindset, graduates and staff can actively seize opportunities, make meaningful accomplishments, prepare a world-class Curriculum Vitae, and become sought-after talents all over the globe. Adaptability and flexibility are important. Then, working with people on a global scale will become second-nature, and a global reputation will follow.

If dental schools wish to grow globally aware and talented juniors (in the case of Japanese dental young students), their leaders and staff can develop students who have high motivation and ability, encourage them to go out and explore, and leave the door open to let them come back in the future and become a role model in your institution. Then, dentists of the younger generation may

open their mind to globalization and become wonderful ambassadors for the future development of global dental education.

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