



**Editorial article:  
Advocating Collaborative Teaching and  
Learning in Dentistry**

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Collaborative teaching is an educational approach that seeks to involve participation of teachers and learners in achieving learning goals and outcomes in an interactive manner (1). Such approach has been effective in equipping students with knowledge and/or skills via high levels of learning, while allowing interpersonal development such as teamwork, time management, as well as communication and written competencies (2, 3)

In dentistry, application of collaborative teaching has taken precedence, aimed at preparing students for future challenges of professional practice, which demand integration of knowledge and clinical competency, as well as acquisition of strong interpersonal skills that reflect an individual's demeanor and persona (4, 5). Examples of collaborative teaching in dentistry include problem-based learning, group projects and assignments, debate, case study discussions, journal club, webinars, online forum, simulations, role-play, tutorials, flipped classroom with an e-learning component, educational visit/field trip, industrial attachment and/or internship as well as extramural activities.

Whilst collaborative teaching in dentistry has been effective in enhancing students' educational experience (4, 5), various difficulties are experienced by faculty members and students during teaching and learning activities (6, 7). Identification of challenges in collaborative teaching in dental training allows for effective conduct of such educational approach, with outcomes that benefit both students and educators.

One of the challenges in collaborative teaching includes difficulty in getting each student to participate in the learning activity on an equal basis with each other. Reduced students' participation may be due to a lack of interest towards the subject matter, affecting the dynamics of group performance and the eventual outcome of the learning activities. Such issue may arise in dental education when conducting group activities such as the 'School Oral Health' project, where each group of students is assessed on their ability to conduct an oral health promotional program targeting the school children, parents, teachers and other relevant members of the community. Dental academicians are responsible in supervising and guiding the students while the latter play their roles as effective managers and clinicians. Apart from putting their knowledge and clinical skills into practice during delivery of oral health examination and treatment, students obtain hands-on experience on designing and implementing a program that aims to improve the awareness of the community regarding various issues in oral health care. Academics should ensure equal distribution of task for each student to encourage active participation of every group members, with clear goals and expectations established and explained. A peer-review assessment, in which each student is provided with an opportunity to grade each other's performance, may be a good platform to recognize students' individual contribution and provide a

fair evaluation. In addition, peer-review assessment is also an effective approach in motivating students to strive at a higher level in completing their learning task (8, 9). Such assessment technique may be performed during the final evaluation of learning activity conducted after the completion of a student project. A group processing activity conducted at the end of each teaching session, where students reflect on their experience and achievements, would also be useful for allowing continuous individual development and improvement of group dynamics throughout the program (10).

Another difficulty in collaborative learning in dentistry is accommodating students' diversity in terms of their ability to function as an effective team member. Students who are more introvert and shy may be at a disadvantage if learning activities require students to engage in active discussion. Active participation of students is mandatory during collaborative teaching activities such as debate, small group tutorial, journal club and case study discussion. Socio-cultural background may also influence students' performance during activities involving group discussion. Some students are accustomed to be respectful and receptive of others' opinion, and feel culturally reluctant to question their own colleagues or superiors (7, 11). Dental educators need to play a proactive role in identifying students who experience issues in adapting to group activities, and develop strategies to remedy issues faced by these individuals. Awareness of socio-cultural sensitivity is essential amongst dental educators, so that students would be assisted without compromising their individual values. Application of the 'jigsaw teaching method' has been beneficial in breaking the cultural and personal barrier in learning and encourage active participation of students during group discussion (12).

Students' ability to perform well during collaborative teaching is also dependent upon their learning and coping skills, which vary amongst individuals. Collaborative teaching, such as via problem-based learning, requires additional skills that demands the use of technology for research of learning materials. Some students, including those from a low socio-economic background, may be less advantaged in this area, and thus experience difficulty in completing their task. Furthermore, some students may have problems with English language proficiency, which is crucial in undertaking writing, speaking, reading and listening activities during their training. The academic advisors and mentors play a crucial role in assisting students to cope with the additional demand in education, which seeks to prepare students for the future challenges of the profession. A one-stop academic center that caters for guiding students who experience learning difficulty would be beneficial in supporting students' diversity in any area of learning.

Difficulty in conducting collaborative teaching also affects the faculty in terms of constraint in the availability of human resource and educational facilities. Adopting new teaching methodologies indicate requirements for additional training, as well as institution's time and financial commitments. One of the examples of area that demands such effort is the development of e-learning contents for blended learning. The use of technology in the learning of dentistry is also adopted via the conduct of webinars and educational online forum, where students interact with the teacher online to discuss learning issues (13). Whilst interactive teaching methodologies via blended learning, webinars and online forum have been beneficial in promoting independent and life-long learning (13), technology challenge to both faculty and students may deter effective implementation of such

activities. Availability of adequate educational facilities, including reliable Internet connection and compatible computer devices need to be well established. Supervision of students' interactions that take place via webinars and online forum need to be closely supervised and monitored by responsible moderator and/or academics to ensure sound and useful discussion amongst its users. Effective planning is required to allocate suitable time for everybody to participate in such learning activities without putting much constraint onto the already overloaded curriculum and work commitments of both students and teachers. The faculty should recognize the effort of educators who aim to advance their teaching approach via the use of technology, in the form of increased remuneration, financial rewards and accelerated career pathway.

Another collaborative teaching methodology that requires financial commitment includes simulated learning and role-play activities (14). These activities, which train students to manage patients through case scenarios, require teaching aides, models and computerized equipment to facilitate learning (14). Sharing of resources between faculty and institutions provides for opportunity to enhance students learning experience via these teaching approaches. Furthermore, collaboration between faculty and private sectors may provide for financial opportunity to acquire adequate supply of materials, facilities and resources for teaching and learning purposes.

Support from the government and specialized grants from various bodies may also be useful in supplementing institution's financial needs for teaching and learning. For example, the establishment of the Mobile Dental Service at the Faculty of Dentistry, Universiti Teknologi MARA Malaysia was materialized through multi-sector financial

support, including that from the university. The Mobile Dental Service has provided students with learning experience through extramural activities, which allow students to serve the oral health needs of the community, under the supervision of dental academicians. Careful management by the faculty members, who work closely with the students, is integral to ensuring safe and effective delivery of patient care provided by the students in a non-clinical setting (15). It has been found that participation in community engagement program and extramural activities has resulted in an improved knowledge and skills, as well as development of positive attitudes among students towards provision of care, especially for underserved population and groups of people with special needs (16).

In conclusion, collaborative teaching in dentistry could be designed and undertaken in many ways to provide students with enhanced learning experience. Barriers in conducting collaborative teaching in dentistry could be overcome through effective planning and active participation of both faculty members and students in identifying issues that affect both parties, while developing effective strategies to remedy these challenges via various approaches.

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