



ADEE 2018
Dental education
in a changing
society

University of Oslo,
Norway

Abstract booklet



Promoting Dental
Education in Europe



UiO : **Faculty of Dentistry**
University of Oslo

Introduction:

This booklet contains the accepted abstract for presentation at ADEE 2018 Oslo. Each abstract is assigned a poster stream (topic), unique poster number and a poster presentation session number.

Posters are outlined in this document in poster stream (theme) order.

1. Assessment
2. Curriculum
3. Evaluation
4. Faculty Development
5. Inter Professional Education
6. Other
7. Student Selection
8. Teaching Methods
9. Technology Enhanced Learning

Posters will be presented by authors in Sessions. Sessions P1, P2, P3 & P4 are presented on Thursday, Sessions P5, P6, P7 & P8 on Friday. Note some streams are split over a number of sessions because of a large acceptance rate.

Please check the meeting app or local signage for room allocations.

Mini posters for each (including a QR code to connect you to the online e-poster) are displayed at the exhibition hall. All presenters will use the online e-poster to present.

ADEE expresses its thanks to the Poster evaluators Dr Ronald Gorter, Prof Julia Davies, Prof Rui Amaral Mendes and Dr Barry Quinn. We are also most appreciative of the local University of Oslo representatives who are assisting both in the evolution but also with the management of the online e-poster platform.

We hope you enjoy the meeting.



Professor Deborah White

ADEE Editor

August 2018

Poster Stream: Assessment

Poster Number: A1

Session: P1

Title: Peer Assessment in Development and Delivery of a OSCE.

Authors: Cairns A.

Authors Affiliations:

Glasgow Dental Hospital and School, United Kingdom

Contact: Dr Alison Cairns

Institution: Glasgow Dental Hospital and School

Abstract:

Background: Peer assessment is one of many elements encompassed within the over-arching theme of Peer Assisted Learning which encapsulates an array of educational approaches including peer teaching, learning, assessment, mentoring and leadership. The utilisation of peer assisted learning within clinical education is continually expanding in correlation with the increased expectation and need for healthcare professionals to display competence in teaching, assessment and feedback.

Aims & Objectives: This study aims to investigate the effectiveness of summative peer assessment in comparison to conventional summative assessment by staff tutors in Objective Structured Clinical Examinations (OSCEs).

Materials and Methods: BDS4 students (n=3) developed an OSCE question and marking scheme in accordance with the BDS3 intended learning outcomes. The question was verified by The University of Glasgow Examination Board and implemented into the May 2017 BDS3 OSCE. During the examination, one tutor and one BDS4 peer assessor were assigned to 'Station 10' in each cycle. The tutor and peer assessed BDS3 students (n=45) independently and the scores awarded by both assessors were compared in order to deduce the level of agreement. Feedback was obtained via an examinee questionnaire and interviewing staff examiners.

Results: 28 students (62.2%) were awarded the same overall score by both examiners. On 17 occasions there was a discrepancy between the overall score awarded by the two examiners (37.8%). Bias is skewed slightly in favour of peers scoring higher than staff (mean difference of differences is -0.0667). The OSCE question was considered challenging by both examinees and staff examiners however both groups agreed peer assessment could be feasibly incorporated into formal examinations.

Conclusions: Only a single point on the Bland-Altman lies out with the 95% limits of agreement demonstrating good agreement between tutor and peer assessors. The findings from the study provide evidence to support the implementation of peer assessment into summative clinical based examinations.

Poster Stream: Assessment

Poster Number: A2

Session: P1

Title: Impact of self assessment on the development of skills and competence.

Authors: *Saadé JM¹, El-Khatib W², Makzoumé JE³, El Halabi MT⁴, El-Hage F⁵

Authors Affiliations:

^{1&3}Removable prosthodontics, Faculty of Dental Medicine Saint-Joseph University, Beirut, Lebanon, ²Faculty of Education, Lebanese University, Beirut, Lebanon

^{4&5}Faculty of Educational Sciences, Saint-Joseph University, Beirut, Lebanon

Contact: Dr Jean-Michel Saadé

Institution: Université St. Joseph Faculté de Médecine Dentaire

Abstract:

Background: The implementation of self-assessment within medical professions' curricula is gradually increasing. Concepts like autonomy, competence and skills are becoming a necessity for a graduating dentist.

Aim and objectives: This research studies the effects of self-assessment within a pre-clinical removable prosthodontics course on the development of cognitive and practical skills and competence of dental students in a private dental school. Competence (in terms of autonomy and taking responsibility) and skills were measured according to the European qualifications framework.

Materials and methods: After institutional review board approval, thirty subjects all from the fourth year were included in this experiment. Subjects were divided into two groups of 15 each; one group served as experimental and the other served as control during 6 sessions. During preclinical task execution, subjects from the experimental group used the "study roadmap" tool, which allowed them to determine accomplishment and success criteria, then to reflect upon the quality of their work and emit strategies to perfect it. The control group executed the same preclinical tasks under instructor supervision only. During courses, all subjects were filmed and an autonomy score was given to every subject per session. At the end of the experimental module, all subjects undertook the Kember and al. (2000) test to compare cognitive skills between experimental and control groups. A comparison of grades was made to assess development of practical skills. Data was collected and statistically analyzed ($-p < 0.005$).

Results: Subjects showed development in critical thinking, in practical skills and in autonomy and taking responsibility thus development in competence level. Qualitative results that were obtained from the analysis of the focus groups with experimental group subjects showed coherence with quantitative results.

Conclusions: It can be concluded that implementation of self assessment within preclinical courses would develop skills and competence among dental students yet more studies are needed in the field.

Poster Stream: Assessment

Poster Number: A3

Session: P1

Title: Student and Staff Perceptions on the Use of a Mobile App and the Formative Feedback Approach to Teaching Dental Clinical Skills

Authors: Sagoo A, Patel J, Moore S

Authors Affiliations:

King's College London Dental Institute, London, United Kingdom

Contact: Dr Jonathan San Diego

Institution: King's College London Dental Institute

Abstract:

Background: Student and Staff Perceptions on the Use of a Mobile App and the Formative Feedback Approach to Teaching Dental Clinical Skills

Aim and objectives: With a steady emergence in the usage of digital feedback tools, the purpose of this study is to investigate dental staff and students' perceptions of an electronic based clinical formative feedback application at King's College London Dental Institute (KCLDI); and, to analyse any similarities/differences, evaluate effectiveness of this feedback approach/tool and identify areas needing improvement.

Materials and methods: Two versions of an online questionnaire containing questions/statements investigating the perception of the digital formative feedback tool in respect to: 1) usage; 2) efficiency/adaptability; 3) feedback provision; 4) feedback frequency; and 5) feedback action, were distributed to years 3 – 5 dental students and staff via their KCL email. A total of (n=64) students and (n=16) members of clinical staff responded.

Results: Fluctuations can be seen between student and staff perceptions in response to a few of the survey sections. For example, a statistical difference can be seen in response to iPad app efficiency/adaptability ($p=0.047$); where teachers have a greater negative attitude. Additionally, statistically differing perceptions can be seen within student year-wise distribution, for example regarding 'usage'; year 5 students believe factors such as time and lack of training of using an iPad and app have a greater negative impact compared to years 3 & 4 students.

Conclusions: This study has shown that a digital formative feedback tool has the potential to be an effective feedback and monitoring tool, however differing perception between staff and students and amongst student year distribution indicates the requirement for application changes and increase in training sessions for both the teachers and students.

Poster Stream: Assessment

Poster Number: A4

Session: P1

Title: Clinical Reasoning Examination as an Assessment Tool for Final Year Undergraduate Dental Students

Authors: *Lappin MJ¹, Dysart LE²

Authors Affiliations:

^{1&2}Restorative, Queen's University Belfast, Belfast, United Kingdom

Contact: Dr Mark Lappin

Institution: Queens University Belfast

Abstract:

Background: There are currently a wide range of assessment tools used throughout the undergraduate dental curriculum.

To date no 'Gold Standard' assessment has been identified to assess a student's readiness to progress to independent clinical practice.

Aim and objectives: Our aim was to develop a valid and reliable assessment tool with the ability to assess multiple areas of clinical performance for final year dental students at the point of graduation. Our principle objective was to assess key skills that a safe beginner should possess including: history taking, special investigation interpretation and evaluation, ability to diagnose, treatment planning, patient communication and the ability to work within a dental team.

Materials and methods: A multi-stage linear-OSCE examination was designed to assess specific areas of clinical performance. The assessment was aligned to the UK General Dental Council's 'Preparing for Practice' document using the following domains: Clinical, Communication, Professionalism, Management and Leadership. A dental hospital setting was used to stage this clinical examination. A variety of clinical artefacts (e.g. clinical photographs, study models and radiographs) along with the participation of simulated patients mapped a patient's journey from initial assessment through diagnosis and treatment planning stages to patient discussion and a final dental team based clinical activity. This assessment was blue-printed within the Final year summative and formative

Results: The CRE is a multi-dimensional assessment tool. External and Internal examiner's indicated the assessment was both a valid and reliable means of evaluating undergraduate dental students at the point of graduation.

Conclusions: Feedback from all stakeholders, including students, was highly favourable as it demonstrated the assessment provided a good evaluation of all-round patient care.

Initially this assessment was time-consuming to develop and organise. It is dependent on good clinical artefacts.

The CRE facilitates a multi-disciplinary evaluation, providing examiners with an insight into each students performance over a broader range of clinical domains than other assessments.

Poster Stream: Assessment

Poster Number: A5

Session: P1

Title: Evaluation of a new e-learning resource for OSCE examiners training on the use of rating scales

Authors: *Moreno Lopez R¹, Sinclair S²

Authors Affiliations:

^{1&2}Institute of Dentistry, University of Aberdeen, Aberdeen, United Kingdom

Contact: Dr Rosa Moreno Lopez

Institution: University of Aberdeen Dental School

Abstract:

Background: Rating scales have been described as better at assessing behaviours such as professionalism during OSCE examinations, however there is an increased need to train and calibrate staff on its use prior to the assessment.

Aim and objectives: To assess the validity of the new online programme to calibrate examiners on the use of rating scales for OSCE assessments.

Materials and methods: A new online e-learning package was made available to all examiners at the Institute of Dentistry at the University of Aberdeen. The programme included 3 stations (medical emergency, rubber dam placement and handling a complaint) which were recorded twice (good and borderline candidate). The examiners were required to mark the 6 videos using the marking criteria (check list and rating scales). The rating scales included professionalism, general clinical ability and/or communication skills. For each video, examiners were given 4 possible options (unsatisfactory, borderline, satisfactory or excellent), they were provided with a description for each domain.

Results: 15 examiners completed the task. The total scores given were relatively similar to the expected score for the medical emergency and complaint stations, however this was not the case for the rubber dam station (p-value 0.017 and 0.036). Reasons for this could be that some aspects of the placement of the rubber dam were not very clear as commented on in the examiners questionnaires. There was consistency on the selection of marks on the use of the rating scales (inter-examiner correlation: 0.916 to 0.979).

Conclusions: The use of videos as an online training package for OSCE examiners has proven to be successful for calibrating examiners on the use of rating scales.

Poster Stream: Assessment

Poster Number: A6

Session: P1

Title: Assessment Tools for Clinical Experiences at Postgraduate Level: An Updated Review

Authors: *Alyousef WA¹, Dragan IF², Roomian TC³, Karimbux N⁴

Authors Affiliations:

¹Dental Education, Tufts University School of Dental medicine, Boston, United States

²Periodontology, Tufts University School of Dental medicine, Boston, United States

³Biostatistics, Tufts University School of Dental medicine, Boston, United States

⁴Academic affairs, Tufts University School of Dental medicine, Boston, United States

Contact: Dr Wed Alyousef

Institution: Tufts University School of Dental Medicine

Abstract:

Background: Students' perspective regarding their education and learning environment is more often recognized as a strong predictor for academic achievement. An evaluation of clinical instructors' performance compiled by respective students is essential for continuous development of skills, the educational process and the institutional growth.

Aim and objectives: The primary goal of this study was to identify and critically appraise the references available that describe assessment tools that can facilitate clinical faculty evaluation in the advanced dental graduate programs.

Materials and methods: A MEDLINE search using Pubmed was conducted in December 2017. The following key words were used: "faculty development", "faculty assessment", "dental", "medical", "education", "assessment tool", "faculty experience". In addition, in some of the pertinent systematic reviews that were found the references sections were hand searched. The inclusion criteria for the article selection involved: human qualitative and quantitative studies, written in English.

Results: The search revealed a sparse level of evidence available regarding faculty evaluation performed by postgraduate students in a clinical setting. Most of the articles identified presented evaluation of medical or dental students by faculty members in the clinical setting, but not the other way around. In the search for a validated assessment tool for faculty experience by students, three instruments were described in the medical education. However, no validated faculty assessment tool was found in the field of dental education. The Stanford 25 items tool was referenced by many and translated in different languages. Therefore, it was our tool of choice for development, validation, reliability and applicability to be better suited in the dental field.

Conclusions: Current study identified a lack of instruments available in the dental education for students to evaluate their clinical experience in the postgraduate programs. Developing and validating such a tool will benefit the educational experience.

Poster Stream: Assessment

Poster Number: A7

Session: P1

Title: EPAs in the dental curriculum in Nijmegen the Netherlands

Authors: *Fokkinga WA¹, Leunissen RRM², Hissink E³, Creugers NHJ⁴

Authors Affiliations:

^{1,3&4}Department of Dentistry, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands

²Radboud Health Academy, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands

Contact: Dr Wietske Fokkinga

Institution: Radboudumc Nijmegen Dental School

Abstract:

Background: In the new interprofessional dental Master curriculum (start September 2017) EPAs (Entrusted Professional Areas modified from Entrustable Professional Activities) were introduced as a tool for clinical assessment.

Aim and objectives: To describe the first experiences of working with EPAs in the dental Master curriculum in Nijmegen (the Netherlands).

Materials and methods: In the renewed dental curriculum 4th, 5th, 6th years undergraduate dental students work together with 3rd, 4th years students of Oral Hygiene (OH) in a clinical workplace. Supervised by teachers of both professions, they take care for about 500 patients.

In order to monitor the progress of students in this authentic learning workplace 14 EPAs were developed (9 specific for dental students, 5 equal for OH-students).

In the digital EPA-form (supported by Scorion e-portfolio) the students assess themselves using rubrics and reflect on technical aspects and their professional behavior. A teacher then evaluates this self-assessment, approves or changes it, and provides additional feedback.

In the e-portfolio-system, data per student as well as for all students are aggregated into dashboards. A progress committee to evaluate whether a student can advance into the following year of study makes use of these dashboards.

Results: A midterm evaluation under all students and teachers shows that overall experiences are positive. The rubrics in the EPAs help the students to direct and self-assess their behavior. The students report that they fill in the forms rather honestly and don't overrate their performance in order to get a better grade. Teachers change the self-assessments in less than 25% of the forms.

Conclusions: Though overall opinions on EPAs are positive, further research will be done in order to fine-tune the EPAs and underlying rubrics and to optimize the whole working process (e.g. make it less time consuming). Introduction of EPAs to the Bachelor curriculum is currently being investigated.

Poster Stream: Assessment

Poster Number: A8

Session: P1

Title: Designing a Situational Judgement Test (SJT) to Compare Digital Professionalism between Dental Students and Dental Professionals

Authors: San Diego JP¹, *Mahendran KM²

Authors Affiliations:

¹Dental Education, King's College London, London, United Kingdom

²Undergraduate Dental Department, King's College London, London, United Kingdom

Contact: Miss Krishantini Mahendran

Institution: King's College London Dental Institute

Abstract:

Background: Situational judgement tests (SJTs) have been proven to be a valid and reliable selection tool to evaluate candidates' behaviour based on their responses to a range of role-specific tasks. Currently, examiners follow design guidelines proposed by Patterson et al. (2015), however, no specific guidance exists for SJT construction as a tool for assessing digital professionalism amongst healthcare professionals.

Aim and objectives: Our aim is to suggest a design approach for construction of a SJT to compare digital professionalism between dental students and professionals by utilising existing SJT design approaches.

Materials and methods: To inform the design of the SJT, literature review of commonly used construction approaches and a reflection of our experience in taking and designing SJTs was carried out. Relevant General Dental Council (GDC) guidelines for digital professionalism were identified and scenarios were composed based on real-life case studies. Interviews with dental students and professionals were conducted to collect possible responses to these scenarios and to evaluate perceptions around the use of SJTs for this purpose. This SJT draft was then piloted with four participants and reviewed by two subject-matter-experts (SMEs).

Results: Based on the methodology suggested, an alternative design approach is as follows: (1) Analysing real life case studies to allow selection of twelve scenarios which align with GDC standards relevant to digital professionalism (six based on dental school setting and six based on practice setting); (2) Developing possible responses to each scenario based on discussions with target participants and SMEs; (3) Piloting draft SJT with a sample cohort to ensure 'fit for purpose'; (4) Make amendments based on pilot findings; (5) Finalise SJT with SMEs. As a whole, participants reported an overall positive outlook towards this approach.

Conclusions: The design approach proposed could contribute to existing SJT construction guidelines and could provide an alternative method to assess digital professionalism among dental professionals.

Poster Stream: Assessment

Poster Number: A9

Session: P1

Title: Improving Operative Dentistry Practical Skills Using Self-Assessment - A 10 Year Review

Authors: *Dysart LE

Authors Affiliations:

Restorative, Queen's University Belfast, Belfast, United Kingdom

Contact: Ms Lorna Dysart

Institution: Queens University Belfast

Abstract:

Background: The Operative Dentistry Practical Skills course in 2nd year is the first significant exposure that Queen's University Belfast Dental students have to the practical aspects of the dental course. These new skills are practised on plastic teeth and students must pass the course before they can proceed to treating patients. The assessment for this course takes three forms; continuous assessment of procedures carried out during teaching, a short written paper and a practical skills examination.

Aim and objectives: The purpose of this study was to review the results (over a 10 year period) following an improvement in the learning of operative dentistry practical skills by increasing the transparency of assessment criteria of the practical skills examination using formative self-assessment.

Materials and methods: The assessment for this course includes a practical skills examination. Educational research shows that improved transparency of assessment criteria alongside self-assessment may improve students' performance in examinations. In 2007, a self-assessment sheet was designed to include all the marking criteria that would be used to grade the students in their practical examination. The students were encouraged to use the sheets as a formative self-assessment aid in the weeks leading up to their practical exam. This encouraged the students to self-reflect on their skills and reduce their reliance on their teachers' evaluation of their work and in turn promote life-long learning and appraisal skills.

Results: Following the practical exam in the years 2007 - 2017 the results were compared with those pre-2007. A sustained improvement in results is apparent. It is clear that the students benefit from the transparency of the assessment procedure and the self-assessment aid helped prepare them for their practical skills examination.

Conclusions: Clear explanation of assessment criteria and the opportunity to self-assess using these criteria prior to a practical skills examination has a trend to improve operative practical skills for dental students.

Poster Stream: Assessment

Poster Number: A10

Session: P1

Title: Comparison of Standard Set cut scores with student performance in Objective Structured Practical examination (OSPE) test items.

Authors: Jayasinghe J¹, *Gupta E²

Authors Affiliations:

^{1&2} Institute of Dentistry, School of Medicine, Medical Sciences and Nutrition, University of Aberdeen, Aberdeen, United Kingdom

Contact: Prof Dr Jaya Jayasinghe

Institution: University of Aberdeen Dental School

Abstract:

Background: At the Aberdeen Institute of Dentistry (IoD) determination of minimally competent candidate for Anatomy and Oral Biology OSPE is carried out using a modified Angoff Standard Setting method.

Aim and objectives: The aim of the study was to determine how item cut scores correlates with actual student scores for test items in OSPE.

Materials and methods: OSPE standard setting scores and actual obtained scores from four different years (June 2014, May 2015, May 2017 and December 2017) were compared using paired sample t-test. All data analyses were conducted using SPSS.

Results: There were significant differences in the standard set scores and actual scores obtained for June 2014, May 2015 and December 2017 OSPE exams.

Standard Set scores: June 2014 exam: M=56.27, SD=7.54; May 2015 exam: M=55.68, SD=9.26; December 2017 exam: M=51.54, SD=7.46

Actual student scores: (June 2014 exam: M=76.75, SD=22.75; May 2015 exam: M=71.66, SD=23.51; December 2017 exam: M=61.75, SD=20.78)

(June 2014 exam: t (59) = -7.58, p<0.01; May 2015 exam: t (59) = -6.49, p<0.01; December 2017 exam: t (59) = -3.96, p<0.01).

No significant difference was found in scores for the May 2017 exam.

Conclusions: It is questionable if Modified Angoff as used at IoD is the right standard setting method for OSPE. However, there can be multiple reasons for the differences. Most students may be well above the minimum competency required for OSPE. Judges experience and knowledge of the subject area may influence setting high or low scores for items. These factors should be taken into consideration if an alternative method to be employed for standard setting the OSPE.

Poster Stream: Assessment

Poster Number: A11

Session: P1

Title: Assessing Learning Outcomes of Domain IV in 2nd Class Dental Students

Authors: Dirikan Ipci S

Authors Affiliations:

Altinbas University, Zuhuratbaba, İncirli Cd. No:11, Bakırköy/İstanbul, Türkiye, İstanbul 34147, Turkey

Contact: Prof Dr Sebnem Dirikan Ipci

Institution: Altinbas University

Abstract:

Background: Altinbas University Faculty of Dentistry adopts for a 'Learning Outcomes' approach to undergraduate dental education. The faculty believes that effective evaluation of student learning outcomes is a significant issue in outcome-based education model.

Aim and objectives: The aim of this study was to evaluate the learning outcomes achieved in second class students related to the lectures 'Health and Disease' and 'Cariology and Preventive Dentistry' about Domain IV.

Materials and methods: Forty-seven students participated in 'Health and Disease' lecture in their 1st year and 'Cariology and Preventive Dentistry' lecture in their second year. All students were asked to organize a health education program related to oral hygiene for high school students aged between 15-19 to gain certain outcomes including, participants whom join this program will consider that oral health is a part of general health and they both have mutual interaction, interpret the differences between health and disease, analyze the effects of behavioral and social determinants on health, adopt a healthy life style and gain the psychomotor ability to apply oral hygiene procedures. Then a structured answer key was prepared and analyzed by chi square test.

Results: Forty-nine percent of students got point less than 50, whereas 81% got point between 50-69 and the remaining 11% got point over 70 in 100 point grading system. Students were best in determining a health approach. The mean point achieved was 7.96 ± 1.73 out of 10. Only half of them clearly explained the limitations of their program. They were inadequate in their program enabling the participants to gain the psychomotor ability to apply oral hygiene instruction, to adopt a healthy life style and to interpret the differences between health and disease.

Conclusions: Some weaknesses were observed in achieving learning outcomes. Therefore, for next year a short course will be organized to cover the observed incompetency.

Poster Stream: Assessment

Poster Number: A12

Session: P1

Title: Self-assessment skills: A comparison of Japanese and US dental students

Authors: *Nagasawa M¹, Ohyama H², Akiba Y³, Akiba N⁴, Aoyagi Y⁵, Uoshima K⁶

Authors Affiliations:

^{1,3,4,5 & 6} Faculty of Dentistry, Niigata University, Niigata, Japan

²School of Dental Medicine, Harvard University, Boston, United States

Contact: Prof KATSUMI UOSHIMA

Institution: Niigata University Graduate School of Medical and Dental Sciences

Abstract:

Background: Self-assessment is a critical skill for health professionals and is an essential component in dental education. In the United States, low-performing students overestimate their performance, while high-performing students self-assess themselves more accurately. Self-assessment skills are also influenced by personality and are likely multifactorial. Currently, there are few studies on cultural background and its affect on students' self-assessment ability.

Aim and objectives: To compare students' self-assessment abilities in Japan and the US using preclinical procedures.

Materials and methods: Forty-five students at Niigata University were required to prepare a crown as a part of their preclinical course. Students then assessed their preparation using a standardized grading form. Three independent faculty graded their preparation using the same criteria as on the students' self-assessment forms.

Dental students (105 students from Class of 2016,-2018) at Harvard School of Dental Medicine (HSDM) completed preclinical practical assessments of Class II amalgam and Class III composite preparations. They self-assessed their performance using the same rubrics as faculty (three evaluators) used for grading.

For both schools, an average faculty score was calculated and the difference between the student and the faculty score was determined to examine the student's ability to self-evaluate. Scores from each school were statistically analyzed and compared.

Results: Both schools showed lower-performing students tended to overestimate their performance, while the higher-performers were more likely to underestimate. Interestingly, students from HSDM overestimated more in contrast to students from Niigata.

Conclusions: It is possible that cultural differences between the two regions result in psychological tendencies similar to that of personality traits. Further investigation with more schools from different countries need to be performed.

Poster Stream: Curriculum

Poster Number: C1

Session: P2

Title: Assessing the Restorability of teeth: a practical guide for students and young practitioners.

Authors: *Zavattini A, Charalambous P, Gilmour A

Authors Affiliations:

Department of Restorative Dentistry, Cardiff University Dental Hospital, Cardiff, United Kingdom

Contact: Dr Angelo Zavattini

Institution: Cardiff University Dental Hospital

Abstract:

Background: Heavily restored or severely damaged teeth have by definition small amount of tooth structure.

There is no standardized method for assessing the remaining dentition; predicting whether a tooth has good prognosis and can be maintained for the overall dental rehabilitation is one of the most challenging tasks in dentistry.

Students and young practitioners are frequently involved in clinic sessions and are often involved in treatment planning. Moreover these young clinicians are the first who start the treatment (first phase of stabilization) and sometimes find difficult to assess the restorability of the remaining dentition and how to provide a treatment plan.

Aim and objectives: The main intent of the present work is to guide the young clinician during dental examination and to distinguish between favorable and compromised teeth in treatment planning. It is also hoped that this tool will enhance communication between clinicians and help to manage the complex patient before carrying out restorative treatment. Also give a reliable method of assessment for inexperienced practitioners.

Materials and methods: The recent literature in regard to the assessment of restorability of teeth has been reviewed. An evidence based chair-side toolkit is proposed for the young clinician in order to facilitate treatment planning and assess restorability of severely compromised teeth in complex cases.

Results: A chair-side tool kit and a classification method is proposed.

Conclusions: Being aware of the complexities of the topics and the difficulties to attach prognostic values to teeth, we used the best evidence based data and a peer-reviewed method to build a simple chair-side tool kit to facilitate treatment planning and assessing restorability. Further studies will be conducted to assess the validity of the present work in a teaching dental hospital.

Poster Stream: Curriculum

Poster Number: C2

Session: P2

Title: A Decade of Student Perceptions on Academic Integrity

Authors: *Feldman CA, Bender M, Shuying J

Authors Affiliations:

Rutgers School of Dental Medicine, Rutgers, The State University of New Jersey, Newark, New Jersey, United States

Contact: Dr Cecile Feldman

Institution: Rutgers University

Abstract:

Background: Upholding the highest level of academic integrity while in dental school is the foundation for a lifetime devoted to pursuing the highest ethical standards. The Rutgers School of Dental Medicine has an honor code which outlines expected student conduct. This research exams student perceptions of this code.

Aim and objectives: Specific aims were to understand what students believe should or should not be an academic integrity violation and possible reasons for justifying code violations.

Materials and methods: Between 2007 and 2017, at the start of the school's first professionalism seminar, students were asked to complete a 92 question anonymous survey, each requiring a yes or no answer. Data was entered into an Excel and exported into SAS. Chi-Square Test for trends was used to test if there was a significant linear trend in proportions. This research was considered exempt by the Rutgers University IRB.

Results: 1135 questionnaires were completed. 12 of 30 questions had greater than 5% of responding students saying provisions in our current honor code should NOT be a violation. Statements with the highest level of disagreement include sharing old exam questions secretly (29.2%), not reporting honor code violations (23.2%), and getting or giving help on assignments against teacher's rules (13.6%). Some students felt protecting a fellow student (6.5%), faculty are too lazy (7.9%) and because "everyone else is violating the code" (7.6%) was justification for violations.

There were significant changes ($p < 0.05$) in student perceptions over time. Of 30 questions posed, 19 questions showed differences over time, all with increasing belief that statements presented should be a violation. Over time, fewer students reported believing there were reasons for code violations.

Conclusions: While faculty believe the honor code is very straightforward, student perceptions are complex, varied and change over time. Faculty can tailor their seminars if they understand the discrepancy between their school's code and student beliefs.

Poster Stream: Curriculum

Poster Number: C3

Session: P2

Title: What is the competence to be required for dental students to graduate from a university in Japan?

Authors: *Onizuka C¹, Konoo T², Kaiho Y³, Sugimoto A⁴

Authors Affiliations:

^{1&2} Division of Comprehensive Dentistry, Kyushu Dental University, Kitakyushu, Japan

Contact: Dr Chie Onizuka

Institution: Kyushu Dental University

Abstract:

Background: A “diploma policy (hereafter DP)” consists of principal academic ideas determined by a college or university, such as the educational objectives and the standards of granting a degree including course requirements and abilities required for students to attain by completing course works.

A DP is expected to be formulated in consideration of students’ future courses and careers as well as the needs and requirements of societies they belong to.

In Japan, the Ministry of Education, Culture, Sports, Science and Technology has required all colleges and universities to publish their DPs since 2017.

Aim and objectives: The purpose of this study is to clarify the images of a dentist Japanese society requires by investigating the DPs of the Department of Dentistry in Japanese colleges and universities.

Materials and methods: In March 2018, we collected DPs which were posted on the websites of all dental schools (29 schools) in Japan.

The collected DPs were analyzed based upon “the seven categories of Stern’s professionalism (hereafter Stern’s)”. The Stern’s consist of the following three foundations: “Clinical Competence,” “Communication Skills,” and “Ethical and Legal Understanding,” and the following four principles: “Excellence,” “Humanism,” “Accountability,” and “Altruism.”

DPs were also analyzed in terms of word frequency by text mining.

Results: The category with the highest proportion among the Stern’s was “Clinical Competence” at all dental schools, followed by “Excellence” and “Humanism.”

The words lining up in order of frequency by text mining were “Medical,” “Competence,” “Knowledge,” “Dental Care,” “Description,” “Practice,” and “Patient.”

Conclusions: The results show that the competence students who graduate from the School of Dentistry in Japan are expected to acquire refer to a rich sense of humanity and ethics, as well as clinical skills and self-discipline.

Poster Stream: Curriculum

Poster Number: C4

Session: P2

Title: Learning from fitness-to-practise procedures in the UK: insights and opportunities for greater patient involvement across the dental education continuum.

Authors: *Zahra D, O'Brien T, Roberts M, Bryce M, Archer J

Authors Affiliations:

Peninsula Schools of Medicine and Dentistry, Plymouth University, Plymouth, United Kingdom

Contact: Dr Daniel Zahra

Institution: Peninsula Dental School

Abstract:

Background: During 2015-17 we worked with the UK General Dental Council (GDC) to investigate fitness to practice (FtP) data concerning UK registered dentists and dental care professionals (DCPs).

Aim and objectives: After an initial scoping exercise, we worked with the GDC to formulate a set of research questions to investigate possible associations between registrants' professional and demographic characteristics, FtP case involvement and particulars such as the nature and source of complaints.

Materials and methods: Data from 120,854 dentists and DCPs registered with the GDC between September 2013 and May 2015, along with details from 8,855 FtP cases covering the same period, were provided by the GDC and analysed to explore the associations of interest. Whilst relevant to informing policy, the data also provided a unique perspective of value to developing dental education programmes.

Results: A number of associations were found between registrant characteristics and FtP case involvement. Of particular interest was the number of complaints related to communication raised by patients, and relative lack of such complaints from other types of informant. Almost a third of complaints raised by patients were related to 'patient interests' (14%) or 'effective communication' (15%), and accounted for 11% of all complaints overall. Less than 10% of complaints raised by other groups (regulators, employers, registrants) were related to these issues.

Conclusions: Given the centrality of patients in healthcare, it is important that their concerns are addressed and information communicated effectively. That it is primarily patients raising these concerns in FtP cases might suggest that they are best placed to evaluate this critical element of care or that they place most value on it. Given that most assessments in dental education are conducted by professionals, these findings further support the value of patient involvement in assessment and feedback to students, offering a unique perspective on where difficulties arise from non-technical as opposed to treatment issues.

Poster Stream: Curriculum

Poster Number: C5

Session: P2

Title: Educational Domains: Dental educators assign importance and rate confidence in defining and fulfilling outcomes. Part II: Open ended responses on critical thinking

Authors: *Johnsen DC¹, Hoskin EH²

Authors Affiliations:

¹Administration, University of Iowa Dental School, Iowa City, Iowa, United States

²Restorative Department, Rutgers School of Dental Medicine, Newark, New Jersey, United States

Contact: Dr Eileen Hoskin

Institution: Rutgers School of Dental Medicine

Abstract:

Background: Dental Education organizations in Europe and the United States list the educational domains important for training future dentists as knowledge, technical skills, critical thinking, ethics, social responsibility, inter-professional education/practice (IPE/IPP). The educational domain of critical thinking has proved itself elusive in defining the outcome, guiding learning, assessing performance.

Aim and objectives: The purpose of this survey was to gain a consensus from experienced US dental educators on educational domains asking single choice questions (reported in Part I) and open- ended questions specific for critical thinking.

Materials and methods: A survey queried experienced US dental educators about educational domains in 2017. Part II of the survey, asked related open ended questions specific to the educational domain critical thinking.

Results: The question to define critical thinking, with a 58% response rate, had the most cohesive pattern of responses. Forty seven (90%) responded with a verb reflecting analysis in Bloom's taxonomy. Twenty three different verbs were recorded with "analyze" being the most common. While there was consistency in a pattern of analytical verbs there was no consistency in the definition of critical thinking. When asked, educators stated that they could improve upon teaching of critical thinking skills, this received a 56% response rate and respondents were passionate about their answers. There was uncertainty concerning the learning outcome and the assessment necessary. Twenty-one educators (42%) were very supportive of the need for improvement but, had few specific recommendations to accomplish this. The fewest responses were recorded for articulating the outcome for critical thinking.

Conclusions: The results reinforce the existing challenges educators face in articulating the outcome for critical thinking. This vacuum increases the challenge in guiding learning and assessing performance. This baseline information will be useful for in-depth study and will aid in the development of strategies for articulating outcomes, guiding learning, and assessing performance for critical thinking.

Poster Stream: Curriculum

Poster Number: C6

Session: P2

Title: Comprehensive Evaluation of Skeleto-Dental Anomalies (CESDA) study: lessons for dental curriculum planning

Authors: *Hessari H¹, Shirazi M²

Authors Affiliations:

¹Research Center for Caries Prevention, Dentistry Research Institute, Tehran University of Medical Sciences, Tehran, Islamic Rep. of Iran

²Department of Orthodontics, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

Contact: Dr Hossein Hessari

Institution: Tehran University of Medical Sciences.

Abstract:

Background: Skeleto-dental anomalies may cause oral dysfunction, deform facial appearance, affect social communication and quality of life. Providing data on the most preventable skeleto-dental anomalies helps in planning a preventive-oriented dental curriculum.

Aim and objectives: The aim of this study was to assess the prevalence of preventable skeleto-dental anomalies, in mixed dentition, in 9- to 11-year-old children, in Tehran.

Materials and methods: In this cross sectional study, multi-stage cluster random sampling was applied and 1331 9- to 11-year-old students (705 boys and 626 girls) were selected randomly among 4th and 5th grades in elementary school classes of 19 districts, in Tehran. Skeletal and dental characteristics as well as oral habits of the subjects including skeletal and molar relationship based on the Angle classification, facial vertical height, facial asymmetry, face profile, overjet, overbite, cross-bite, mouth breathing, digit sucking, tongue thrust, bruxism were recorded by four calibrated orthodontists. Data was analysed using SPSS Ver20.

Results: The results of this study indicated that 41.4% of subjects had malocclusion, of them, 35.3% had class II malocclusion and 6.1% had class III malocclusion. All types of abnormal overjet and overbite was more frequent among boys than girls. Straight profile was more frequent among girls, while convex and concave profiles among boys. In ages higher than 10 years old, higher number of straight and concave profiles were observed comparing to others. Of all subjects, 14.2% had mouth breathing, with a higher frequency among boys. Crowding was observed among 51% of all subjects. All the oral habits except tongue thrust were more frequent among boys than girls. All the oral habits except digit sucking were more frequent among subjects older than 10 years old.

Conclusions: The dental curriculum should be reoriented towards the prevention and treatment of the most prevalent and preventable skeleto-dental anomalies in early ages.

Poster Stream: Curriculum

Poster Number: C7

Session: P2

Title: Transitions: Supporting undergraduate BDS students transitioning from school to university in year one.

Authors: *Niggli J

Authors Affiliations:

Department of Teaching and Innervation, Queen Mary University of London, London, United Kingdom

Contact: Dr Jason Niggli

Institution: Bart's and the London School of Medicine & Dentistry

Abstract:

Background: Studying in higher education is a time of many transitions and challenges in students' lives. However this is more apparent when you are about to start your degree, students are often living away from home for the first time, learning how to deal with independence, forming more adult relationships, making financial decisions, all in addition to the pressure of exams and coursework. In addition to this, dental students are also on a 5-year programme where they are expected to act and behave in a professional manner and take responsibilities for patients early in their training. Our project looked at employing a particular transitions advisor to signpost, offer support and start dialogue early in the course. We also designed workshops to help and support the students with their studies and development.

Aim and objectives: Aims to increase engagement with BDS Part 1 examinations and increase the pass rate of the BDS Part 1 examination.

- Developing a Transitions Module
- Connecting students with valuable resources within the University.
- Increasing a sense of belonging.
- Introducing workshops on procrastination, mindfulness and reflection.

Materials and methods: Development of a Transition Advisor (TA) Role to signpost and support students early on in their development. Achievement of objectives will be measured through-

- Student feedback
- Pass rate at first sit and resit
- Levels of withdrawal, interruption, retakes and deregistration in year 1.

Results: 2014-2015 12% reduction in failure rate, distinctions increased by 23%. Deferred rate remained constant. Feedback very positive:

- 96% attendees rating the session useful
- 100% have a better understanding of mindfulness
- 89% would recommend the workshops

Conclusions: There was a marked increase in the number of students pass the Part 1 BDS examinations. This would suggest that students were engaged with their course and developing appropriate learning skills. Many students were identified with specific issues early and referred to the appropriate services.

Poster Stream: Curriculum

Poster Number: C8

Session: P2

Title: Preventive dentistry in a multicultural society

Authors: Blank J

Authors Affiliations: praxisHochschule Germany

Contact: Dr Julia Blank

Institution: praxisHochschule Germany

Abstract:

Background: Due to the so called refugee crisis 300,000 refugee minors are currently registered in Germany. Several studies stated that dental caries is one of the main health deficits within this group of people. Since national as well as international laws entitle all children living in Germany to equal health rights – regardless of their ethnic origin or their residency status – it is imperative that refugee minors are involved in dental preventive programs aiming to ensure their oral health sustainably.

Aim and objectives: The migration of refugee minors causes a strong need for preventive medical maintenance. However, in a multicultural society prophylactic measures can only be conducted successfully if dental professionals know about cultural specificities and resulting barriers of the target group. Thus, the aim of the described teaching unit is to raise awareness among dental hygiene students for the special requirements on oral prophylaxis in refugees.

Materials and methods: Students develop a group prophylactic measure for minor inhabitants of a refugee home that is conducted during a joint visit of the accommodation.

As preparation for the measure students are required to obtain informations about cultural specificities of the target group on the basis of scientific literature as well as on consulting volunteer workers in the refugee home.

Results: The evaluation of the learning outcome of the teaching unit is inspired by ProfilPASS, an instrument for autonomous identification of skills. According to this approach students are requested to enunciate their perceived gain in knowledge, skills and self-competence and verify the statements by examples.

Subsequently, the self-formulated knowledge gain of the students is adjusted with the pre-formulated learning outcomes of the teaching measure.

Conclusions: The described teaching unit may help to prepare prospective dental hygienists for the changing demands on dental prevention in a multicultural society.

Poster Stream: Curriculum

Poster Number: C9

Session: P2

Title: Protocol for early detection of arterial hypertension in the dental office

Authors: Arregui M, Zabalza M, *Navalón F, Marcé M, Ferré J, Giner L

Authors Affiliations:

Universitat Internacional de Catalunya, Sant Cugat del Vallés, Barcelona, Spain

Contact: Dr María Arregui Gambús

Institution: Universitat Internacional de Catalunya

Abstract:

Background: Hypertension is a chronic disease and an important cardiovascular risk factor that is on the rise worldwide. Dentists could play a pivotal role in screening undiagnosed hypertension in their patients and refer them to a cardiologist.

Aim and objectives: Present a new protocol on hypertension in the student's clinical dental training.

Materials and methods: This protocol would be incorporated into the second-year curriculum in order to provide all students with both the theoretical concepts of hypertension and pre-clinical training in diagnosing and monitoring blood pressure. This would require undergraduate students (third-, fourth-, fifth-year) in clinical practice to routinely take the patient's blood pressure at the first visit. If the patient's systolic blood pressure measures > 140 mmHg or the diastolic blood pressure > 90 mmHg, the student would take the patient's blood pressure again one hour later. If the patient continues to show high levels of blood pressure, the student would repeat the test in subsequent visits and refer the patient to a cardiologist.

Results: This protocol would be introduced gradually. During the current academic year (2017-2018) second-year students have already begun pre-clinical training, with a view to implementing this policy into clinical practice in the 2018-2019 academic year, prior to attending a refresher course on the theory and practice of blood pressure monitors.

Conclusions: The objective is to train students in detect undiagnosed hypertension and, if necessary, refer the patient to a medical doctor for a complete diagnosis. This practice would show students the importance of interprofessionalism with other health professionals.

Poster Stream: Curriculum

Poster Number: C10

Session: P2

Title: Inhalation sedation: a rediscovered technique becomes a new university competence.

Authors: *Arregui M, Vela I, Jiménez E, Giner L

Authors Affiliations:

Universitat Internacional de Catalunya, Sant Cugat del Vallés, Barcelona, Spain

Contact: Dr María Arregui Gambús

Institution: Universitat Internacional de Catalunya

Abstract:

Background: Sedation is an anaesthetic technique that now forms a part of the curriculum in the Spanish dentistry degree. Inhalation sedation, first used in 1844, is an effective technique for reducing anxiety and controlling dental phobia. Given the lack of consensus about the teaching of this competence in Spain, Universitat Internacional de Catalunya (UIC-Barcelona) has developed a training program in dental sedation, in accordance with the Spanish General Dental Council recommendations.

Aim and objectives: Explain the program developed by UIC-Barcelona to implement dental sedation as a new competence in the curriculum.

Materials and methods: The first step involved selecting the academic years and subjects in which to introduce this competence. Subsequently, the program was designed and gradually introduced into the curriculum. The dental sedation program provides students with the knowledge of and training in the use of minimum levels of inhalation sedation (less than 50% nitrous oxide concentration) to treat patients with specific characteristics, classified as ASA I and ASA II.

Results: All students of dentistry are expected to acquire the inhalation sedation competence by the time they have completed the 2018-2019 academic year.

Conclusions: Due to the lack of university guidelines on sedation in Spain, UIC-Barcelona designed and introduced a theoretical and practical training program with a dual-purpose: to teach this technique and to add a new competence to the curriculum, which could bring great benefits to dental education.

Poster Stream: Curriculum

Poster Number: C11

Session: P2

Title: Visual mapping of an undergraduate dental curriculum: Experience within a French faculty and future pedagogical perspectives

Authors: *Moreau N¹, Collignon AM², Maman L³, Wolikow M⁴, Colombier ML⁵, Vital S⁶

Authors Affiliations:

^{1, & 3}Oral Medicine and Oral Surgery, Faculty of Dental Surgery - Paris Descartes University, Paris, France

²Endodontics, Faculty of Dental Surgery - Paris Descartes University, Paris, France

^{4 & 6}Pedodontics, Faculty of Dental Surgery - Paris Descartes University, Paris, France

⁵Periodontology, Faculty of Dental Surgery - Paris Descartes University, Paris, France

Contact: Dr Nathan MOREAU

Institution: Université Paris Descartes

Abstract:

Background: Adding a new course or learning activity within an existing curriculum can be quite challenging, especially for the young unexperienced teacher. One of the main issues lies in being able to integrate such new material within the pre-existing network of knowledge, concepts and learning outcomes so as to avoid redundancy and to enhance its practical relevance regarding expected clinical competences.

Aim and objectives: In order to bring a comprehensive vision of the current dental curriculum with our dental faculty, we sought to create a simple visual mapping of the current undergraduate dental curriculum (from year 1 to year 5).

Materials and methods: Every department head was contacted and asked to provide an exhaustive list of the current curriculum divided in lectures, tutorials and practical exercises and the corresponding allotted time. The resulting data were compiled within a hyperlinked Powerpoint™ file and exported to Portable Document Format (PDF).

Results: The resulting document could be used as a dynamic visual mapping of the current dental curriculum, sorted by semester or dental subspecialty. Statistics regarding allotted time for each subspecialty allowed for a better vision of the current repartition between the various subspecialties. In the near future, this should enable a better adherence with the ADEE 2017 guidelines on the profile and competences for the graduating European dentist.

Conclusions: A simple visual mapping of the current undergraduate dental curriculum can reveal to be a useful tool in creating and implementing new courses while following Biggs' model of constructive alignment for curriculum design (1999) and conforming to ADEE guidelines (2017). Furthermore, new pedagogical perspectives can emerge such as correlating mastery of clinical competencies (OSCE scores, clinical evaluations) with respective allotted time within the undergraduate curriculum or pooling existing medical courses in a modern transdisciplinary perspective.

Poster Stream: Curriculum

Poster Number: C12

Session: P2

Title: Ten-year trend of knowledge, attitude, practice, and self-reported competency of Iranian senior dental students towards preventive dentistry

Authors: *Razeghi S¹, Khami MR², Mohebbi SZ³, Dorostkar Z⁴, Bonabi M⁵, Murtomaa H⁶, Virtanen J⁷

Authors Affiliations:

^{1,2,3,4&5} Department of Community Oral Health, Tehran University of Medical Sciences, Tehran, Islamic Rep. of Iran

⁶Department of Dental Public Health, Institute of Dentistry, Helsinki, Finland

⁷Research Unit of Oral Health Sciences, Faculty of Medicine, University of Oulu, Oulu, Finland

Contact: Dr Samaneh Razeghi

Institution: Tehran University of Medical Sciences

Abstract:

Background: Preventive dentistry is an important topic in dental curriculum and dentists play a considerable role in this regard.

Aim and objectives: The present study investigated knowledge, attitude, practice, and self-reported competency of Iranian senior dental students towards preventive dentistry.

Materials and methods: Of all Iranian state dental schools, six were selected by stratified random sampling to serve as clusters. All the senior dental students (n=252) in the selected schools were asked to voluntarily complete a standard anonymous questionnaire containing background information, knowledge, attitude, practice, and self-reported competency towards preventive dentistry in spring term 2015. The data was also compared with that gathered in 2005, 2008, and 2011 through the same method. Chi-square test and logistic regression models were used for statistical analyses.

Results: A total of 207 students (response rate of 82.1%) completed the questionnaire of whom 57% were women. In logistic regression models, students whose mothers had an academic education, had the highest practice scores towards preventive dentistry (P= 0.009, OR=2.26, 95% CI=1.28-3.97). Moreover, a higher score on preventive practice among the students was associated with their positive attitudes (P=0.005, OR=2.91, 95% CI=1.51-5.62) towards prevention. Investigation of the ten-year trend showed that the students in 2011 and 2014 were more likely to acquire a practice score in the highest quartile compared to those in 2005 and 2008, which was a difference near to significant (P=0.06).

Conclusions: Despite some favorable changes in dental curricula, preventive dentistry has not found its real position among dental students. Appropriate planning is necessary to promote present situation among dental students.

Poster Stream: Curriculum

Poster Number: C13

Session: P5

Title: Rule-based Learning & Teaching in Pre-clinical Operative Dentistry

Authors: *Pollington S, Martin N

Authors Affiliations:

School of Clinical Dentistry, University of Sheffield, Sheffield, United Kingdom

Contact: Dr Sarah Pollington

Institution: University of Sheffield

Abstract:

Background: The translation of a learner's applied knowledge and skills from a pre-clinical setting to a patient-based clinical environment requires critical application of protocols and specific operative criteria.

Aim and objectives: The aim of this study was to develop and validate an objective 'rule-based approach' for both learning and teaching and assessment of operative procedures in a pre-clinical skills simulation environment.

Materials and methods: Specific identifiable and measurable criteria were developed for the management of a carious tooth in the format of an operative rubric. The procedures were categorized into domains: (i) Pre-operative assessment & Procedural management; (ii) Caries management; (iii) Cavity preparation; and (iv) Restoration placement. These were further sub-divided with a clear procedural sequence. For example, Restoration placement was sub-divided into matrix placement, contract point, surface finish, margins and anatomical form. For each of these domains, detailed specific measurable descriptors were written for $\leq 45\%$, 50 - 60%, 65 - 70% and $\geq 75\%$ performance. This rubric also provided a new learning tool for self- and peer-assessment and as part of their reflection process following tutor feedback.

Results: This rubric achieved all the set objectives: (i) A structured L&T tool for the acquisition and application of core knowledge and skills; (ii) it developed the students' ability to engage in critical self- and peer-assessment; (iii) it enabled effective calibration and standardization of tutors which increased the robustness and reliability of the practical examinations; (iv) tutors were more comfortable using this rubric as it eliminated any subjectivity that could be challenged; (vi) students welcomed the objectivity and feedback.

Conclusions: This approach marks a positive departure from the traditional models that relied on the subjective ambiguity of 'tutor knowledge and experience'. It enables a structured approach to L&T that develops the required aptitudes of a 'beginner' clinician as they translate to a clinical environment.

Poster Stream: Curriculum

Poster Number: C14

Session: P5

Title: Patients with Special Healthcare Needs. Are we ready for them?

Authors: *Mitha S¹, Lu PR²

Authors Affiliations:

¹Dentistry, Institute of Health Sciences, Unviersiti Brunei Darussalam, Gadong, Brunei Darussalam

²School of Dentistry, International Medical University, Kuala Lumpur, Malaysia

Contact: Dr Shahid Mitha

Institution: Universiti Brunei Darussalam

Abstract:

Background: Our dilemma: Are the dentists of tomorrow trained and ready for those patients that need special care?

Aim and objectives: To identify educational experiences attitudes and behaviours of dental students in providing treatment to patients with Special Healthcare Needs (SHCN)

Materials and methods: The study was conducted by distributing a pre-validated questionnaire for dental students to fill out in 2 public universities and 1 private university. 165 surveys were sent out and 134 surveys were returned. Questionnaires consisted of 3 sets of questions relating to 1. Their classroom based education, 2. Their clinical based education and 3. Satisfaction with their SHCN education and their comfort level in treating SHCN patients.

Results: 50% of the participants reported that it was taught as a required course within the dental curriculum. 109 students reported that they were taught by lectures whilst 61 described PBL as the main method of teaching. 32 students described small group discussions and 42 described case studies as the methodology for delivery. Pediatric dentists were the primary professionals in teaching (n=85) followed by general dentists (n=56) and oral and maxillofacial surgeons (n=42). A small number of students had been taught by someone trained in the subject (n=26). Most students reported that they had limited exposure to patients with SHCN(n=122).

One-third of the students felt that their taught classes didn't prepare them well for treating patients with special needs, while three-fourths of the students suggested that the curriculum should include more education about treating patients with special needs. 62% of the students thought that they would be comfortable treating patients with SHCN, but 23% were not. However, most students felt their schools' genuine concern towards treating those patients.

Conclusions: The presentation will discuss modalities to address such as increased input towards SHCN patients in the curriculum, training from centric specialists, and with more appropriate teaching methodologies.

Poster Stream: Curriculum

Poster Number: C15

Session: P5

Title: Barriers to Effective Feedback

Authors: *Balague Viladrich G

Authors Affiliations:

King's College London, London, United Kingdom

Contact: Mr Gerard Balague Viladrich

Institution: King's College London Dental Institute

Abstract:

Background: It is generally agreed among academic sources that feedback is a crucial factor in the learning phase, within and beyond formal educational settings. However, providing feedback can be challenging. The literature has described many factors that may influence the effectiveness of feedback. An increased awareness on the part of teachers of how learners perceive their feedback could not only influence how teachers deliver it in terms of effectiveness, but also raise their consciousness of how their students learn

Aim and objectives: The aim of this poster is to engage with the literature and identify a number of barriers to giving effective feedback in the context of medical education.

Materials and methods: Literature review. Published quantitative and qualitative articles related to the topic were included in the study. A collective analysis was carried out to investigate possible impediments to effective feedback.

Results: It is essential to supervise clinical activity in order to provide effective feedback. The absence of face-to-face clinical observation of students by tutors is recognised as a dominant barrier by the literature. Even if the observing process does occur, there are some elements that may interfere in student progression: (1) Teacher's lack of knowledge about (a) the subject, and/or (b) the skills required to convey the message effectively. (2) Teacher's omission of the emotional aspect that comes with the feedback. (3) Student's perception of feedback. (4) Resources and time constrains

Conclusions: This poster sought to contribute to an improved understanding of barriers to effective feedback. Through understanding the aforementioned challenges, feedback sessions should result the pillar within effective clinical teaching.

Poster Stream: Curriculum

Poster Number: C16

Session: P5

Withdrawn

Poster Stream: Curriculum

Poster Number: C17

Session: P5

Title: Competency model study of dentists based on checklist method

Authors: *Zheng DX

Authors Affiliations:

School of Stomatology, Capital Medical University, Beijing, China

Contact: Prof Dongxiang Zheng

Institution: School of Stomatology, Capital Medical University

Abstract:

Background: In China, the student graduated from five-year dental school need to finish one-year clinical practice under the supervision of licensed dentists before taking the National Dental Licensing Examination. However, no competency-oriented assessment criteria have been established for these "5+1" stage dentists.

Aim and objectives: To construct a "5+1" stage dentists competency model which is suitable for the China's national condition and provide a theoretical basis to improve the Dental Licensing Examination, and provide references for the training, selection, training and assessment of dentists.

Materials and methods: In the early stage, we used Delphi method to construct dentists competency model and then based on it, we designed checklist and distributed it to stakeholders. We sent out 350 pre-investigation questionnaires and 950 national survey questionnaires and the effective recovery rate and were 96.6% and 82.6%. We used SPSS20.0 to carry out the reliability and validity analysis and exploratory factor analysis.

Results: The Cronbach's Alpha coefficient of national survey was 0.976, through exploratory factor analysis, 7 factors and 50 items were obtained and the 7 factors were named respectively. Finally, the "5+1" stage dentists competency model was built.

Conclusions: the model can basically reflect the "5+1" stage dentists competency, and it still needs to carry out a national questionnaire survey to verify the competency indicators.

Poster Stream: Curriculum

Poster Number: C18

Session: P5

Title: Restructuring undergraduate dental education in Turkey by adapting national core curriculum based on competencies.

Authors: *Alpaslan C

Authors Affiliations:

Department of Oral Surgery, Gazi University School of Dentistry, Ankara, Turkey

Contact: Prof Dr Cansu Alpaslan

Institution: Gazi University

Abstract:

Background: There's been a tremendous unplanned rise in the number of dental schools in Turkey in the past years. This increase in numbers raised concerns on the quality, paving way to the attempts in harmonizing undergraduate dental education.

Aim and objectives: The Council of Dental Deans decided to create a national framework for undergraduate dental education and constituted a subcommittee for this task. National core curriculum (NCC) was developed with 2 main documents in hand; one "Profile and competences for the graduating European dentist " and the other "Swiss Catalog of Learning Objectives for Undergraduate Medical Training"; completed and published in 2016.

Materials and methods: The NCC document defined the profile of new Turkish dentist on graduation, domains and competences. Learning objectives leading to defined competences for undergraduate dental education were listed as in Swiss Catalog in order to help students to know what they are expected to learn during their undergraduate education. The list composed of 3 tables: I. signs and symptoms, II. Clinical pictures and III. general and subject related skills. Expected level of knowledge is defined by letters, expected skills were defined by numbers regardless the methods of teaching.

Results: The main problem with the current curriculum in most of the dental schools in Turkey is the extreme overload of lecture hours, contents and compulsory practical training requirements and workload. Restructuring the curriculum according to NCC requires elimination of repeated lectures, creating spare time and self-study time for students and focusing on learning outcomes and competences rather than the content.

Conclusions: NCC for competency based dental education clearly defines the picture of what the students need to learn and be able to do by designating lowest learning levels. Dental schools should commit restructuring the curriculum to ensure quality of dental education.

Poster Stream: Curriculum

Poster Number: C19

Session: P5

Title: Examining School Effectiveness between Dental Graduate School and Six-year Dental College Using Evaluation Index

Authors: Ihm JJ, *Seo DG

Authors Affiliations:

School of Dentistry, Seoul National University, Seoul, Rep. of Korea

Contact: Prof Dr Deoggyu Seo

Institution: Seoul National University

Abstract:

Background: The dental school system in Korea experienced some transitions between a dental graduate school and a six-year dental college. Although only three universities in Korea support dental graduate schools, evaluation index has not yet been developed to decide which system is more effective.

Aim and objectives: The study was designed to develop an evaluation index for measuring school effectiveness of a graduate dental school. The main purpose was to allocate the relative weight of significance of each index and examine how effectively a graduate dental school system could work in comparison with a six-year dental college in Korea.

Materials and methods: Designing the assessment index involved evaluating the importance of ten major domains and 33 detailed items. A survey was distributed to ask the 98 faculty members of Seoul National University School of Dentistry (SNU SOD) to determine the relative weight of each index in 2015. 68 responded to the survey for a response rate of 69%. Correlation and principal component analysis were implemented in order to develop an evaluation index of school effectiveness.

Results: The principle component analysis indicated that the evaluation index could be categorized into education, student, and faculty. Relative weight value of education group was estimated to be higher than student and faculty groups. In particular, clinical competency and financial support for dental scientists were considered the most important sub-indexes in education group. Admission and faculty recruitment were regarded as the most important sub-indexes in student and faculty group.

Conclusions: Even though there were still conflicting views on the effectiveness of a graduate dental school, this study entails a policy implication that the educational visions shared by the internal members helps the dental schools to examine the priority of each index and periodically evaluate the appropriateness of their current dental school system.

Poster Stream: Curriculum

Poster Number: C20

Session: P5

Title: An innovation to enhance clinical competence of dental students

Authors: *Yang K

Authors Affiliations:

School of Stomatology, Capital Medical University, Beijing, China

Contact: Prof Kai Yang

Institution: School of Stomatology, Capital Medical University

Abstract:

Background: Clinical practice is one of the most important processes in dental education. Normally, Chinese students practice in dental clinic in their last college year. The 45 weeks clinical practice includes the training of oral and maxillofacial surgery, conservative dentistry and endodontics, periodontics, pediatric dentistry and prosthodontics.

Aim and objectives: To explore how to change the clinical practice mode to enhance dental students' ability of making diagnosis and treating disease comprehensively by the use of abundant clinical resources of dental schools and department of stomatology in general hospital.

Materials and methods: From the year of 2012 to 2017, 150 dental students firstly received a 36 weeks departmental training of different specialty, including oral and maxillofacial surgery, conservative dentistry and endodontics, periodontics, pediatric dentistry and prosthodontics in dental hospital. And then they went to the department of stomatology in general hospital to receive a 9 weeks comprehensively dental training. The effect of "departmental plus comprehensive" clinical practice mode was evaluated by students and teachers' feedback, expert assessment and quality monitoring report written by educational department.

Results: Dental students' ability of comprehensively analyzing and solving the clinical problems has enhanced. After the 36 weeks departmental training, the students developed standard operation skill and habit. During the 9 weeks comprehensively dental training, students finished some complicated cases and feel more confident to patients. Their systematic thinking, comprehensive analysis skill and problem-solving ability have improved greatly.

Conclusions: The "departmental plus comprehensive" clinical practice mode is an effective way to improve the clinical training quality of dental students.

Poster Stream: Evaluation

Poster Number: E1

Session: P3

Title: Educational Domains: Dental educators assign importance and rate confidence in defining and fulfilling outcomes.

Authors: *Hoskin EH¹, Johnsen DC²

Authors Affiliations:

¹Restorative Department, Rutgers School of Dental Medicine, Newark, New Jersey, United States

²Administration, University of Iowa School of Dentistry, Iowa City, Iowa, United States

Contact: Dr Eileen Hoskin

Institution: Rutgers School of Dental Medicine

Abstract:

Background: Dental Education organizations in Europe and the United States list the educational domains important for training future dentists as knowledge, technical skills, critical thinking, ethics, social responsibility, inter-professional education/practice (IPE/IPP). For these learning domains, the development of definitions, learning outcomes,

and learning models and assessments will be essential in guiding learning and assessing a

student's performance or competence.

Aim and objectives: The purpose of this study was to seek -- and gain insight into -- a national consensus of experienced dental educators regarding the relative and absolute importance of learning domains in dental education, confidence in defining outcomes, and perceived effectiveness in guiding learning.

Materials and methods: A survey of experienced US dental educators was conducted in 2017. Results are presented in two parts: Part I asked participants to rate and rank each learning domain as well as report and analyze single response questions related to these domains and Part II, asked related open ended questions.

Results: Of eighty-nine respondents (response rate = 12.5%), many were course directors, who have ten or more years of experience. Among the domains, knowledge was ranked the highest followed by critical thinking, technical skills, clinical decision making, ethics, problem solving, social responsibility, and IPE/IPP respectively. When rating the absolute importance of the domains, the respondents gave all but IPE/IPP and social responsibility the highest rating. Knowledge and technical skills were rated highest for confidence in defining outcomes with similar high ratings for confidence in guiding learning. Lesser confidence was shown in defining outcomes for critical thinking and for ethics, and less yet for IPE/IPP, and social responsibility.

Conclusions: Paths forward may include: for critical thinking, a focus on gaining consensus for a definition and articulating outcomes; for IPE/IPP, ethics, and social responsibility, articulate the outcomes. This baseline information will aid in the development of strategies for articulating outcomes, guiding learning, and assessing performance.

Poster Stream: Evaluation

Poster Number: E2

Session: P3

Title: Teaching of Occlusion in UK and Ireland Undergraduate Dental Schools

Authors: ** O'Carroll E; Fine PD; Leung A; Louca C

Authors Affiliations:

Continuing Professional Development, UCL Eastman Dental Institute, London, United Kingdom

Contact: Dr Peter Fine

Institution: UCL Eastman dental Institute

Abstract:

Background: The contemporary teaching of occlusion is essential for competent qualifying dentists. An evaluation.

Aim and objectives: The teaching of occlusion in undergraduate curricula should provide an adequate level of knowledge and skill to support qualifying dentists. The purpose of this study was to collect and analyse relevant data to evaluate the scope of occlusion teaching in undergraduate dental schools in the UK and Ireland.

Materials and methods: A mixed-method approach was employed; with primary research obtained using a cross sectional questionnaire-based survey and follow-up semi-structured interviews. The hard copy questionnaires enquired about: i) whether occlusion was taught, ii) how much time was spent, iii) what teaching resources were deployed, iv) how well prepared for general practice new graduates were, and v) how knowledge/skills were assessed. Follow-up interviews were procured using volunteering respondents to triangulate responses. Quantitative data were analysed using descriptive statistics and qualitative data were analysed using the Framework Method of data analysis and a thematic approach.

Results: 100% (n=18) schools responded to the questionnaire. 66.67% (n=12) participated in follow-up interviews. All schools reported that they taught occlusion in their curriculum. Total time reported teaching occlusion varied from 11 to 310 hours. 28% (n=5) respondents reported insufficient time in the curriculum. There was a marked variation in: i) teaching methods, ii) resources employed, iii) assessment strategies to evaluate competency in occlusion and iv) how well prepared students were. Thematic analysis of the qualitative data identified several themes, namely: i) variations in teaching pedagogy, ii) use of different resources, iii) variable assessment techniques, iv) evaluation of teaching, and v) barriers to teaching occlusion.

Conclusions: This study reported on the variability in teaching occlusion amongst the undergraduate dental schools of the UK and Ireland. A co-ordinated teaching strategy with dedicated oversight to facilitate better student exposure to occlusion and promote student understanding of this topic is highly desirable.

Poster Stream: Evaluation

Poster Number: E3

Session: P3

Title: Identifying Educational Needs Following a Software Assessment of Crown Preparations

Authors: Fernando SN; Patel M; Leung A; Fine PD; Louca C.

Authors Affiliations:

Department of Continuing Professional Development, UCL Eastman Dental Institute, London, United Kingdom

Contact: Dr Peter Fine

Institution: UCL Eastman dental Institute

Abstract:

Background: To evaluate educational values of measuring crown preparations, using software technology.

Aim and objectives: This study investigated the quality of crown preparations by general dental practitioners (GDPs) attending continuing professional development (CPD) courses, using novel CAD/CAM assessment software.

Materials and methods: GDPs were asked to complete a questionnaire and to prepare a typodont-type upper first molar tooth for a Full Gold Crown restoration both before and after receiving technical instructions. All preparations were scanned using a CEREC Omnicam and assessed using prepCheck 2.1 PRO software for specific parameters including: i) analysis of variations between GDP preparations and tutor's master preparation, ii) occlusal reductions, iii) axial reduction, iii) preparation taper, iv) margin quality, and v) surface quality. Comparing pre- and post- instruction preparations, each participant was given a score: +1 (improvement), -1 (deterioration), or 0 (no change) based on these results and a group mean score was calculated for each parameter, to assess the change within the sample. Two senior clinical instructors assessed the typodont preparations objectively.

Results: 60 GDPs participated in this study, generating 120 preparations and 60 (100%) completed questionnaires. 63.3% (n=38) were male; 90% (n=54) qualified in the UK. 43.3% (n=26) allowed 40-60 minutes for a FGC preparation in practice; 90% (n=54) indicated a chamfer as their intended finishing line. Statistically significant mean scores of improvement were found with the difference between study preparations and master preparation ($t = 2.164$, $p = 0.034$), average taper ($t = 2.292$, $p = 0.026$) and axial reduction ($t = 2.334$, $p = 0.023$) post-instruction. A mean improvement was found post-instruction ($p > 0.05$) with a combination of parameters. There was a statistically "fair agreement" between the instructors ($K = 0.277$).

Conclusions: Technical instruction led to an improvement in some aspects of Full Gold Crown preparation but not others. Sustained bespoke training would be required to achieve overall qualitative improvements.

Poster Stream: Evaluation

Poster Number: E4

Session: P3

Title: Postgraduate Dental Students' Perceptions of Four Styles of Feedback

Authors: *Torrado Varela A¹, Leung A², Fine P³, Louca C⁴, Blizard R⁵

Authors Affiliations:

^{1,2,3&5} Department of Continuing Professional Development, UCL Eastman Dental Institute, London, United Kingdom

⁴Head of School, University of Portsmouth Dental Academy, Portsmouth, United Kingdom

Contact: Dr Peter Fine

Institution: UCL Eastman dental Institute

Abstract:

Background: The importance of appropriate feedback to create an opportunity to influence future learning is well documented, as are consequences of feedback failure, delivered by tutors to students.

Aim and objectives: Within the above context, this study assessed associations between the educational and cultural backgrounds of postgraduate dental students and their perception of four styles of feedback including: i) negative criticism, ii) constructive criticism, iii) praise and iv) self-evaluation.

Materials and methods: A mixed method approach was used. A questionnaire was distributed to full-time (FT) and part-time (PT) students enrolled on postgraduate, degree based courses during 2016-2017. The questionnaire enquired about: i) demographics; ii) feedback quantity, quality and style and iii) the source of feedback. Two focus group discussions were undertaken with full-time or part-time students.

SPSS software (Version 22.0) was used to analyse quantitative data. Qualitative data underwent thematic analysis.

Results: 67% (n=99) responses were received. 61.6% (n=60) were female and the mean age was 31 years (range 24-57). Constructive criticism was the highest ranked motivational style of feedback, whilst negative criticism was the lowest. Age, gender and ethnicity of the students influenced their satisfaction on both quantity and quality of feedback; younger students being more satisfied with quantity of feedback than older colleagues. No differences were detected between feedback aimed at clinical or academic skills.

Qualitative data suggested that students wanted feedback to be specific, containing guidance on how to improve their performance. PT students found feedback not always applicable and with insufficient opportunities to revisit performances after receiving feedback. The feedback provider played a crucial constructive role for all participants.

Conclusions: There is dissatisfaction with current feedback provision. Feedback providers need to be aware of background and cultural differences when offering students feedback to ensure the best possible learning experience. More research is needed on the variables that influence feedback reception and interpretation in postgraduate education.

Poster Stream: Evaluation

Poster Number: E5

Session: P3

Title: Human Disease/Clinical Medical Science in Early-Years Dental Graduates: Transition to Clinical Practice

Authors: *Atkin PA

Authors Affiliations:

School of Dentistry, Cardiff University, Cardiff, United Kingdom

Contact: Dr Philip Atkin

Institution: Cardiff University

Abstract:

Background: ADEE and General Dental Council (GDC) publications describe the education and training required to produce a safe and competent dental graduate. They outline the broad requirements to take and understand a comprehensive medical history, with the intention of allowing the dental graduate to prescribe, and deliver restorative, surgical and other treatments with patient safety at heart

Aim and objectives: There is little in the literature looking at recent dental graduates and their attitudes and understanding of how training in Human Disease/Clinical Medical Science (HD/CMSD) translates to the broader confident, competent and safe management of patients as newly-qualified, independent dental practitioners.

Materials and methods: A questionnaire survey was distributed to Foundation Dentists (FD) schemes across Wales and administered at study days between January and March 2018 to capture the views of FDs at the mid-point of their foundation year where FDs would be relying on knowledge and training in HD/CMSD from their undergraduate programmes. Simple Yes/No or tick box responses were used as well as Likert scales. Free-text boxes were also available.

Results: FDs surveyed represented 12 of 16 dental schools in the UK. All bar one participant graduated in 2017, immediately prior to joining a Foundation scheme. There was a 97% response rate. 86% strongly agree/agree that they are able to understand the medical histories patients give them, 85% strongly agree/agree that they can understand the relevance of the drugs patients list on their medical histories, 91% strongly agree/agree that they understand how the patient's medical history affects dental prescribing, 82% strongly agree/agree that they understand how a patient's medical history may affect proposed restorative treatment plans and 86% strongly agree/agree how a patient's medical history may affect proposed surgical treatments.

Conclusions: Early years dental graduates from UK dental schools are confident in understanding their patient's medical histories and making safe choices in dental and surgical treatment planning

Poster Stream: Evaluation

Poster Number: E6

Session: P3

Title: Student feedback; its intrinsic value

Authors: Mc Andrew R

Authors Affiliations: Cardiff University

Contact: Dr Robert McAndrew

Institution: Cardiff University

Abstract:

Background: Student feedback at topic, module, subject and course level is commonplace at dental schools and the potential value that this can have is undisputed. The need to ensure that the feedback cycle is conspicuously employed is considered to be fundamental if feedback is to be valued by the student body. Despite being researched extensively the overall conclusions as to what is acceptable and unacceptable feedback remains questionable.

Aim and objectives: To identify and explore the potential that formalised feedback can have.

Materials and methods: Year 3 and Year 4 Cardiff University enrolled dental students were invited to participate in the end of year evaluation of clinical teaching. The questionnaire was distributed and collected electronically over a pre-determined window of opportunity.

Results: 16% of Year 3 students and 24% of Year 4 students responded. The results to the 11 questions posed (although statistically questionable) were generally positive. The majority of students indicated favourable clinical teaching and a positivity with respect to clinical confidence (83% overall) gained on completion of the course. However it was the free text and comments provided which proved most insightful. When the comments were grouped thematically there were 5 main areas of concern; feedback, staffing, equipment, treatment planning and actual clinical supervision. Clinical supervision raised the most comments (36 in total) and highlighted areas for discussion and potential action; including perceptions of being treated unfairly and lack of sympathy to the student's clinical support requirements. While most comments could be addressed there were some challenging matters raised through the feedback received.

Conclusions: This evaluation highlights that even when poor response rates are encountered that significant questions, areas of concern and challenges for the future can be highlighted by giving opportunity to make comments. The value of allowing for anonymous evaluation and scope for comment during feedback processes cannot be underestimated even with poor response rates.

Poster Stream: Evaluation

Poster Number: E9

Session: P3

Title: Is there value of post-qualification training within different clinical settings for the newly qualified dental graduate prior to independent clinical practice?

Authors: *Coleman AJ¹, Nattress BR², Finn GM³

Authors Affiliations:

^{1&2}Department of Restorative Dentistry, Leeds Dental Institute, Leeds, United Kingdom

³Health Professions Education Unit, Hull York Medical School, York, United Kingdom

Contact: Miss Alexandra Coleman

Institution: University of Leeds

Abstract:

Background: Upon completion of undergraduate dental training, there are various options available to the newly qualified dental graduate for continued professional development. With technology enhanced learning and increasing numbers of postgraduate courses, the newly qualified dental graduate can continue to develop their skills whilst working in independent clinical practice. However, some dental graduates opt for a longer training period, post qualification, as a full time trainee; developing their skills in both primary and secondary care before entering independent clinical practice. It has been suggested that training in more than one clinical setting can lead to greater adaptability and help to inform career decisions (Plowman 2000). However, there is limited evidence to understand the value of an integrated training pathway within primary and secondary care, post qualification.

Aim and objectives: The aim of this qualitative study was to explore perceptions and experiences of post-qualification training in different clinical settings and how this training prepares trainees for independent clinical practice and their future career.

Materials and methods: A qualitative study from an interpretivist stance, employing a 'Grounded Theory' approach. Theoretical sampling was carried out until data saturation was achieved; 36 individual in-depth semi-structured interviews of both trainees and supervisors were completed. Interviews were audio-recorded and transcribed verbatim. Data analysis was iterative and inductive, completed through a coding process, followed by thematic analysis.

Results: Emerging themes included transferable skills, opportunities, professional identity, career development, appreciation of different specialties and the patient pathway.

Conclusions: Post-qualification training within different settings appears to provide opportunity, inform career decisions and broadens the skills of a newly qualified dental practitioner. Professional identity and personal factors appears to influence trainees' experiences of training.

Poster Stream: Evaluation

Poster Number: E10

Session: P3

Title: Following the Leaders: Leadership to Follow?

Authors: *Pilley A, Macluskey M

Authors Affiliations:

Oral & Maxillofacial Clinical Sciences, University of Dundee Dental Hospital and School, Dundee, United Kingdom

Contact: Mr Simon Shepherd

Institution: University of Dundee

Abstract:

Background: Leadership skills and knowledge are vital to the effective delivery of high quality patient care. Indeed the General Dental Council requires that all registrants in the UK demonstrate skills in four key domains of which Management & Leadership is one. However it remains challenging to deliver authentic and effectual leadership experience within the undergraduate curriculum.

Aim and objectives: To understand student views on leadership.

Materials and methods: A new leadership program was administered to 4th year students in the Oral Surgery department. As clinical leader each student (supported by clinical staff); triaged/assigned work to colleagues, managed the clinical environment and decision making, and graded colleagues performance. Pre- and post-session questionnaires immediately before and after the session gauged student views on leadership.

Results: (N=60), 45% (n=27) were male with 62% (n=37) had reportedly acted as team leader elsewhere. Pre-session responses suggested that 53% (n=32) did not agree it would be easy with post-session responses demonstrating a fall to 35% (n=21). Students reported that they were familiar enough with the grading system to be able to appropriately grade colleagues 83.3% (n=50), which was also reflected in the post-session responses of 97% (n=58). Student confidence in giving feedback was augmented with 53% (n=32) versus 86.6% (n=52) reportedly confident pre- and post-session respectively.

Pre-session responses suggested that 80% (n=48) felt the experience would be enjoyable with post-session 92% (n=55) agreeing that it was. The vast majority of students agreed that the lessons learned during the session were beneficial to them 95% (n=57), with 87% (n=52) likely to volunteer to act as leader again.

Conclusions: Students exposed to a new clinical leadership program reported increased confidence giving feedback, found the experience to be beneficial, enjoyable and would volunteer to engage with it again. However, student reports also suggest that there were aspects which were not as easy as expected.

Poster Stream: Evaluation

Poster Number: E11

Session: P3

Title: Appraisal of the Dental School Learning Environment - Recent Graduates' Reflections

Authors: *Hughes AH, O'Neill KON, Mulville EM, Hendrick DH, Al Sarraf ZHAS, Coakley CC, El Azrak MEA, Delap ED

Authors Affiliations:

Dublin Dental University Hospital, Trinity College Dublin, Dublin, Ireland

Contact: Ms Annie Hughes

Institution: Dublin Dental University Hospital

Abstract:

Background: Studies have shown that the learning environment in a University affects students' satisfaction, success and performance. It has been recommended that the learning environment in dental schools should be regularly assessed and should influence changes made to the curriculum. The DDUH undergraduate dental science degree is a five year programme delivered through problem based learning, with early introduction to the clinical setting. The hospital aims to deliver the curriculum through a holistic approach, co-ordinating horizontal and vertical integration.

Aim and objectives: The purpose of this study was to assess the learning environment in Dublin Dental University Hospital (DDUH), as perceived by recent graduates.

Materials and methods: Recent graduates' perceptions of the learning environment in DDUH were measured using the Dental School Learning Environment Survey (DSLES). The DSLES is divided into seven areas that affect the learning environment: 1) Flexibility, 2) Student-to-Student Interactions, 3) Emotional Climate, 4) Supportiveness, 5) Meaningful Experience, 6) Organisation, And 7) Breadth of Interest. The online survey was emailed to all graduates from 2013-2017. In total 189 graduates were emailed, and 40 completed the survey.

Results: The most positive area perceived by the students was in the area of Student-to-Student interactions, while the most negative was in the area of Faculty Supportiveness, closely followed by emotional climate.

Conclusions: Implementing changes that improve the weaker scoring areas could improve the learning environment perceived by the students', ultimately resulting in greater student satisfaction, success and performance. Hence, this study highlights area for potential localised improvement, which faculty could review to modify the curriculum in order to improve future graduate's reflection on their dental educational experience.

Poster Stream: Evaluation

Poster Number: E12

Session: P3

Title: What if you ran a CPD course and no one came? Exploring the learning preferences of non-attenders.

Authors: *Barnes EJ¹, Bullock AD², Moons KE³, Thomas D⁴

Authors Affiliations:

¹& ² Cardiff Unit for Research and Evaluation in Medical and Dental Education (CUREMeDE), School of Social Sciences, Cardiff University, Cardiff, United Kingdom

³ & ⁴ Dental Postgraduate Section, Wales Deanery, Cardiff University, Cardiff, United Kingdom

Contact: Ms Emma Barnes

Institution: Cardiff University

Abstract:

Background: On-going education and training is required of UK dentists. The Dental Postgraduate Section, Wales Deanery (DPS) is a key provider of continuing professional development (CPD) for dental professionals in Wales, often at no-cost to attendees. As an educational commissioner and provider, it is important for DPS to regularly update knowledge of their audience's learning needs.

Aim and objectives: To explore the learning preferences of dentists that currently source their verifiable CPD from outside the DPS, to inform how provision might be optimised.

Materials and methods: DPS-non-attenders from the last two years were identified from comparative analysis of the DPS's database of CPD attendees and the database of registered dentists in Wales (n=474). Questionnaires were sent to a random 50% sample from four University Health Boards across Wales.

Results: Of registered dentists in Wales, 29% had not engaged with DPS-provided CPD within the previous two years. We obtained 28 questionnaire replies (21% response rate). Most respondents (75%) had previously engaged with DPS-provided education, mainly for core-recommended topics. Most now received CPD from their employers, professional associations or from private companies. Convenience (not needing to take time off work) and costs (free-to-attend, no lost revenue from time off work) were the most frequent reasons for choosing private companies and professional associations. Although half the respondents received information from DPS, mostly via email, reported awareness of courses and use of the DPS website was low. Professional associations' advertising was noted as a reason for choosing to attend sessions.

Conclusions: Evening or week-end events, employer-provided CPD in-practice or via e-learning minimises lost revenue from time away from practice. While emails are a convenient dissemination method, having a more targeted and visible approach to promoting courses may enhance awareness. Core-recommended topics are widely available in convenient formats. Providing, and promoting, broader topics or ones offering qualifications, may enhance engagement with CPD provision.

Poster Stream: Evaluation

Poster Number: E13

Session: P6

Title: Dental Therapists in General Dental Practice: what works, how and in what circumstances?

Authors: Barnes, E, Chestnutt, I, Cowpe, J, Moons, K, Warren, W

Authors Affiliations:
Cardiff University

Contact: Ms Emma Barnes
Institution: Cardiff University

Abstract:

Background: In the UK, policy and guidance changes on the role of Dental Therapists (DTs) have been implemented in recent years reflecting the drive to a more preventive-focussed, team-based approach. However, success in better utilising the skills of the whole dental team has been varied.

Aim and objectives: Adopting a realist approach, our aim was to examine the use of DTs in general dental practices, exploring what works, why, how and in what circumstances.

Materials and methods: The research was carried out in three stages. (i) A structured literature search; following the realist approach, we dual-coded 84 papers for high-level factors describing the conditions or context(s) under which mechanism operate to produce outcomes. (ii) Six case studies of general dental practices (three with a DT/three without a DT) employing a range of skill-mix models. (iii) Semi-structured interviews with members of the team (n=38).

Results: From the literature we summarised factors influencing skill-mix in the general dental service to derive seven theories about the context and mechanisms that result in optimised use of DTs. We used the case study interviews to explore these theories within three broad contexts: the dental practice as a business, as a healthcare provider, and as a workplace. The case study data led us to amend five of the theories.

Conclusions: Our analysis provides theories about what works in terms of the optimised use of DTs and the mechanisms needed to facilitate their within different contexts of general dental practice. Through training and support, dental teams can enhance their understanding and use of DTs' role and develop practical processes to facilitate their contribution to patient care. Particularly valuable is educational input on making a business case and setting up referral systems.

Poster Stream: Evaluation

Poster Number: E14

Session: P6

Title: I'm fantastic at assessing my own communication skills and brilliant at communication (as long as no-one answers back)

Authors: Jones, R¹, Rosewell A¹, Johnson IG²

Authors Affiliations:

¹School of Dentistry, Cardiff University, Cardiff, United Kingdom

²Applied Clinical Research & Public Health, Cardiff University, Cardiff, United Kingdom

Contact: Ms Rhiannon Jones

Institution: Cardiff University

Abstract:

Background: Communication skills are a central part of dental patient care and experience. These skills are developed throughout undergraduate dental training and reflective practices can support the development of these skills.

Aim and objectives: To assess how students across three year groups, rate their ability in key communication skills. To identify self-perceived challenges in relation to communication skills and to use this data to inform teaching methods.

Materials and methods: All BDS students in Years 2, 3 and 4 (n=228) studying at a UK university were invited to complete a questionnaire rating their confidence on 10 specific communication skills on a scale of 1 (low) -10 (level of a qualified dentist) and to identify any challenges and training needs. Participation was voluntary and all data was anonymised. Data was analysed using SPSS and open comments were grouped in themes.

Results: A total of 166 (73%) students returned questionnaires (Yr2=52; Yr3=50; Yr4=64). When evaluating their awareness of communication skills in dentistry, 38% (n=64) of students rated themselves close to the level of a qualified dentist (scale 8-10). Students across all year groups, who indicated high confidence at assessing their own communication skills were significantly more likely to rate their communication skills as being close to the level of a qualified dentist. Many students reported high confidence in the ability to introduce themselves to a patient 75% (n=126); start a conversation with a patient 75% (n=126) and to take a medical history 73% (n=122). Open comments were illuminating, reflecting students' discomfort with emotion and a lack of control.

Conclusions: A number of students were highly confident in their communication skills, this was apparent across all year groups. The data suggests that student confidence may exceed their ability. This overconfidence and lack of perceived training is a barrier to learning and presents challenges for teaching.

Poster Stream: Evaluation

Poster Number: E15

Session: P6

Title: I'm Professional; as long as it's all going to plan!

Authors: *Johnson IG¹, Rosewell A²

Authors Affiliations:

¹Applied Clinical Research & Public Health, Cardiff University, Cardiff, United Kingdom

²School of Dentistry, Cardiff University, Cardiff, United Kingdom

Contact: Ms Rhiannon Jones

Institution: Cardiff University

Abstract:

Background: Professionalism is essential for patient trust and is embedded within undergraduate dental teaching programmes. Reflection and self-assessment are increasingly being included in undergraduate teaching in dentistry to inform professional development of these skills.

Aim and objectives: To explore students' self-assessment of their professionalism abilities and learning needs.

Materials and methods: Questionnaires were distributed to 228 students (Yr2 n=72, Yr3 n=80, Yr4 n=76) inviting them to participate in the study. Participants were recruited voluntarily at lectures. Students were asked to rate themselves in relation to professional behaviour on a scale of 1 to 10, with 1 representing a low level of ability and 10 representing skill at the level of a qualified dentist. Students were invited to include open-ended comments on challenges and training needs.

Data was anonymised and analysed using SPSS.

Results: A 73% (n=166) response rate was achieved (Yr2=72.7%; Yr3=62.5%; Yr4=84.2%).

Overall 59% (n=99) of students reported having a high level of professional awareness in dentistry (scale 8-10). In the ability to act professionally, 26 (16%) students rated themselves at an equivalent level to a qualified dentist, a further 42 (25%) students reported themselves just below this level (scale 9). Similar numbers were reported across all three year groups. Furthermore, 49 (29%) students reported they were able to behave professionally in a dental setting, were highly aware (scale 8-10), but were not as confident to act professionally beyond a dental setting. Open comments indicated that students felt they did not need help with professionalism but were not happy when patients did not conform to their expectations.

Conclusions: Students are often confident in their ability to behave professionally in dentistry. However many issues relate to challenging situations outside the realms of their experience. This study shows professionalism teaching needs to include managing the unfamiliar and further work is needed to develop this aspect of teaching practice.

Poster Stream: Evaluation

Poster Number: E16

Session: P6

Title: Digital Examinations – Could written assessments be a thing of the past?

Authors: *Veitz-Keenan A, Ferraiolo D, Keenan JR

Authors Affiliations:

Oral Maxillofacial, Pathology, Radiology and Medicine, New York University, College of Dentistry, New York, United States

Contact: Prof Dr Analia Veitz-Keenan

Institution: NYU- College of Dentsitry

Abstract:

Background: Technology is embedded in dental education - in lectures to encourage class participation, flipped courses and examinations and assessments.

Is it foreseeable that dental education will eliminate the use of “paper and pen”? Can we evolve from hours of exam assessment and calibration of faculty to avoid personal bias? Does today’s technology allow this replacement, especially with large classes? If not, are we prepared for the challenge of developing an effective technology-based assessment tool?

Aim and objectives: This presentation will demonstrate different assessment modes using today’s technology, how they have been applied to didactic/clinical courses and benefits and challenges of both.

Materials and methods: The replacement of paper examinations was introduced to our program for multiple reasons: improving assessment, reducing academic dishonesty in larger classes and avoiding subjectivity during evaluation. The latter of which requires calibration of a large amount of faculty due to class size.

The technology was introduced in most courses to all course directors to use as the resource for evaluation. The programs can design exams for multiple choice and essay, with many options. We introduced both in our courses, which evaluate students’ understanding of the dental management of medically complex patient.

The essay assessment was most effective for evaluations and competency assessment for simulated, case-based scenarios allowing standardization of answers.

Results: Multiple-choice evaluations are easier to grade with these programs and avoid using large amounts of paper. Exam scores and item analysis are available immediately after the exam ends. Essay format requires more time for grading but lends itself to the feature of grading anonymously. This is important to reduce bias and provide objectivity.

Conclusions: Undoubtedly, technology and new applications require a learning curve as well as technological support. In addition, it is important the students be well versed in the format of these testing platforms to avoid complications during the assessments

Poster Stream: Evaluation

Poster Number: E17

Session: P6

Title: Communication skills - Attitudes of undergraduate and postgraduate students

Authors: Beydilli SERRA

Authors Affiliations:

Faculty of Dentistry, Altinbas University, Istanbul, Turkey

Contact: Prof Dr Sebnem Dirikan Ipci

Institution: Altinbas University

Abstract:

Background: Good communication skills are inseparable part of the dental practice. Communication Skills Attitude Scale is a validated instrument for measuring medical students' attitudes towards learning communication skills. This scale was modified for dental use, referred as Dental Communication Skills Attitude Scale (DCSAS) and very limited number of studies used this scale to evaluate the dental students' attitudes towards learning communication skills.

Aim and objectives: The aim of this study was to evaluate communication skills attitude of 2nd year undergraduate and 1st year postgraduate dental students by DCSAS.

Materials and methods: Dental Communication Skills Attitude Scale was used to measure the attitudes of all students towards learning communication skills. Participants were asked to value how strongly they agreed or disagreed with the expressions on a five point Likert-type scale from strongly disagree, disagree, neutral, agree, strongly agree and scored from 1-5, respectively. The internal consistency of items was measured using Cronbach's alpha. Descriptive statistics and one way ANOVA was also used.

Results: The data reported were obtained from 37 undergraduate and 13 postgraduate students enrolled in the Altinbas University, Faculty of Dentistry. The Cronbach's alpha values for the individual factors (Learning, Importance, Quality and Success) were between 0.7-0.8. Factor I (Learning), factor II (Importance), factor III(Quality) and factor IV (Success) were comprised of 10, 6, 4 and 4 items, respectively and descriptive results were comparable between the groups ($p>0.05$).

Conclusions: Within the limits of this study, both undergraduate and postgraduate students generally have positive approach towards learning effective communication skills. This approachment will probably result with increased patient satisfaction and compliance.

Poster Stream: Evaluation

Poster Number: E18

Session: P6

Title: Student Perception Of Their Educational Environment At The Dental School Of Clermont-Ferrand (France)

Authors: Flory D, Perreau E

Authors Affiliations:

Clermont-Auvergne University, School of Dentistry, Clermont-Ferrand, France

Contact: Prof Valérie ROGER-LEROI

Institution: Université Clermont Auvergne

Abstract:

Background: It has been shown that a positive and encouraging educational environment facilitates students' learning and, consequently, good practice in their professional life.

Aim and objectives: The aim of this study was to evaluate student perception of their educational environment at Clermont-Ferrand dental school (France) using the DREEM (Dundee Ready Educational Environment Measure) questionnaire.

Materials and methods: 327 graduates from five successive cohorts were asked to complete a French version of the DREEM questionnaire. This questionnaire consisted of 50 items covering five distinct topics : perception of learning (Learning); perception of teachers (Teachers); academic self-perceptions (Academic); view about Faculty atmosphere (Atmosphere); and social life feeling (Social). Each item was rated using a five levels Likert scale: "Strongly agree", "Agree", "Uncertain", "Disagree" and "Strongly disagree". Results were obtained for each item, for each topic or for the global educational climate (EC).

Results: The response rate to the questionnaire was 72.5% (237/327). All cohorts combined, the different scores were respectively 26.7/48 (55.6% of the maximum score) for Learning, 25.5/44 (57.9%) for Teachers, 20.1/32 (62.9%) for Academic, 29.5/48 (61.4%) for Atmosphere, 18.1/28 (64.8%) for Social and 120/200 (60%) for global EC.

Conclusions: The DREEM questionnaire helps to identify strengths and weaknesses in the educational environment of a dental school. Although students considered that the EC in Clermont-Ferrand dental school was globally more positive than negative, the school has to implement support strategies for students who suffer from stress and ensure that teaching and learning are more student-centred.

Poster Stream: Faculty Development

Poster Number: FD1

Session: P8

Title: Calibration Process for Clinical Competency Evaluation: Focused on Department of Conservative Dentistry

Authors: Kim S

Authors Affiliations:

Dental Education Research Center, Yonsei University College of Dentistry, Seoul, Rep. of Korea

Contact: Assoc Prof Jooh kim

Institution: Yonsei University School of Dentistry/Dental Education Research Center

Abstract:

Background: Yonsei University College of Dentistry (YUCD) evaluators complete the evaluation sheet for students according to the rubric while observing students without any intervention during the treatment of the patient. The evaluators will closely observe whether the students provide appropriate treatment for the patient and will immediately stop the treatment if necessary.

Clinical competency evaluation is a subjective evaluation. It should be considered that the evaluation results may vary with different evaluators. It is not possible to control the evaluators' subjectivity by involving two or more evaluators in clinical competency evaluation. It is also difficult for a single evaluator to evaluate all the students. Therefore, it is necessary to introduce a calibration process for the reliability between evaluators (inter-rater reliability).

Aim and objectives: 1. What is the inter-rater reliability of the first evaluation of the operative treatment?

2. What is the inter-rater reliability of the second evaluation of the operative treatment?

Materials and methods: The evaluation criteria were explained and discussed with the evaluators. The evaluation sheets were completed based on the evaluation criteria with before-, during-, and after-clinical photography of the patient. In order to explore inter-rater reliability of evaluation results, the descriptive statistics, correlation coefficients, and intraclass correlation (ICC) were conducted using SPSS 18.

Results: From the first evaluation, mean, correlation coefficient, and ICC were calculated. There were significant differences among the evaluators. The values of the ICC were ranged from 0.16 to 0.72. Interestingly, the inter-rater reliability of the second evaluation was highly improved. At the second calibration meeting, the results of the first evaluation were analyzed and the reasons were discussed the reasons for low inter-rater reliability to clarify the criteria for clinical competency evaluation.

Conclusions: Inter-rater reliability can be said to be improved through the calibration meeting. Therefore, this study suggests that calibration meetings must be performed before clinical competency assessment for high inter-rater reliability.

Poster Stream: Faculty Development

Poster Number: FD2

Session: P8

Title: Tutors' perceptions of a clinical chair-side POT scheme: the difference between clinical dental tutors with and without a postgraduate teaching qualification

Authors: Bovill C¹, Bissell V²

Authors Affiliations:

¹Institute for Academic Development, Edinburgh University, Edinburgh, United Kingdom

²School of Dentistry, Liverpool University, Liverpool, United Kingdom

Contact: Dr Alison Cairns

Institution: Glasgow Dental Hospital and School

Abstract:

Background: This study is rare within higher education as it deals with a Peer Observation of Teaching (POT) scheme in the complex teaching area of chair-side clinical dentistry. In addition to the traditional dental school environment this study encompasses outreach teaching across 6 Scottish Health Board Areas. It examines the different opinions of, and approaches to, POT between tutors with a postgraduate teaching qualification (PGQ) and those without (Non PGQ).

Aim and objectives: This study aims to compare PGQ and Non PGQ clinical tutors' perceptions of a clinical chair-side POT scheme.

Materials and methods: This qualitative study used evaluation research methodology, interview based data collection and utilised NVIVO analysis software. It investigated the views of 39 clinical tutors in 14 clinic locations.

Results: Non-PGQ tutors displayed anxiety regarding involvement in POT. They most valued the reassurance that they were teaching similar content and in a similar way to their peer. PGQ tutors focused attention on self-awareness as a teacher, reflection, teaching styles, student learning and the significance of informal conversations about teaching for scholarly development.

Conclusions: Running a POT scheme that brings together both types of tutors will hopefully propagate good teaching practice throughout the Dental School. It is clear that Non-PGQ tutors who have not undertaken a formal teaching qualification or equivalent are unaware of more complex teaching methodologies and focus more on their own performance rather than that of the student.

This POT scheme has been successful on different levels and it acts as a useful tool for personal development of individual teachers no matter what their background. Cross pollination between these groups will hopefully lead to an overall increase in the teaching quality of the clinical tutors across the Dental School with an increased focus on professional development of teachers and student centred teaching.

Poster Stream: Faculty Development

Poster Number: FD3

Session: P8

Title: Dental staff and student evaluation of the tutor system

Authors: *Milward PJ, Johnson IG

Authors Affiliations:

School of Dentistry, Cardiff University, Cardiff, United Kingdom

Contact: Dr Paul Milward

Institution: Cardiff University

Abstract:

Background: University students are reporting greater levels of stress. Dentistry is recognised as a highly demanding profession and studies have shown that stress amongst students can be due to the diverse curriculum, patient care, academic workload and professional standards. The importance of providing an appropriate personal tutoring systems for pastoral and academic support for students is extremely important.

Aim and objectives: The aim of the study was to evaluate the current personal tutor system at the School of Dentistry, Cardiff University. To examine possible changes for reconfiguring the tutor system.

Materials and methods: Staff and students developed an online questionnaire. These were distributed to all students in years 2, 3, 4 and 5 electronically. Students completed the evaluation anonymously. Descriptive analyses were undertaken using SPSS.

Results: A total of 137 students (a third of students from each year group) responded. Most students indicated that they normally initiated tutor meetings. Only 36% indicated that they met with their tutor once per term or more. 31% indicated that they never met with their personal tutor. When asked about how they wanted a personal tutor system to look, most indicated that they wanted a tutor who provided both pastoral and academic support and they preferred clinically trained supervisors in senior years.

Conclusions: Students do not engage well with tutor systems which rely on them to initiate contacts with tutors who they deem less appropriate for their needs. In response to the findings, the tutor system was reconfigured to address this. Following these changes there is 100% engagement with the tutor system and students meet termly with their tutors.

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE1 **Session:** P6

Title: Evaluation of inter-professional learning with dental and law students using problem-based learning methodology

Authors: Coelho, C.

Authors Affiliations: Peninsula Dental School

Contact: Dr Catherine Coelho

Institution: Peninsula Dental School

Abstract:

Background: This was the first time there had been joint learning with undergraduate students from the Dentistry and Law programmes.

Aim and objectives: This pilot project explored if there was cross-pollination of learning when students from two distinct professions, Dentistry and Law, came together for a shared learning experience. By examining common topics through different professional perspectives, the researchers aimed to broaden understanding of complex legal and ethical schemas.

Materials and methods: Four undergraduate dental students and four undergraduate law students were brought together for three shared PBL sessions, facilitated by a dental and law facilitator and using one case scenario. The topics covered were consent, negligence, complaints handling and record keeping. Dental students learnt about the legal cases, frameworks and guidelines that inform dental clinical governance and law students learnt about the application of legal cases, frameworks and guidelines in a clinical setting. Quantitative and qualitative data was collected through an anonymous questionnaire after the last PBL session, using 0-10 interval scales on a validated tool and free text boxes.

Results: All students (n=8) completed the questionnaire and this pilot project was deemed highly successful from both quantitative and qualitative data. The main benefit to both group of students was appreciating similar topics from different perspectives and the enhanced depth of learning this permitted. The main challenge was the additional learning and finding resources on top of their usual teaching and learning activities.

Conclusions: This shared learning experience allowed students to see topics from a different professional lens, which enriched their understanding of core topics. The researchers aim to expand this pilot project by organising further collaborative initiatives with dental and law students. There are many examples of IPE within undergraduate medical education but there is little or no evidence in the literature of dental and law students learning collaboratively. This research will add to this sparse literature.

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE2 **Session:** P6

Title: Oral cancer education for general medical practitioners: Opportunities for multidisciplinary education?

Authors: Conway C¹, Price C², *Johnson IG³

Authors Affiliations:

^{1&3} School of Dentistry, Cardiff University, Cardiff, United Kingdom

² Postgraduate Medical Education, Cardiff University, Cardiff, United Kingdom

Contact: Dr Ilona G Johnson

Institution: Cardiff University

Abstract:

Background: In Europe, approximately 50% of people with oral and oropharyngeal survive for five years after diagnosis. Awareness of risk factors, signs and symptoms may assist with earlier diagnosis for improved survival. Over half of these cases are identified by General Medical Practitioners (GMPs).

Aim and objectives: The aim of the study was to explore educational interest and knowledge of oral cancer amongst GMPs in Wales.

Materials and methods: An online cross-sectional survey was undertaken. A link was sent via the postgraduate deanery to GMPs in Wales inviting them to participate in the study. Participants were asked to anonymously complete a questionnaire; questions explored knowledge, experience and educational preferences in relation to oral cancer. Descriptive analyses were undertaken using SPSS. Analysis involved descriptive and cross-tabulation of data using SPSS.

Results: A total of 168 responses were received, (12% of potential participants). Just over half (n=91, 54%) reported having enough knowledge of oral cancer detection and prevention. Nearly two thirds (n=108, 65%) had seen a case of oral cancer. A third (n=60, 36%) reported routinely looking at the oral mucosa with a greater proportion of older GMPs looking routinely (50% aged over 60, 29% of under 40s). Three quarters (n=127, 76%) wanted additional information or training on oral cancer. Of those, 74% (n=94/127) preferred eLearning, 30% (n=38/127) preferred an evening seminar and 20% (n=26/127) preferred information leaflets.

Conclusions: This study highlights opportunities for multidisciplinary teaching in oral cancer with GMPs which may contribute to oral cancer survival.

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE3 **Session:** P6

Title: An Interprofessional Practice skillset for Dental Students

Authors: Leary KS¹, Marchini L², *Johnsen DC³

Authors Affiliations:

^{1&3} Department of Pediatric Dentistry, University of Iowa, Iowa City, United States

²Department of Preventive and Community Dentistry, University of Iowa, Iowa City, United States

Contact: Dr Kecia Leary

Institution: University of Iowa, College of Dentistry

Abstract:

Background: IPP is an integral part of the health care practice and is recommended for patient care by several leading healthcare organizations.

Aim and objectives: The purposes of this paper are to offer a model for capturing transforming the perspectives of members of the health care team (Primary Care, Pharmacy, Social Work, Nursing, Nutrition, Dentistry, Physical Therapy, Home Caregiver) into learning outcomes, and to present results of student performance as an outcome of IPP.

Materials and methods: Members of the health care team were interviewed and asked, "What is/are the most important perspective(s) you recommend every member of the team to incorporate when planning the next patient?" The incorporation of each health perspective offers a systematic enhancement of patient risk assessment. The skillset was implemented with dental students and residents treating complex patients in geriatric/pediatric dentistry clinics.

Results: With no learning guide/skillset when presenting patients, students failed to include perspectives from each team member. After introducing the learning guide/skillset, performance improved in systematically including each perspective. Fifty patients were presented by students and the number of times the students incorporated thought processes of a team member was as follows: Primary care – 46; Pharmacy – 39; Nutrition – 35; Nursing – 24; Social Work – 24. There was no difference in the occurrence of students including the Pharmacy and Nutrition perspectives ($X^2 = 0.83$; $P = 0.83$); Students were more likely to include the Pharmacy perspective than the Nursing perspective ($X^2 = 9.65$, $P = .001$). Students were more likely to include the Pharmacy than the Social Work perspective ($X^2 = 7.42$; $P = .006$).

Conclusions: We conclude that this model is sound and practical in guiding students toward learning outcomes (different from competencies) for team members. The model also aids faculty in revealing strengths and weaknesses in the student's grasp of key health team perspectives.

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE4 **Session:** P6

Title: Innovations of Forensic Odontology and Post Graduate Teaching at the Victorian Institute of Forensic Medicine

Authors: *Smythe LK, BASSED R

Authors Affiliations:

Human Identification Services, Victorian Institute of Forensic Medicine, Melbourne, Australia

Contact: Dr Lyndall Smythe

Institution: University of Melbourne and Monash University

Abstract:

Background: The Master of Forensic Medicine Degree at Monash University in Melbourne, Australia is delivered in partnership with the Victorian Institute of Forensic Medicine exclusively to health practitioners from around the World. This Masters is one of a kind and mixes expertise in the Forensic Sciences with field practitioners working in areas of forensic medicine and dentistry. This poster outlines the structure of this unique course and the methods of its delivery focusing on clinical forensic odontology education.

Aim and objectives: >Deliver expert post graduate teaching in Forensic Medicine to students through engagement with forensic experts who are both academics and clinical practitioners working within their specialist field across pathology, toxicology, molecular biology, forensic odontology and police forensic services.

>To provide a Masters level qualification to Dentists with a developing pathway to specialist registration with the National Health Regulation Agency and Royal College of Pathologists in Australasia as a Forensic Odontologist.

>To provide an online training platform for studying forensic medicine and clinical forensic odontology for remote practitioners

Materials and methods: This degree involves personalised online modules, case based investigations and practical skill development at the Institute itself. The technology provided by Monash University gives remote students a means for interactive learning with a range of specialists developing skills in clinical forensic practice without chair side or mortuary presence.

Results: The Forensic Odontology stream replaces the existing Graduate Diploma in Australia and provides specialist training to dentists who are able to maintain their full time practice.

Evolution and accreditation of the degree has provided a channel for specialist registration with the National Health Regulation Agency and Royal College of Pathologists in Australasia as a Forensic Odontologist, the first of its kind in Australasia.

Conclusions: The course has been successful in training medical practitioners and dentists in clinical forensic odontology and registration of dentists as Forensic Odontologists in Australasia.

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE5 **Session:** P6

Title: An inter-professional postgraduate study day: GMP trainees & DFTs , can we learn together & from each other?

Authors: Shembesh, T, Nair, R, Movahedi, S

Authors Affiliations:

Contact: Dr Tarik Shembesh
Institute

Institution: King's College London Dental

Abstract:

Background: In the United Kingdom Healthcare professionals have separate postgraduate training pathways despite a drive for a collaborative team based care

Aim and objectives: The aim of the of the research is to formally evaluate and share our experience of a study day of inter-professional training between General Medical Practitioners (GMPs) in training and Dental Foundation Trainees (DFTs) using an illuminative evaluation with mixed methods. The aim of the study day was to develop and facilitate learning in the areas of effective patient management & working collaboratively to devise an appropriate management strategy as well as to consider how effective inter-professional collaboration in enhancing Patient care

Materials and methods: Around 60 participants (30 dental foundation trainees & 30 general medical practitioner trainees) attended two workshop. Trainees were divided into identified mixed discipline groups and asked to work collaboratively to devise a creative presentation and present to the larger group on the second day. Participants were encouraged to reflect on real cases or select from topics provided based on learning need and interest. Participants completed a pre- & Post-workshop questionnaires using Kirkpatrick evaluation model. Key stake holders were interviewed, document analysis of reflections carried out as well as workshop comments and feedback were captured through researcher journal.

Results: (82.9%) reported a positive attitude (94.4%) increase in knowledge, (94.7%) likely change in behaviour (97.1%) likely change to patient care.

Conclusions: Postgraduate IPE between dentists and medical professionals is rare and not researched. We report the first formal study day facilitated by Health Education England with a very positive perceptions and high satisfaction. Establishing a safe learning environment and experienced facilitation is key in postgraduate IPE. Wider participation from other allied professionals such as pharmacists would be welcomed. There is a need to develop more opportunities to help increase knowledge, clarify roles and change established cultures to nurture a collaborative team.

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE6 **Session:** P6

Title: A national preventive service for all health students in France.

Authors: *Delpierre A, Auburtin J, Atenza L, Seyrolle J, Rouveyrole F, Vautey S, Gerbaud L, Tubert-Jeannin S

Authors Affiliations:

University Clermont Auvergne, Clermont-Ferrand, France

Contact: Prof Dr Dr Stephanie Tubert-Jeannin

Institution: Universite d'Auvergne

Abstract:

Background: The President of the French Republic has announced the establishment of a preventive service for all health students that will concern 47000 students in the fall of 2018. The aim is to educate future health professionals to preventive issues. Students will have to conduct practical interventions within the population in order to promote healthy behaviors. The project is based on the use of pairs for addressing adolescents' health and is intended to favor inter-professional collaboration.

Aim and objectives: A pilot project is actually conducted in Clermont-Ferrand university; 30 volunteer health students are involved for a 3 months test before generalization to 400 students. The objective is to gain information about the resources or barriers for the implementation of the project and to identify the strength and weaknesses of the "sanitary service". The aim also is to test a common educational program for the students.

Materials and methods: Students participated in a one week formation aimed at giving them educational tools, communication skills, understanding of health social determinants or of psychosocial skills. Inter-professional student trios were affected to high schools where they had to conduct health preventive interventions. They were accompanied by experienced associations' members using online e-webinars. The evaluation was qualitative with a SWOT analysis, interviews, written testimonies or evaluation questionnaires.

Results: The one week educational session was animated by a large scope of experienced people involved in the field of health education. The pluri-professional trios conducted educational interventions in 10 high schools; 10-20 hours of intervention, with 15-16 years old adolescents on various subjects or formats. The students and the high schools' staff and pupils evaluated positively those interventions.

Conclusions: This pilot project allowed to identify the opportunities offered by the sanitary service; inter-professional education, holistic health approach... It also helped in understanding the threats; organizational difficulties, lack of mutual knowledge of the health students...

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE7 **Session:** P6

Title: Students in most areas of health sciences need to learn something about dental and oral health

Authors: *Holbrook WP

Authors Affiliations:

Faculty of Odontology, University of Iceland, Reykjavik, Iceland

Contact: Prof Peter Holbrook

Institution: University of Iceland

Abstract:

Background: There is a need to teach students in health sciences something about oral health and diseases. Changes in oral health are recognized within dentistry but awareness of oral health and disease is often limited among other disciplines in the health professions. While dentists are expected to have some understanding of general health disciplines and the relevant basic sciences, it has been the experience of the author that experience and understanding of oral health and disease among health care workers outside dentistry is often lacking.

Aim and objectives: To evaluate the understanding of oral and dental health of patients by students and staff in health care disciplines outside dentistry. Assessment was made from the experience of running a specialist clinic in oral medicine and also linked to teaching students in health science departments about oral health and diseases.

Materials and methods: Curricula for courses in health sciences were reviewed with respect to material related to dental and oral health. Experience in both a specialist clinic and research in the dental school that involved other health care subjects was evaluated.

Results: Many courses in basic sciences were taught to groups of students from several health care subjects. Clinical problems in the oral cavity are increasingly linked to other health care subjects but teaching of these subjects in an inter-disciplinary manner is quite limited. There are no age limitations on the need to consider oral health of patients. Numerous systemic disorders have symptoms, and sometimes specific risks, in the oral cavity and understanding of these problems is important for all health care staff.

Conclusions: It has been noted that „the mouth is part of the body“. This applies to all age groups of patients and, therefore, education in all health care disciplines needs to include oral health material in the courses.

Poster Stream: Inter Professional Education (IPE) **Poster Number:** IPE8 **Session:** P6

Title: Visual Thinking Strategy

Authors: Vital, S.

Authors Affiliations: Universite Paris Descartes

Contact: Prof Sibylle Vital

Institution: Universite Paris Descartes - Faculte de Chirurgie Dentaire

Abstract:

Background: In a collaborative team environment, interprofessional education is a crucial pedagogical approach that prepares health professions students to provide patient care.

If the premise of interprofessional education to increase patient care is appealing, overcoming preconceived ideas might be challenging.

Aim and objectives: Visual Thinking Strategy (VTS) is a tool issued from cognitive psychology and visual arts education. It is a method that uses art to engage participants in conversations through visual evidence. It stimulates the discussions and facilitates to consider others' viewpoints.

Materials and methods: A picture is shown to the participants, followed by three inquiries

1. What is going on in this picture?
2. What are you seeing that makes you say that?
3. What more can you find?

Results: VTS stimulates teamwork, improves the capacity of listening to the other. As it requires details, without assumption, this method helps students to focus even more and to consider various contexts and meanings. Based on others' comments, new solutions emerge. Moreover, it encourages active participation, as there is no right answer.

Conclusions: VTS can be a useful tool, in an interprofessional context, to stimulate critical thinking and reflective process of health care students.

Poster Stream: Other

Poster Number: O1

Session: P8

Title: Practice Plans and Influencing Factors of Final Year Dental Students

Authors: *Zhao LIYING

Authors Affiliations:

Dental education office, School of Stomatology, Capital Medical University, Beijing, China

Contact: Assoc Prof Liying Zhao

Institution: School of Stomatology, Capital Medical University

Abstract:

Background: The dental students today will become the health care professionals of tomorrow. Therefore, the practice plans of graduating dental students and the factors that influence their decisions are of great interest for educational systems around the world. It is also important to maintain balance within and develop this dentist resource.

Aim and objectives: The aim of this study was to investigate the practice plans of final year dental students and the factors influencing their practice choice in Beijing, China .

Materials and methods: The cross-sectional survey about the practice plan and influencing factors were conducted in 176 dental students from Capital Medical University from 2015 to 2017. The respondents were invited to complete a self-administered questionnaire. The data were analysed using SPSS version 13.0. The Mann-Whitney test was used to analyse two independent samples, and the Kruskal-Wallis test was used for more than two samples.

Results: 67.6% of the respondents were female (n=119), 51.1% of the respondents indicated that it was difficult to find an ideal practice position after graduation. The main reason is lack of work experience (42.6%), lack of employment opportunities (32.9%) and inferior undergraduate degree(10.8%). The three main factors may affect graduating dental students to obtain opportunities in their career are professional ability (31.3%) , interpersonal skills (25.6%) and the capacity for self-expression (22.5%) . The level and type of sectors in which respondents anticipated to practice, as well as the reasons of planning to practice in these hospitals were investigated.

Conclusions: The study built a database on the practice intentions of emerging dentists. the findings have implications for dental educators and policy makers as they attempt to meet the nation's dental health care needs and advance the profession of dentistry.

Poster Stream: Other

Poster Number: O2

Session: P8

Title: Understanding the perceptions of the dental team relating to environmental sustainability in dental practice

Authors: *Dunne B¹, Ramasubbu DA², Harford S³

Authors Affiliations:

^{1&2} Dept Public Dental Health, Trinity College Dublin, Dublin 2, Ireland

³Dental Department, Centre For Sustainable Healthcare, Oxford, United Kingdom

Contact: Dr Brett Duane

Institution: Trinity College Dublin School of Dental Science

Abstract:

Background: There is no published research relating to perceptions of the dental team relating to environmental sustainability in dental practice.

Aim and objectives: To investigate the attitudes of the dental team to environmental sustainability in dentistry, and to assess whether they are aware of their impact of their practice on the environment.

Materials and methods: A questionnaire developed by PHE was distributed at the British Dental Industry Association (BDIA) Dental Showcase, Oct 19-21st, NEC Birmingham. Demographic information was asked. Using a likert scale respondents were asked how they feel about environmental sustainability, whether it should be an NHS priority and whether they consider factors such as sustainable energy use, travel, waste management and procurement in their current practice. Data was analysed and statistical analysis was undertaken using Chi-squared calculations to determine if there were statistically significant differences in respondents' answers

Results: 713 questionnaires were completed.

251 (35%) males and 458 (54%) females responded

39% of respondents graduated between 2008-2018 and 61% graduated prior to 2008

75% practice in urban locations, 24% in rural locations, 1% in both urban and rural locations 77% of the respondents were interested in environmental sustainability

There were no statistically significant differences between interest in sustainability or wanting to learn more about it between respondents' roles in the dental team

Conclusions: Our results show that this sample of members of the dental health profession are positively aligned with the concept of environmental sustainability and are wanting to learn more about it. Innovative strategies, detailed information for healthcare professionals and further research in this area are all needed to fulfil the legislative targets that the NHS has committed to. Funding is needed to support and implement these changes.

Poster Stream: Other

Poster Number: O3

Session: P8

Title: Russian Movement of International Education Program "Bright Smiles, Bright Futures"

Authors: Mitronin AV, Kuzmina EM, Kuzmina IN, *Ostanina DA

Authors Affiliations:

Moscow State University of Medicine and Dentistry named after A.I. Evdokimov, Moscow, Russian Federation

Contact: Dr Diana Ostanina

Institution: Moscow State University of Medicine and Dentistry n.a. A.I. Evdokimov

Abstract:

Background: The Russian Dental Association and the Russian Association of Dental Students annually give oral health lessons in kindergartens and schools in Russian and CIS cities with support from Colgate. Certified dentists, dental hygienists as well dental students of Moscow State University of Medicine and Dentistry and regional medical universities take part in the educational program.

Aim and objectives: The aim of the program is to make important contribution in reducing prevalence rate of oral diseases in children via oral care education based on materials elaborated by International Consultative Committee on education, by dentists and experts in international culture.

Materials and methods: "Bright Smiles, Bright Futures" is an oral health education volunteer program for children aged 5-9 (senior kindergarten and primary schoolchildren). It is a period of early mixed dentition. 84% of 6-year-old children have decayed teeth according to Russian epidemiological survey. More than 300 dental students joined volunteer team to give oral health lessons in oral disease prevention.

Results: Volunteer program started in Russia in 2009 and it has been growing ever since. 82000 primary schoolchildren have had oral health lessons in 20 Russian cities by 2018. So far, more than 500,000 children have taken part in this social project.

Conclusions: As a lot of positive feedback about this program is annually received, Moscow State University of Medicine and Dentistry in concert with the Russian Dental Association is expanding project geography and drawing public attention to the problem of caries prevention in children and is developing Russian medical school volunteer movement.

Poster Stream: Other

Poster Number: O4

Session: P8

Title: Personal Networks for Support: Roles beyond the tutor

Authors: Ginley G¹, Jenkins SJ²

Authors Affiliations:

¹Foundation Training, Postgraduate Deanery, Wales, United Kingdom

²Learning and Scholarship, Cardiff University, Wales, United Kingdom

Contact: Dr Ilona G Johnson

Institution: Cardiff University

Abstract:

Background: Dental students are reporting increasing levels of stress and anxiety. Personal networks may help students to address this.

Aim and objectives: To explore dental students perceptions of their preparedness for study and networks of support.

Materials and methods: Following ethical approval, a cross-sectional survey was undertaken using an online questionnaire. The questionnaire was designed by staff and students and examined levels of agreement with a range of statements relating to preparedness for studying dentistry, chosen support in times of stress and the relationship between themselves and their peers. Undergraduate dental students (all years) were invited to participate anonymously via an electronic link over a 12 week period in 2016. Descriptive analyses were undertaken.

Results: A total of 109 students participated with more females than males participating. Half (n=55, 50%) reported that they were well prepared for studying dentistry but only a few reported that they knew a lot about dentistry before starting the course. Those with family members who were dental registrants were no better prepared for the course than other students. Over 60% reported having experienced stress. Students commonly sought help and advice, most often from family (n=76, 70%) and from other students (n=67, 61%). Most reported that their peers were friendly (n=100, 92%), supportive (n=85, 78%) but also competitive (n=70, 64%). A small number of students (n=17, 16%) reported that their peers made them feel alienated.

Conclusions: Dental students often feel prepared for their chosen course despite knowing little about it. When there are problems they often prefer to seek help from family and peers. Wider information extending to family and peers may be helpful for supporting students during their dental course.

Poster Stream: Other

Poster Number: O5

Session: P8

Title: Dual Perspectives on Global Dental Outreach Programs: A Scoping Review

Authors: Maikhuri S, Shenoy G, Nevius A

Authors Affiliations:

Tufts University School of Dental Medicine, Boston, United States

Contact: Dr Irina Dragan

Institution: Tufts University School of Dental Medicine

Abstract:

Background: Globalization has become an integral component of the dental field. Incorporating globalization in the formal dental school curriculum has been a topic of recent debates. The possible impact of Global Dental Outreach Programs (GDOP) can be valuable in regards to improving patient care and enabling further development of the future dental provider's cultural competency.

Aim and objectives: The aim of this project was to explore the availability of GDOP, focusing on the dual perspectives of developing and implementing.

Materials and methods: The current design respected the guidelines for scoping reviews. An a-priori protocol with inclusion and exclusion criteria was developed. Using this protocol, a search was conducted following the three-step method indicated by the Joanna Briggs Institute (JBI). The queried databases with relevant results were: PubMed, EMBASE, Scopus, ERIC, Web of Science, and Global Health. Co-investigators (SM, GS), independently reviewed the articles from Steps 1 and 2. A search of the citations of all selected articles was conducted for additional articles, as well as a hand search of two journals important to dental education: Journal of Dental Education and European Journal of Dental Education. In Step 3, the co-investigators independently reviewed the quantitative and qualitative study design articles for each stage: title, abstract and full-text.

Results: A total of 638 articles were screened in steps 1 and 2. Key information from each selected article, including level of evidence as established using SORT criteria, was presented in a table, following the methods established by JBI.

Conclusions: The study identifies existing programs to use as guidance in developing effective and efficient programs, as well as highlights current gaps in the knowledge that may be addressed by future research.

Poster Stream: Other

Poster Number: O6

Session: P8

Withdrawn

Poster Stream: Other

Poster Number: O7

Session: P8

Title: "Be a Dentist": a mobile app to assist the student transition to dental school

Authors: *McKerlie RA¹, Bagg J², Murray J³

Authors Affiliations:

¹& ² Dental School, University of Glasgow, Glasgow, United Kingdom

³College of Medicine Veterinary and Life Sciences, University of Glasgow, Glasgow, United Kingdom

Contact: Mr Robert McKerlie

Institution: Glasgow Dental Hospital and School

Abstract:

Background: Recent evidence has shown that mobile apps can be a very effective way of supporting students' transition to university (<http://www.educationdive.com/news/usd-mobile-app-helps-students-transition-to-college-life/415716/>). An app for the University of Glasgow School of Veterinary Medicine has recently been launched.

Aim and objectives: The aim was to develop a mobile app to provide key information for applicants considering a dental career in dentistry and their transition into university. Initial data gathering from junior students would inform the content. Evaluation of the app would be undertaken following launch in the early Summer of 2018.

Materials and methods: There were three distinct phases:

Phase One: A project team was established which included academic staff, the admissions team and students. Information was garnered from year one dental students on the challenges they faced when deciding on dentistry as a career and in their first few weeks on the course. This was generated through student-led focus groups.

Phase Two: In conjunction with a mobile app developer, a storyboard for the app was created, based on information from Phase 1. Subsequent content development eg video filming was undertaken and an iterative review process of sequential revisions of the app by the project team was completed.

Phase Three: Launch of the mobile app "Be a Dentist" to be followed by evaluation of its effectiveness and its utility.

Results: The app has been created and plans for its public launch and evaluation are underway.

Conclusions: Creation of the app has entailed a significant amount of work from multiple parties, both staff and student, but this collaborative working has resulted in a very comprehensive product which we believe to be visually appealing and rich in information. In total, the development costs amounted to approximately £16,000. Through ongoing evaluation, a process of continual review and updating will be implemented.

Poster Stream: Other

Poster Number: O8

Session: P8

Title: Preferences of dentistry students regarding textbooks of human Anatomy

Authors: Espino-Sánchez P, Bucchi C, *Manzanares-Céspedes MC

Authors Affiliations:

Dpto Patología y Terapéutica Experimental, Facultad de Medicina y Ciencias de la Salud.,
Universidad de Barcelona, Barcelona, Spain

Contact: Ms Cristina Bucchi

Institution: Universidad De Barcelona Facultad de Odontología

Abstract:

Background: A key factor for the study of anatomy is the use of textbooks, however it is vital to find the right book. Students often ask their teachers what is the "best" text to buy or consult, and they might end up selecting alternative not recommended texts.

Aim and objectives: To know the habits and the perception on the use of teaching resources by the students of Dentistry of the University of Barcelona.

Materials and methods: After obtaining the approval of the Ethics Committee and their informed consent, 50 first-year students and 50 fifth-year students (2015/16) answered a written questionnaire about their criteria for selecting and using the Anatomy teaching material, as well as their opinion on its usefulness throughout the career.

Results: All the respondents used specialized textbooks in paper format (32 and 34%) in a similar percentage to those who preferred their personal notes (27 and 38%). Only 15/17% of students reported using virtual applications or videos. The students of both courses consult the books of the Campus Library, being a minority those that acquire them in specialized bookstores. The selection in the first course is based on the recommendations of the classmates (41%) and in the fifth course in the professor's opinion (44%); in both groups the main use is the preparation of the exams. 51% use Atlas, 42% textbooks and only 8% prefer manuals. Seventy-nine percent of fifth-grade students reported using Anatomy texts for 4 or more subjects throughout their studies.

Conclusions: Textbooks in printed format continue to be the main resource for students when studying Human Anatomy. Students base their decisions when choosing resources to study human anatomy mainly in the recommendations of their classmates. Textbooks most used by students are the Atlas.

Poster Stream: Other

Poster Number: O9

Session: P8

Withdrawn

Poster Stream: Other

Poster Number: O10

Session: P8

Title: Factors associated with students' absences during clinical undergraduate training'

Authors: *Yazdani R

Authors Affiliations:

Community Oral Health Department, Dental School, Tehran University of Medical Sciences, Tehran, Islamic Rep. of Iran

Contact: Prof Dr Reza Yazdani

Institution: Community Oral Health Department, Dental School, Tehran University of Medical Sciences

Abstract:

Background: Classroom attendance can be important for student's competencies and transferring teacher's experiences.

Aim and objectives: The aim of this study was to evaluate the factors associated with the absence of dental students in the clinical period.

Materials and methods: This cross-sectional study was carried out on 270 dental students of Tehran University of Medical Sciences in Iran, in 2017. Information was collected by a questionnaire containing two parts of the demographic information and information on the factors of absence in the four areas of the teacher, student, educational process and physical environment. Descriptive and Correlation analysis have been used in this study.

Results: Sixty one percent and 86% of students were female and single, respectively. Sixty seven percent reported that the attendance in the classroom was needed for learning and educational skills. From the students' point of view, the most important factors related to absence in the four areas of the teacher, the educational process, the student and the physical environment were the lack of mastery (45%), lack of class efficiency (42%), lack of adequate sleep during the night before class And the resulting fatigue (35%) and poor class physical conditions (44%), respectively. Students with a lower average score, upper semester and lower economic status had more absenteeism ($P < 0.05$). Married students had less absenteeism ($P < 0.05$).

Conclusions: Teachers' acceptable teaching methods and the proper physical conditions of the classes can increase the efficiency of classes and reduce the absence of dental students.

Poster Stream: Other

Poster Number: O11

Session: P8

Title: Trends in oral self-care and smoking habits among senior dental students in Iran

Authors: *Khami M¹, Mohebbi S², Dorostkar Z³, Keshavarz H⁴, Bonabi M⁵, Murtomaa H⁶, Virtanen J⁷

Authors Affiliations:

^{1,2,4,5} Department of Community Oral Health, School of Dentistry, Tehran Univeristy of Medical Sciences, Tehran, Iran, Islamic Rep. of

³Dentist, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

⁶Department of Oral Public Health, Institute of Dentistry, Univeristy of Helsinki, Helsinki, Finland

⁷Research Unit of Oral Health Sciences, Faculty of Medicine,, University of Oulu, Oulu, Finland

Contact: Prof Mohammad Reza Khami

Institution: School of Dentistry, Tehran Univeristy of Medical Sciences

Abstract:

Background: Dental students are expected to contribute to smoking cessation counseling for their patients.

Aim and objectives: Our general aim was to investigate ten-year trends in smoking habits and oral self-care among senior dental students in Iran.

Materials and methods: The study was done in six dental schools which were chosen by stratified cluster random sampling method to have a representative sample of established (old) and new dental schools in Iran. Data was collected in four occasions in 2005, 2008, 2011, and 2015. The senior dental students were asked to voluntarily complete a self-administered anonymous questionnaire about oral self-care and smoking habits. Recommended tooth-brushing habit (RTH) was defined as at least twice a day brushing with fluoridated toothpaste. Three separate questions about cigarette, pipe and water-pipe were used to indicate smoking habits of the students.

Results: In 2005, 2008, 2011 and 2015, 22.5% (n=60), 26% (n=52), 28.5% (n=81) and 24.6% (n=51) reported to be smokers, respectively. Female students in 2005 and 2008 occasions were more likely to report adherence to RTH compared to other cohorts. In all of the occasions, men reported smoking more than twice as women did. According to logistic regression models higher levels of fathers' and mothers' education were associated with more adherence to RTH among male students (P=0.05, OR=1.11, 95%CI= 1-1.23 and P=0.05, OR=1.12, 95%CI=1-1.25 respectively). Female students in 2005 and 2008 occasions were more likely to report adherence to RTH compared to other cohorts (P=0.006, OR=2.12, 95%CI=1.24-3.65 and P=0.013, OR=1.85, 95%CI= 1.14-3 respectively).

Conclusions: Smoking avoidance and adherence to RTH and among senior dental students were in association with some background characteristics while it is reasonable to expect that professional training cover the differences related to background factors. The results call for more emphasis on smoking cessation and oral health behavior in dental education system in Iran.

Poster Stream: Student selection

Poster Number: SS1

Session: P5

Title: Can admissions data predict subsequent academic performance in a Dental Therapy programme?

Authors: *Foley J¹, Turner S², Khalil A³, Arabshah S⁴

Authors Affiliations:

¹⁻³ Paediatric Department, Edinburgh Dental Institute, Edinburgh, United Kingdom

⁴BSc (Hons) Oral Health Sciences Programme Co-ordinator, Edinburgh Dental Institute, Edinburgh, United Kingdom

Contact: Dr Jennie Foley

Institution: British Dental Association

Abstract:

Background: The admissions process to Dental Therapy programmes within the United Kingdom have rarely been reported. The current on-going study reviews the correlation between the admissions process and the subsequent academic performance on an undergraduate programme.

Aim and objectives: To assess the association between the multiple mini-interview admission (MMI) procedure and subsequent academic performance on a Dental Therapy programme.

Materials and methods: Ethical approval was granted from the College Ethics Research Board. Data from the admission procedure of successful candidates entering the BSc Dental Therapy programme at the University of Edinburgh and enrolled from 2014 to 2018 were reviewed along with their academic performance. The MMI consisted of five stations as follows: (1) career aspirations; (2) communication skills; (3) leadership and management; (4) manual dexterity and (5) professionalism. Both individual station scores and total scores were collected. Data were correlated with the total yearly academic score. Data were analysed by multiple linear regression and Pearson correlation (IBM® SPSS® Statistics 19).

Results: Data were obtained for 23 students (F: 23; M: 0). There were no significant correlations between MMI and the total academic score.

Conclusions: This study suggests that there is no correlation between candidate performance at MMI and subsequent academic performance on a Dental Therapy programme. Data collection is on-going for both academic- and clinical achievements within the programme.

Poster Stream: Student selection

Poster Number: SS2

Session: P5

Title: Is a student's previous degree a predictor of performance at graduate entry Dental School?

Authors: *Stewart MA

Authors Affiliations:

Dental Admissions Lead, Aberdeen Dental Institute, The University of Aberdeen, Aberdeen, United Kingdom

Contact: Dr Malcolm Stewart

Institution: University of Aberdeen Dental School

Abstract:

Background: Most UK Dental School Graduate entry program ask students to have at least a 2:1 degree in a relevant medical sciences subject. Applicants have studied a variety of medical science based degrees, the majority from biomedical sciences but some from allied health professions. Do the allied health professionals, whose degree have an element of patient care, perform better at dental school?

Aim and objectives: To assess whether applicants with a biomedical sciences degree perform better than those with an allied health professional degree.

Materials and methods: Students will be allocated into 2 main groups: those with a degree in allied health professions and those with a medical sciences degree. Each individual students performance at the end of year 1 and final year will be analysed using appropriate statistical methods to see if either group performed significantly better than the other in final year exams. The results will be filtered to take account of whether the student received a 1st class or upper second class honours degree.

Results: This study is still awaiting full analysis which will be completed by the conference. However, initial estimates suggest that students from the allied health professionals group perform better in first and final year in a graduate entry dental school.

Conclusions: If this is the case, graduate entry programmes may need to ensure that students from a biomedical science background receive appropriate support to ensure they cope with the demands of the dental school curriculum.

Poster Stream: Student selection

Poster Number: SS3

Session: P5

Title: Predicting academic achievement in a dental school from selection measures

Authors: *Wong RHK¹, Reid K², Chiavaroli N³

Authors Affiliations:

¹Melbourne Dental School, Faculty of Medicine, Dentistry & Health Sciences, University of Melbourne, Melbourne, Australia

^{2&3} Medical Education Unit, Faculty of Medicine, Dentistry & Health Sciences, University of Melbourne, Melbourne, Australia

Contact: Dr Rebecca H K Wong

Institution: University of Melbourne

Abstract:

Background: Academic measures such as the Grade Point Average (GPA) and Graduate Medical School Admissions Test (GAMSAT) scores are assumed to be an indicator of future student performance. Current evidence for selection in dental education is however limited. The Canadian Dental Aptitude Test (CDAT) and United States Dental Admissions Test (DAT) include manual dexterity and perceptual ability tests.

Aim and objectives: The purpose of this exploratory quantitative study is to evaluate whether there is an association between selection measures (GPA, GAMSAT, CDAT and DAT) and student demographic variables (such as gender and prior degree) with academic performance in an Australian graduate-entry dental course.

Materials and methods: Three dental student cohorts investigated in this study commenced their Doctor of Dental Surgery (DDS) candidature in the years 2011, 2012 and 2013 at the University of Melbourne. The sample size was 227 students.

Pearson correlations were utilised to investigate the association between the selection measures of GPA, GAMSAT, CDAT and DAT with students' DDS academic achievement. Correlations with student demographics such as age, gender, residency and previous university education were also explored.

Results: GPA and GAMSAT scores were weakly positively correlated to academic achievement in the final two years and in the course overall by a factor of 0.2 ($p \leq 0.05$). Females significantly outperformed their male counterparts academically ($p \leq 0.05$). Domestic students tended to perform better than international students in the first two years ($p=0.045$). The other socio-demographic factors of age, and previous university education were not significantly correlated with DDS academic performance ($p>0.05$).

Conclusions: A weak positive correlation was found between the GPA and GAMSAT selection measures and DDS academic performance. Age and type of undergraduate degrees was not related to DDS performance.

The results of this study provide some support for the use of GPA and GAMSAT as selection measures in an Australian graduate-entry dental course.

Poster Stream: Teaching Methods

Poster Number: TM1

Session: P4

Title: Enhancing and broadening clinical experience; use of sharing sessions before and after teaching clinics – student and staff perspectives

Authors: Botelho, M

Authors Affiliations: Faculty of Dentistry, University of Hong Kong

Contact: Assoc Prof Michael Botelho

Institution: University of Hong Kong

Abstract:

Background: Small-group discussion seminars have been used before and after clinical sessions. Before, students present to their peers and supervisor what and how they are going to perform for that session. Supervisors questions and explore students understanding. After the clinical session supervisors guide students discussion on reflection on their skills performance and what new learning occurred.

Aim and objectives: To evaluate the benefits of the briefing and debriefing sessions from student and staff perspectives

Materials and methods: Evaluation questionnaire and focus-group interviews were administered for feedback from students and staff. A descriptive statistical analysis of the questionnaire was performed followed by a thematic content analysis of transcriptions.

Results: 55 students (BDS 2020) completed the online questionnaire-100%. At the briefing before the clinic, students reported the discussion provided a broader and a richer learning experience. 90-100% students strongly agreed: briefings allows clarification of clinical procedures, improved clinical confidence, filled in knowledge gaps and that they learnt "something new". Tutor questioning in the briefing facilitated deeper understanding and reduced student confusion. Hearing peers clinical presentations helped understand the treatment procedures and patient care better (92.5%).Tutors reported briefing sessions to be "useful" in screening the cases requiring more attention and to probe students' understanding.

At the debriefing after the session, students reported peers presentations helped them acquire broader clinical experience and knowledge (90.6%). Students reported learning from peers' misconceptions and errors (86.8%) and that they learnt more from a group debriefing than an individual one (71.7%). Also, supervisor questioning helped their knowledge and understanding (83%). Students reported the debriefing was a "major learning part outside the clinical time" providing a more reflective way of learning.

Conclusions: Briefing and debriefing discussion sessions were highly valued by students and staff. These serve difference purposes and enhance and broaden learning and prepare students and staff better for clinics.

Poster Stream: Teaching Methods

Poster Number: TM2

Session: P4

Title: Comparative analysis of traditional learning and case based learning methods: A single blinded randomized controlled trial

Authors: *Alhazmi AS, Quadri MF, Khamaj AR, Wasli BU, Saadi GH

Authors Affiliations:

Jazan Dental College, Jazan University, Jazan, Saudi Arabia

Contact: Dr Anwar Alhazmi

Institution: Jazan University- saudi Arabia

Abstract:

Background: Many universities in most developed countries have enhanced their teaching strategies by adapting methods such as problem based learning; case based learning or blended technique. Some of these strategies have been shown to be effective in meeting the learning outcomes of an implemented course. Case based learning (CBL) is a pedagogical method that uses live demonstration of cases as active learning tool.

Aim and objectives: To compare the effectiveness and students satisfaction of traditional learning and case based learning methods in orthodontic courses.

Materials and methods: Final year dental students were randomly divided into two groups, taking into account the baseline uniformity of average of grade point average of the students for both genders. One group experienced traditional session and the other group experienced case based learning with common topic of Orthodontic Diagnosis. Visual slides of six cases were presented to the students after the lecture for answering and detecting the orthodontic problems. A questionnaire was also distributed to the students in order to compare the level of satisfaction between traditional learning and case based learning. T-test was performed to assess the difference in knowledge score; while Chi-square test was performed to analyse the difference in level of satisfaction between traditional learning and case based learning experiences.

Results: It was observed that there was significant difference ($P < 0.01$) between CBL and traditional learning in all the six cases. It is also seen that the students were more satisfied ($P < 0.05$) with CBL in contrast to traditional learning.

Conclusions: CBL was effective in meeting the learning outcomes of diagnosing the orthodontic problems & also in increased learning motivation. The quality of orthodontic diagnosis in undergraduate students can be improved by CBL methods. This method needs further study and analysis to evaluate its applicability in undergraduate dental education not only in orthodontic courses but also in other clinical dental courses.

Poster Stream: Teaching Methods

Poster Number: TM3

Session: P4

Title: Are standardized patient simulations effective in teaching clinical communication skills in the dental education context? A systematic review.

Authors: *Kaklamanos EG, Athanasiou AE

Authors Affiliations:

Orthodontics, Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

Contact: Dr Eleftherios Kaklamanos

Institution: Aristotle University of Thessaloniki

Abstract:

Background: Effective communication skills have been associated with higher patient satisfaction and compliance, improved health outcomes and reduced litigation issues.

Aim and objectives: The aim of the present systematic review was to investigate whether standardized patient simulations are effective in teaching clinical communication skills in the dental education context.

Materials and methods: Search without restrictions for published and unpublished literature and hand searching took place. Relevant information was extracted, methodological quality was evaluated using the instrument developed by the Effective Public Health Practice Project.

Results: Ten studies involving clinical role-play using simulated patients in the undergraduate dental setting were finally identified. Assessment methods included primarily evaluation by observers of student-patient interactions during consultations. The retrieved studies provided some initial data in support of the use of standardized patient simulation in teaching clinical communication skills in the dental education context.

Conclusions: There is limited evidence of the effectiveness of a standardized patient simulation to improve clinical communication skills in dental education. More methodological rigorous studies of high quality are needed in order to further elucidate possible associations.

Poster Stream: Teaching Methods

Poster Number: TM4

Session: P4

Withdrawn

Poster Stream: Teaching Methods

Poster Number: TM5

Session: P4

Title: Perception of using Culture Shoebox as an educational tool in teaching ethics and culture among postgraduate students studying dental law and ethics

Authors: *Wassif DR

Authors Affiliations:

School of Healthcare Practice, University of Bedfordshire, Bedfordshire, United Kingdom

Contact: Dr Hoda Wassif

Institution: University of Bedfordshire

Abstract:

Background: With the fast development of technology and the rise of its use in the learning environment, engaging adult learners within higher education has shifted towards using more technology. However, when it comes to teaching challenging topics such as ethics and culture, there is a belief that learners may need to engage in a different way with the subject especially as some may reach a degree of saturation with technology-based learning resources. The Culture Shoebox (CSB) was developed as a new, inexpensive, hands-on educational tool to be utilised in teaching culture and ethics to postgraduate students to enhance students' learning experience and facilitate teaching the topics.

Aim and objectives: This study aims to examine students' perception about using this innovative tool in teaching culture and ethics to postgraduate (PG) dental students studying MA Dental Law and Ethics course.

Materials and methods: A social constructionist approach was adopted for this qualitative research. Students studying on the Dental Law and Ethics course were invited to take part. Data were collected using a questionnaire followed by in depth semi-structured interviews. Thirty eight students took part in the questionnaire and six students agreed to take part in the following interviews.

Results: Thematic analysis revealed three main themes: The CSB and me, the CSB and my group and CSB in teaching and learning. The group perceived the CSB as a helpful, novel tool that assisted in the discussion about culture and ethics. Participants also reported that it created a safe opportunity to ask questions, enhanced group cohesion and allowed students to better understand the topics.

Conclusions: The use of CSB allowed dental students to engage in different ways with the topics of culture and ethics with students demonstrating more active participation. It also facilitated a safe learning environment for debate and discussions of such challenging topics.

Poster Stream: Teaching Methods

Poster Number: TM6

Session: P4

Title: Comparison between the first and third group of the mentor program.

Authors: Lluç A, Arregui M, Silva A, Areales C, Gil V, *Giner L

Authors Affiliations:

Universitat Internacional de Catalunya, Sant Cugat del Vallés, Barcelona, Spain

Contact: Dr María Arregui Gambús

Institution: Universitat Internacional de Catalunya

Abstract:

Background: The mentor program was started in the 2015-2016 academic year and continues to grow. Its purpose is to help the third-year student to take their first steps in clinical training under the wing of a fifth-year student (mentor). This experience allows both students, especially the mentors, to develop skills in emotional intelligence and work management. The academic year 2017-18 saw the first group of formerly mentored students (2015-16) become mentors for third-year students.

Aim and objectives: Compare the results between the first and third year of the mentor program.

Materials and methods: The third-year students and their mentors filled in a survey twice: in September and May; all fifth-year students filled in the same survey only once, in May. The participants totalled 405 students: in 2015-2016 academic year there were 90 third-year students and 90 fifth-year students (11 of whom had been mentors); in the 2017-2018 academic year there were 135 third-year students and 90 fifth-year students (11 of whom had been mentors). Data were collected in Excel files and statistically analysed with StatGraphics.

Results: In comparative terms, the preliminary results from the September survey showed statistically significant differences in the student mentor group ($p < 0.001$), although no statistically significant differences were found in the third-year students ($p = 0.075$). The final survey is due to take place in May 2018.

Conclusions: Compared with the students who did not have the opportunity to be mentored in the past, those who did participate in the mentor program markedly improved their emotional intelligence skills and work management in the daily clinical practice.

Poster Stream: Teaching Methods

Poster Number: TM7

Session: P4

Title: Impact of a Guided Bur during Preclinical Teaching of Tooth Preparation: A Pilot Study

Authors: Yee S¹, Richert R², Couraud S³, Viguie G⁴, Dehurtevent M⁵, Fages M⁶, Corne P⁷, *Ducret M⁸

Authors Affiliations:

^{1,2,4&8} Faculté d'Odontologie, Université Lyon 1, Lyon, France

³Service de Pneumologie Aiguë Spécialisée et Cancérologie Thoracique, Centre Hospitalier Lyon Sud, Pierre Bénite, France

⁵Laboratoire des Matériaux Céramiques et Procédés Associés, University of Valenciennes and Hainaut Cambrésis, Maubeuge, France

⁶Laboratoire de Bioingénierie et Nanosciences, Montpellier University, Montpellier, France

⁷Nancy School of Dentistry, University of Lorraine, Nancy, France

Contact: Dr Maxime Ducret

Institution: University UCBL Lyon 1

Abstract:

Background: One of the most difficult skill in preclinical education is teaching tooth preparation, both for conservative or prosthetic reconstructions. The quality of a simulated environment is an essential factor, associate with learning efficiency and educational productivity.

Aim and objectives: The aim of this pilot study is to evaluate if using a guided bur as an alternative to conventional bur improve the quality of the learning environment during tooth preparation.

Materials and methods: After completed a written consent, 60 volunteers participants (second-year dental students of the Dental University of Lyon), were randomly divided into two groups of the same number. The control group used a conventional rounded bur and the test group a specific milling bur with a 2mm driving abutment to create guide grooves. The next step was to gather these groove using a wheel bur to obtain a perfectly calibrated reduction of 2mm of the central incisal edge. Quality of the learning environment (pretest: stress level; posttest: motivation to restart with this procedure, preparation self-evaluation and difficulty) was quantified using a visual analog scale. Time to execute the procedure was measured using student phone chronometers. Prepared teeth were collected and digitalized for virtual measurements.

Results: The results show that control and test group presented similarity in term of stress and preparation self-evaluation. However, test group offered statistically significant increase of motivation to restart and a decrease of both difficulty and length of the procedure for students. Results concerning virtual measurements are being analyzed.

Conclusions: The study findings provide promising interest of the present tested bur for student in prosthodontic education but also for practitioners' in future innovative clinical procedures.

Poster Stream: Teaching Methods

Poster Number: TM8

Session: P4

Title: Revision, implementation and evaluation of “practical oral and maxillofacial pathology” credit to undergraduate students in school of dentistry of Tehran University of Medical Sciences

Authors: *Aminishakib P¹, Mortaz Hejri S², Mahdavi N³, Rahrotaban S⁴, Baghaei F⁵, Eshghyar N⁶, Hamidzadeh F⁷, Yekaninejad M⁸

Authors Affiliations:

^{1,3,4,5,6} Oral and Maxillofacial Pathology, School of Dentistry, Tehran University of Medical Sciences, Tehran, Islamic Rep. of Iran

² Education Development Center, Tehran University of Medical Sciences, Tehran, Islamic Rep. of Iran

⁷ School of Dentistry, Tehran University of Medical Sciences, Tehran, Islamic Rep. of Iran

⁸ Epidemiology and Biostatistics Department, School of Public Health, Tehran University of Medical Sciences, Tehran, Islamic Rep. of Iran

Contact: Dr Pouyan Aminishakib

Institution: Oral and Maxillofacial Pathology Department, School of Dentistry, Tehran University of Medical Sciences

Abstract:

Background: Different studies have indicated that students have a negative view on the usefulness of the basic sciences for their future needs as a dentist. . This can lead to a reduction in learning motivation and produce considerable damage to the patient’s health resulting from clinician’s confusion when confronting oral lesions.

Aim and objectives: We modified the practical course of oral and maxillofacial pathology to gain the practical goals of education of this course, using need assessment by gathering information from professors as well as students and experiences in other countries. We reassessed the course after the implementation.

Materials and methods: First, a need assessment was conducted so that the view of who had completed the practical oral and maxillofacial pathology during the last 2 years were collected using a questionnaire. Then, using the view of faculty members and considering the student opinions and reviewing the texts and similar experiences in other universities in the world, amendments were made to the course mentioned above including: Using case-based teaching method , students participation in the specimen passage process and contributing to reporting, and presence of professors in pre-test review sessions.

Results: In the need assessment phase, 92 students (controls) and after the implementation of the modification, 62 students (cases) completed the questionnaire. A significant improvement in the assessment of students in some items such as their overall assessment of educational quality ($p = 0.008$) and the mean score of the questionnaire ($p = 0.00$) was observed. Regarding the students grades in the final exam, after the implementation of the modifications, a slight improvement was observed although this was not statistically significant ($p = 0.431$).

Conclusions: The above mentioned modifications results an improvement in the overall satisfaction of students with the teaching quality of practical pathology course, although the average score of the final exam did not show a significant increase.

Poster Stream: Teaching Methods

Poster Number: TM9

Session: P4

Title: Teaching methods on the delivery of local anaesthetic to undergraduate dental students – a literature review

Authors: Kent J¹, Ashtari P², Khan P³, Faryabi-Araghi K⁴, Lau J⁵, *Shembesh T⁶

Authors Affiliations:

¹⁻⁵ Student, King's college London dental institute, London, United Kingdom

⁶Clinical teacher, King's college London dental institute, London, United Kingdom

Contact: Dr Tarik Shembesh

Institution: King's College London Dental Institute

Abstract:

Background: Delivery of local anaesthesia is paramount to safe and pain-free dental procedures for the majority of dental disciplines. Understanding local anatomy, injection techniques, dosage and mode of action of anaesthetic agents is fundamental to achieve safe and effective anaesthesia. These principles are taught in dental undergraduate curriculums and need to be met as part of the GDC Preparing to Practice criteria. There are several methods of teaching local anaesthesia employed however there are no gold-standard practices and the effectiveness of teaching delivery to dental undergraduates is largely unknown.

Aim and objectives: This review aims to analyse teaching methods from the literature which have been or currently being utilised in dental schools to teach the theory and delivery of local anaesthesia. This information can lead into future work to explore student's confidence in their knowledge and practical ability to deliver anaesthetic.

Materials and methods: Using searches on MEDLINE/ PUBMED, Google Scholar and searching paper references, 9 papers were selected for critical review which met the inclusion criteria from the 1st January 1990 to December 31st 2017.

Results: Dental schools employed a range of teaching methods including multimedia teaching, traditional based lectures and practical sessions with models, cadavers and on fellow students. Student opinion and from tests following teaching methods favour a practical element of teaching with an emphasis on the administration of anaesthesia on anatomical models and fellow students. Many papers however presented findings as opinions with a low turnout rate which would suggest the need for more robust study designs to measure teaching effectiveness.

Conclusions: Practical exercises were found to be the most effective teaching style rather than theoretical teaching alone however more information and research is required to ascertain an effective method of teaching using student confidence prior to and after an anaesthesia education.

Poster Stream: Teaching Methods

Poster Number: TM10

Session: P4

Title: Patients' and students' perceptions of dental treatment - The Aberdeen model for quality assurance.

Authors: *Sinclair S, Fardal Ø, Ibbetson R

Authors Affiliations:

Aberdeen University, Aberdeen, United Kingdom

Contact: Miss Serena Sinclair

Institution: University of Aberdeen Dental School

Abstract:

Background: Little is known about patients' perception of treatment and how sensitive students are to this.

Aim and objectives: To assess

1. The patients' level of pre treatment anxiety and discomfort of dental treatment.
2. Which aspects of clinical dental procedures patients find unpleasant.
3. The ability of dental students to assess their patients' perceptions.

Materials and methods: All students (3rd/4th year) and their adult patients attending Aberdeen Dental Institute January to March 2018 completed identical questionnaires independent of each other. They consisted of tick boxes and VAS's. The VAS's described pre-treatment anxiety and overall discomfort, while the tick boxes consisted of 26 items of possible unpleasant experiences.

Results: 159 patients (90 males and 69 females, average age 54 years (SD 28.04, range 17 - 88) and 38 students were included.

Patients' average pre-treatment VAS scores were 9.53 (SD 19.72, range 0-100) while students rated their anxieties at 13.76 (SD 11.02, range 0-100). Non-significant difference at $p \leq .05$. The overall discomfort scores were 4.31 (SD 9.64, range 0-53) for patients and 14.38 (SD 14.92, range 0-65) for students. The difference was significant at $p \leq .05$. Patients reported that the most unpleasant experiences were receiving the local anaesthetic, bad tastes, too much fluid in the mouth, thought of what was being done, pain, sensation of what is being done, treatment lasted too long and mouth open too long. Total patients' scores 99 and total students' scores 312.

Conclusions: Patients reported low levels of anxiety and discomfort for treatments carried out by dental students. Students' assessments of patients' perceptions were similar in terms of anxiety but overestimated for discomfort and specific items of discomfort. The questionnaire used as part of a quality assurance measure should be a useful learning tool for dental students in appreciating what patients find unpleasant during treatment and enhancing sensitisation and empathy towards their patients.

Poster Stream: Teaching Methods

Poster Number: TM11

Session; P4

Title: Student Confidence In Performing Minor Oral Surgery Procedures Following Ex-Vivo Simulation Training

Authors: *Emanuel C

Authors Affiliations:

School of Dentistry, Cardiff University, Cardiff, United Kingdom

Contact: Mrs Charlotte Emanuel

Institution: Cardiff University

Abstract:

Background: Simulation training for medicine and dentistry has become a key tool for demonstration and practice development of clinical skills away from the chair-side setting. The prospect of minor oral surgery provokes significant anxiety in patients, the dental student and often the clinical supervisor. We introduced an ex-vivo surgical dentistry model into a United Kingdom dental school for the development of minor oral surgery skills and allow practice of surgical techniques prior to embarking on patient treatment. Electronic lectures and handbooks were produced to complement the lab-skills practical's.

Aim and objectives: To assess if simulation techniques improved student confidence in the practice of minor oral surgery procedures prior to patient treatment.

Materials and methods: Pre and post training questionnaires were completed by year four undergraduates assessing their confidence in performing several minor oral surgery procedures; flap design, bone removal, tooth sectioning and suturing. The students were also asked how confident they were in the recognition and management of common minor oral surgery complications; oro-antral communication, haemorrhage. A 10-point Likert scale was used to record their confidence. Thematic analysis was performed on open-ended questions regarding student perception of electronic media for the delivery of lectures and the use of the ex-vivo training model.

Results: We received 100% completion of questionnaires. Males were more confident in performing surgical tasks prior to the simulation training. Confidence levels were significantly improved over all associated domains of minor oral surgery procedures except biopsy. Thematic analysis indicated students gained significant experience from the ex-vivo teaching model. Most students accepted the model chosen for the teaching. Electronic lectures were preferred to attending classroom teaching.

Conclusions: The ex-vivo model provided a safe learning environment for teaching minor oral surgery techniques and procedures. The model chosen was acceptable. Simulation training increased confidence of students in the execution of minor oral surgery procedures.

Poster Stream: Teaching Methods

Poster Number: TM12

Session: P4

Title: Using A Team-Based Learning Method In Undergraduate Orthodontic Courses

Authors: *Massetti F, Bonetti S, Dalessandri D, Scazzero N, Gnutti A, Tonni I, Visconti L, Paganelli C

Authors Affiliations:

University of Brescia, Brescia, Italy

Contact: Ms Francesca Massetti

Institution: University of Brescia

Abstract:

Background: Team-Based Learning (TBL) is an evidence based collaborative strategy aimed to work collectively to achieve common goals. The purpose of TBL is to attain objectives through dialogue and discussion, preparing learners not only for technical excellence but also for effective collaboration, giving a more long-lasting knowledge.

Aim and objectives: The aim of this work was to test the feasibility of TBL strategy for improving students' and teachers' satisfaction and retention of knowledge, comparing with traditional teaching methods.

Materials and methods: This study involved 40 students of two undergraduate orthodontic courses (17 fourth year students and 23 fifth year students) and 4 orthodontic teachers. Students have experienced traditional lessons (control group) for a semester and TBL lessons (study group) for another semester. Students were asked to read the provided material getting prepared for the lessons. In TBL session students could choose their own team members and teachers supervised the new experience. Students were asked to completed 10 multiple-choice questions (MCQs), which were based on the intended material for the courses, before and after traditional lessons or TBL sessions. In the study group students answered firstly individually than in a team, discussing questions in group consultation. The answers were corrected by teachers and immediate feedback was provided to the single student or to the groups. Teachers' and student' satisfaction was evaluated with a 10 Likert-type items at the end of the two semesters. The retention of knowledge was examined with 3 short answer questions on material of the course immediately and after a washout period of 3 months.

Results: Evaluation of the data collected by questionnaire showed higher student engagement, higher students' and teachers' satisfaction and long term learning by TBL

Conclusions: TBL positively improves knowledge, satisfaction and learning outcomes. Dental schools should implement TBL strategy also in other undergraduate courses.

Poster Stream: Teaching Methods

Poster Number: TM13

Session: P4

Withdrawn

Poster Stream: Teaching Methods

Poster Number: TM14

Session: P4

Title: Modular versus classic teaching models in two university programs

Authors: Negrutiu, ML, SINESCU, C, Craciunescu, E, Cojocariu, CA, STAN, AT, Neagu, CS

Authors Affiliations: Victor Babes University of Medicine & Pharmacy

Contact: Prof Dr Dr Meda-Lavinia Negrutiu

Institution: Victor Babes University of Medicine & Pharmacy, Timisoara

Abstract:

Background: Modular teaching is one of the most widespread and recognizes teaching learning techniques all over the world. Classical teaching methods involve one group of students that need to be kept focused at least 60 minutes. Statistically, in this way the connection between the teacher and the students will be lost after 30 minutes.

Aim and objectives: The aim of this study is to compare the classical method with the modular one. The objective was to assess the quantity and the quality of the information absorbed by the students after the lecture. The study was performed at the Department for Prostheses Technology and Dental Materials.

Materials and methods: Two groups of students were considered for this study . The first group (12 students) was considered for the classical teaching method. In this way, the teacher start an oral presentation for 30 minutes, followed by a practical demonstration performed by the dental technician. After the class a quiz consist in 20 multiple choice questions was released and immediately evaluate by the teacher.

The second group was considered for the modular teaching method. The group, consist also from other 12 students, was divided in 3 modules: the first one was about literature evaluation, the second one was about theoretical approach and the third one was focused on the practical demonstration. The teacher was involved in the second group activity, the dental technician lead the third group while the first group was left without guidance. After the class, the same quiz consist in 20 multiple choice questions was released and immediately evaluate by the teacher.

Results: The classical teaching method gain 54% of correct answers while the modular method obtained 89% correct answers.

Conclusions: Modular training methods would be superior to usual lecture classes as the students' involvement would be maximized in this method. It would enhance their retaining capacity.

Poster Stream: Teaching Methods

Poster Number: TM15

Session: P4

Title: Flipped Classroom Teaching In Dental Education

Authors: *Vandamme K¹, Alpaslan G², Boucher Y³, Bouchard P⁴, Ottolenghi L⁵, Battaglia Mayer A⁶, Jensen MM⁷, Mikkelsen TR⁸, Alpaslan C⁹

Authors Affiliations:

¹KU Leuven, Leuven, Belgium

^{2& 9}Gazi University, Ankara, Turkey

^{3& 4} University Paris Diderot, Paris, France

^{5 & 6} University of Rome Sapienza, Rome, Italy

⁷VIA University College Campus Aarhus N, Aarhus, Denmark

⁸VIA University College Campus Holstebro, Holstebro, Dominican Republic

Contact: Prof Dr Katleen Vandamme

Institution: KU Leuven Department of Oral Health Sciences

Abstract:

Background: For decades, the way of teaching in higher education has been teacher-centered. However, this teaching method has been claimed not only tedious, but also ineffective. Flipped classroom teaching or 'inverted teaching' enables that class time can be used to engage students in learning through active learning techniques. In this context, the Erasmus+ Project [2017-1-TR01-KA203-046763] Flipped Classroom Model (FCM) in Dental Education has been launched in October 2017.

Aim and objectives: The project aims at developing a certified FCM teaching course for teachers in dental education, providing guidelines to use this teaching model effectively and empowering the teachers to integrate technological tools into teaching.

Materials and methods: Academics from Belgium, Denmark, France, Italy and Turkey are developing a FCM course with main content: (i) concept, advantages, limitations and challenges of flipped classroom teaching; (ii) planning in flipped classroom teaching; (iii) offloading of specific syllabus parts through e.g. video production; (iv) design of in-class activities ensuring student-centered active learning; and (v) methods for evaluation of flipped classroom teaching. ICT will be used effectively in learning, teaching, training at all levels as well as enhancing digital integration at various levels and promoting access to and learning through Open Educational Resources.

Results: Teachers will be capable of providing a module or a complete course according to the flipped classroom approach. The teacher will have learned new educational skills such as the ability to identify the course parts that are well-suited to transfer from the classroom towards the student's own time (offloading), creating and producing videos and other digital learning tools, and developing, producing and implementing active learning activities in class.

Conclusions: Given the actual need of innovation in higher education teaching, implementation of new pedagogical models in the partnership and beyond will empower dental students to take responsibility for their learning activities by blended learning.

Poster Stream: Teaching Methods

Poster Number: TM16

Session: P4

Title: THE EXPERIENCE OF DENTAL STUDENT'S PARTICIPATION IN CLINICAL TRIAL

Authors: *Kuzmina E¹, Januchevich O², Mitronin A³

Authors Affiliations:

¹Preventive Dentistry Department, Moscow State University of Medicine&Dentistry, Moscow, Russian Federation

²Periodontology Department, Moscow State University of Medicine&Dentistry, Moscow, Russian Federation

³Department of Cariology and Restorative Dentistry, Moscow State University of Medicine&Dentistry, Moscow, Russian Federation

Contact: Prof Edit Kuzmina

Institution: Moscow State University

Abstract:

Background: The drive to constantly improve the quality of dental education can lead us to implement innovative ideas in order to keep the students motivated. With the frequent introduction of new oral care products onto the market, dental students require better education in the evaluation of their characteristics. The involvement of students in pilot research projects could also play a role in developing their critical appraisal approach through personal experience.

Aim and objectives: to improve students' knowledge and practical skills in preventive dentistry through their participation in clinical trial of oral care products.

Materials and methods: Five hundred second-year students took part in the study. 352 students were included in a test group which participated in clinical trial of an sonic toothbrush (n=189) and an electric device for cleaning interproximal spaces (n=163). Under teachers' supervision they evaluated plaque accumulation on smooth and approximal tooth surfaces before and after single use of test products, recorded results and calculated effectiveness of toothbrushing. The control group consisted of 148 students who didn't participate in the clinical trial. In the next phase all students covered testing (comprised of 30 questions) and assessment of practical skills (on a five-point scale) in dental plaque evaluation and oral hygiene skills.

Results: Mean number of correctly answered questions was 98% in test group and 83% in control group. Mean scores of practical skills were 4.8±0.3 and 3.6±0.5 respectively (p<0.05). Also students of test group gained experience evaluating effectiveness of new oral care products and gained an understanding about clinical trial methodology.

Conclusions: Participation in clinical trial tended to improve students' knowledge and practical skills and increase their motivation to learn.

Poster Stream: Teaching Methods

Poster Number: TM17

Session: P4

Title: Research Project-Based Learning: Oral Health Observatory in Majorca

Authors: Pérez-Pastor F., López-Safont N., González-Carrasco D., González-Carrasco M.

Authors Affiliations:

Escola Universitària d'Odontologia ADEMA

Contact: Dra. Nora López Safont

Institution: ADEMA

Abstract:

Background: So far, the traditional teaching methods have been on unconnected activities between subjects and degrees. It is known that research and teaching are two basic areas within a University Center, for this reason the cross-cutting thematic between both is important.

Aims: The goal of this project is to set up a change in the teaching method. We want to establish a close connection between teaching and research through "Research Project-Based Learning".

Materials and methods: Our research project is the creation of an Oral Health Observatory in Majorca in order to determine the oral health status of schoolchildren and analyze the principal factors linked to observed oral diseases. We have several working teams composed of teachers and students from the Degree in Dentistry, Higher Level Training Cycles in Dental Hygienist and in Nutrition and Dietetics. Our target population is schoolchildren of 5, 12 and 15 years old and the collected data sites are schools from Majorca. We use the Pathfinder method registered in Health surveys: basic methods (WHO, 2013), and we do additional nutritional and socioeconomics surveys extracted from General principles for collection of national food consumption data in review of a pan-European dietary surveys (EFSA, 2009) and Guidelines for assessing nutrition-related Knowledge, Attitudes and Practices (FAO, 2014).

Results: Our students acquire the competences and training of corresponding study plans in the course of their participation in this research project. Furthermore, we find the schoolchildren groups with special needs in oral care and treatment. This information allows us to implement strategies in order to promote healthy habits such as correct dental hygiene and a balanced diet.

Conclusions: The "Research Project-Based Learning" improves the acquisition of knowledge by students, helps to develop clinical practices and gets research results.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL1 **Session:** P7

Title: Introduction of digital resources in a complete denture pre clinical module

Authors: *Wulfman C, Rignon-Bret C

Authors Affiliations:

Prosthodontics, Paris Descartes University, Paris, France

Contact: Assoc Prof Claudine Wulfman

Institution: Université Paris 5 - France

Abstract:

Background: Preclinical training is essential in complete denture courses. However, the efficacy of training sessions was limited by a lack of preparation from students. The teaching module was therefore modified and digital resources were introduced for pre-class.

Aim and objectives: The aim was to promote a student centered, self-directed learning approach supported by videos presenting objectives, step-by-step and evaluation criteria.

Materials and methods: Prior to training sessions, short videos (5-6 minutes) were available on the learning platform Moodle®. Each session began with online multiple-choice questionnaire, with feedback, and that students could redo (time allowed: 15 minutes). Only best scores were recorded. Simulated clinical exercises and laboratory procedures were demonstrated step by step by a clinically experienced dentist or a dental technician. Students were encouraged to self-assessment through evaluation grids that were analyzed later with the teacher. Final evaluation took into account MSC score, quality of prosthetic realizations (impressions, customs trays, record rims...) and understanding of evaluation criteria (quality of self-assessment).

A student evaluation of teaching (SET) questionnaire was proposed at the end of the 10 weeks course. It was completed by a survey among teachers.

Results: Mean score on MCQ was 85% (n=117). Only 5 students failed the course and should attend remedial preclinical training. 62 students (53%) answered the SET questionnaire: 92% agreed that videos were an effective teaching aid, 71% had to prepare for class and 79% felt more confident for carrying out future prosthetic treatments. Teachers reported to have more time for demonstrations and evaluation. Most of them found that the students had a better understanding of the subject.

Conclusions: The introduction of short videos and MCQ proved to be effective in student motivation. The teaching module met a good acceptance among students and teaching assistants.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL2 **Session:** P7

Title: Using Micro-CT Scanning Techniques to Compare the Performance of Dental Students' Tooth Cavity Preparation Skills trained haptically versus traditionally

Authors: *Quinn BFA¹, Cox MJ², Salmon P³, Wilson N⁴, Dunne S⁵

Authors Affiliations:

^{1,2,4&5} King's College London Dental Institute, London, United Kingdom

³Brüker, SkyScan, Kontich, Belgium

Contact: Dr Barry Quinn

Institution: King's College London Dental Institute

Abstract:

Background: This 1-year study to investigate the impact of teaching year-1 Dental Undergraduate Students (DUS) clinical skills using a virtual haptic dental device (hapTEL) designed to simulate the traditional Phantom Head.

Aim and objectives: The aim of this study was to use Micro-CT Scanning to compare the results of DUS clinical cavity preparations; trained traditionally versus haptically using a virtual reality simulator (hapTEL).

Materials and methods: The cohort were taught either in a Traditional Phantom-Head Laboratory (n=96) or on virtual teeth using the hapTEL work-stations (n=42).

DUS in both cohorts were required to excavate artificial caries from a plastic tooth after their 10-week training. These teeth were scanned to determine the very fine differences between individual student's performances. This involved the Micro-CT (Bruker SkyScan 1275) of :

1. Manufacturer produced cavities (n=10) where the artificial caries had not been removed. To investigate the consistency of the manufacturer (Frasaco)
2. Excavated plastic teeth by % of the students (n=94) to determine the volume of artificial caries removed, healthy tissue (enamel and dentine) remaining and surface roughness.

Results: The data consists of the following volumes and surface areas:

1. 10 manufactured cavities to measure consistency and variation across the sample.
2. 10 Manufactured cavities filled with artificial caries'
3. 29- Cavities produced by haptically trained cohort.
4. 39-Cavities produced by traditionally trained cohort.

The results for the original Frasaco manufactured teeth showed less than 0.4% variation in overall volume (SD= 3.82). There was an insignificant difference in volume of caries removed between the haptically and traditionally trained students.

Conclusions: Micro-CT affords a quantitative volumetric analysis of DUS's cavity preparation skills and progression in their learning. Additionally, it has the advantage of both quantitatively and qualitatively measuring the surface roughness of the cut cavities which cannot be achieved through any other assessment process.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL3 **Session:** P7

Title: Social media use in dental education: A systematic review

Authors: *Gupta E, Sinclair S, Lopez RM

Authors Affiliations:

Institute of Dentistry, University of Aberdeen, Aberdeen, United Kingdom

Contact: Dr Ekta Gupta

Institution: University of Aberdeen Dental School

Abstract:

Background: Social media as an educational tool offers greater interaction, engagement and collaboration. However, little is known on how this user-generated platform is being used for dental education.

Aim and objectives: To conduct a systematic review on the use of social media in dental education

Materials and methods: The authors searched Medline, Web of Science and Scopus databases using keywords related to social media and dental education. Three reviewers screened and included the titles and abstracts if they were: published in peer-reviewed journals, studies of dental health care professionals or trainees and evaluating the use of any social media tool for dental educational purposes. Descriptive data extracted were type of social media platform, study design, type of student, country of origin and dental subject area. Outcomes and perspective of students and educators were summarised using themes.

Results: Out of the twenty-one studies which met the inclusion criteria most were cross-sectional (n=11) and conducted in undergraduate dental students (n=16). Blogging (n=7) and Virtual patients/Virtual world (n=7) were most commonly used social media tools in dentistry. Social media interventions improved student engagement (e.g. peer to peer learning) and overall knowledge and skills (e.g. critical thinking skills, interpersonal skills). There was high acceptance of these learning tools among students and educators due to greater levels of interactivity, ease of use, flexibility and reduced staff costs.

Conclusions: Most of the studies indicated social media to be a student-centred learning tool which promoted active learning with high user acceptance. Additionally, it could offer educators an innovative way to assess student knowledge and skills along with providing feedback. However, there is a lack of studies testing the effectiveness of social media as an interventional tool. Future research in this area should focus on conducting high quality studies to guide the implementation of social media usage in dental education.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL4 **Session:** P7

Title: Teaching Orthodontic Emergencies Using The “Flipped Classroom” Method – An RCT

Authors: *Isherwood G, Burnside G, Taylor K, Fitzgerald R, Flannigan N

Authors Affiliations:

Department of Orthodontics, Liverpool University Dental Hospital, Liverpool University Dental Hospital, Liverpool, United Kingdom

Contact: Dr Grant Isherwood

Institution: University of Liverpool Department of Dental Sciences

Abstract:

Background: Traditionally, dental students acquire knowledge via lectures. Conversely, the “flipped classroom” method of teaching involves knowledge acquisition occurring outside of the classroom and uses classroom time for problem solving or practical experience. There is little evidence that flipped teaching improves examination performance or levels of satisfaction for undergraduate students in orthodontics.

Aim and objectives: Establish whether the “Flipped Classroom” method of teaching orthodontic emergencies produces better examination performance and overall satisfaction among students, versus the existing “conventional” lecture based teaching.

Materials and methods: 78 students were invited to take part. 61 students were enrolled and randomised to the “Flipped” group or the “Conventional” group. The “Conventional” group (n=30) attended a lecture lasting 30 minutes. The “Flipped” group (n=30) were given access to online videos via a Virtual Learning Environment and then 30 minutes of classroom time was spent performing practical tasks related to the management of orthodontic emergencies, e.g. cutting different archwires, placing wax on demonstration models etc. Students then completed a formative examination. Focus groups using a semi-structured interview guide were used to explore student perceptions of the flipped classroom teaching and the conventional lecture.

Results: For Orthodontic Emergencies Questions (15 questions), the “Conventional” group (n=22), had a mean exam result of 70.5% (S.D. 8.0%). The “Flipped” group (n=11), had a mean exam result of 72.8% (S.D. 12.9%). There was no significant difference ($p=0.532$, t-test) between the groups. For non-orthodontic emergencies questions (5 questions), the “Conventional” group had a mean exam result of 64.8% (S.D. 19.9%). The “Flipped” group had a mean exam result of 78.3% (S.D. 21.7%). There was no significant difference ($p=0.083$, t-test) between the groups. Following thematic analysis of the transcript, themes identified were: pedagogy, overall curriculum change and technology assisted learning.

Conclusions: Students benefitted from implementing a flipped classroom method of teaching both in terms of examination performance and overall levels of satisfaction.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL5 **Session:** P7

Title: Exploring student perceptions of videos for OSCE assessments

Authors: Llewellyn C, *Johnson IG

Authors Affiliations:

School of Dentistry, Cardiff University, Cardiff, United Kingdom

Contact: Dr Ilona G Johnson

Institution: Cardiff University

Abstract:

Background: The OSCE (objective structured clinical assessment) is a performance-based assessment commonly used in dental undergraduate training. Students can find these assessments stressful and video exemplars may assist with examination preparedness and anxiety for these assessments.

Aim and objectives: Explore student perceptions and experiences of video content to prepare for OSCE assessments

Materials and methods: Purposive sample of undergraduate dental students in years 2, 3 and 4. Data collection via focus groups of 2-6 people using a question guide. These were digitally audio recorded and transcribed into Word documents. Data analysis was undertaken using a thematic approach (Braun and Clarke).

Results: In total, 20 students (n=10 male, 10 female) each participated in one of 5 focus groups. Students spoke positively about videos, which they all used for learning and preparing for assessments. Four main themes were identified. 1. Videos for fear of the unknown and the anxieties associated with an unfamiliar assessment. 2. Using videos for learning, this included sub-themes of visualisation of skills, filling in learning gaps, and revisiting skills that had not been covered recently. 3. Utility and relevance of videos, with sub-themes of access to material, availability of resources (the more the better), relevance of material to examinations and consistency with teaching. 4. "Being on the same page" as examiners and teachers, through understanding the examination process, expectations and marking criteria. Students often asked for videos of "ideal" performances to help them see what they were aiming for.

Conclusions: Students consider videos useful when preparing for assessments. They use these in a number of different ways as a source of information and support. Videos can help students feel more comfortable with the OSCE assessment process and teaching content. Further work is needed to develop and evaluate benefits in terms of student performance from different types of videos.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL6 **Session:** P7

Title: The Level of Using New Technologies in the Dental Academic Environment: A Systematic Review

Authors: Bassir SH¹, Bensreti H², Nevius A³

Authors Affiliations:

¹Private practice, Houston, United States

²Master of Science, Tufts University School of Dental Medicine, Boston, United States

³Hirsh Health Sciences Library, Tufts University, Boston, United States

Contact: Dr Irina Dragan

Institution: Tufts University School of Dental Medicine

Abstract:

Background: Education is one of the fields that greatly benefited from technology, in both the teaching and the learning aspects. The impact of new technologies is not limited to the educational process only, as it also had a significant impact in the quality of patient care.

Aim and objectives: This systematic review aimed to assess the level of using new technologies in the dental academic environment at the didactic, preclinical, clinical and institutional framework contexts.

Materials and methods: An extensive electronic and manual literature search was performed independently by three reviewers in the following databases: MEDLINE via PubMed, EMBASE via Ovid, ERIC via ProQuest, and Scopus. The searches queried for any qualitative or quantitative studies in the English language published from January 1, 1980 to February 1, 2017. Articles compiled from this search were independently screened (by title, abstract and full-text) by two reviewers. Cohen's k coefficient was used as a measure of agreement. Counts were reported for the quantitative analysis. For the qualitative studies, themes and sub-themes were identified.

Results: A total of 1222 abstracts were screened and 704 articles were selected for full-text review. During the full-text review, 152 articles were included by both examiners (kappa=0.65). However, only 146 respected the proposed level of evidence: randomized controlled trial (n=88) and case control (n=58). The references covered clinical sciences (n=111) and basic science (n=23) topics and others (n=12). The specialties with the highest number of studies were operative/restorative (n=24), prosthodontics (n=23) and radiology (n=15). The majority of the studies were relevant to didactic (n=72) and preclinical (n=68) settings.

Conclusions: The current study offers valuable information that may enable schools globally, to embrace technology, and make informed decisions on various levels to incorporate such technologies in their setup. Application of technology in clinical and academic settings of dental education needs to be further studied.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL7 **Session:** P7

Title: Fake news on Dental Education

Authors: *Dias da Silva MA, Pereira AC, Walmsley AD

Authors Affiliations:

School of Dentistry, Birmingham Dental Hospital, Birmingham, United Kingdom

Contact: Dr Marco Antonio Dias da Silva

Institution: Birmingham Dental Hospital

Abstract:

Background: Fake News is an issue in Dental Education. Most of the health related online video content is imprecise, misleading and potentially harmful. Dental students use online video sharing platforms to access Dental education related content which often is not officially recommended in the curriculum.

Aim and objectives: The aim of this study was to evaluate the reliability of the content found during online searches on YouTube for educational videos related to dentistry.

Materials and methods: A search for reliable dental education video content was done using four different sets of keywords covering restorative dentistry, paediatric dentistry, orthodontics and oral surgery. YouTube searches were performed via an incognito approach to prevent robot learning. The first ten results of each search were checked and the author characterised them as Individual, Commercial or Academic. The length and the category under which the video was uploaded were documented. The quality of the content provided by dental courses was not considered.

Results: The top ten search results, in each keyword category, resulted in 27 out of 40 educational videos were published under education/science categories. Only two videos came from a recognised dental school and both were outdated. These 40 videos received 22.5 million visitors and its mean length was 9.13min (± 7.36). Within these searches, the majority of the material came from non-academic individuals (75%) or commercial companies (20%).

Conclusions: This study showed that there is a low content of open access videos produced by University dental schools. Most of them are from non-academic individuals or commercial companies. Further research is required to evaluate the quality of such videos and determine if any peer review process has been done.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL8 **Session:** P7

Title: Virtual Reality as a teaching method in Head and Neck anatomy dissection: Dental student perception and learning benefit.

Authors: *Rocafort G, Parellada H, Arregui M, Fernández-Villar S, Giner L

Authors Affiliations:

Universitat Internacional de Catalunya, Sant Cugat del Vallés, Barcelona, Spain

Contact: Dr María Arregui Gambús

Institution: Universitat Internacional de Catalunya

Abstract:

Background: Technology is changing the way students engage and interact with subject matter. Virtual Reality (VR) seeks to create an environment in which the student can acquire knowledge through observation. Dissection laboratories are constantly looking for ways to incorporate new learning strategies in place of traditional teaching methods.

Aim and objectives: 1stObjective: Appraise the educational potential of VR as a learning complement to head and neck anatomy in the dissection laboratory.

2ndObjective: Appraise whether VR is an adequate and convenient learning tool.

Materials and methods: 1stObjective: A class of 90 first-year students of dentistry from UIC-BARCELONA were divided in two groups. The first group prepared an anatomy exam using cadaveric specimens, in accordance with the instructor's indications. The second group prepared an exam that involved the use of a VR headset to watch the same cadaveric preparations in a 3D-180° movie.

2ndObjective: Students who used the VR headset filled in a validated questionnaire on their perception of the technology. In addition, these students filled in another questionnaire on any adverse symptoms they might have felt using VR technology.

Results: The scores of the VR group nearly matched those of the traditional group. Thus, students highly appraised VR learning. Moreover, few participants experienced adverse symptoms during the VR anatomy lesson.

Conclusions: Virtual Reality offers a good learning complement in the dissection laboratory and is accepted as a convenient tool by the students.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL9 **Session:** P7

Title: Comparison of student's perceptions of 3D printed models versus series models in pediatric dentistry hands-on session.

Authors: Mathieu M.^{1,2}, Broutin Alice¹, Gendron Bénédicte², Vergnes Jean-Noel¹, Vaysse Frédéric¹.

Authors Affiliations:

¹ Toulouse dental faculty, Paul Sabatier University, Toulouse, France.

² LIRDEF, Educational Sciences department, Paul Valéry University, Montpellier, France

Contact: Dr Mathieu Marty

Institution: Toulouse Dental School

Abstract:

Background: Dental education emphasizes on the acquisition of technical skills. Recent advances in 3D printing technologies have enabled the emergence of new educational tools usable in hand-on work session. The possibility to print 3D models from CT scan of patients is now offered to dental scholars.

Aim and objectives: The aim of this study was to develop and evaluate a 3D printed model obtained from a CT scan for pediatric dentistry training and compare it to the reference model used in our faculty.

Materials and methods: 3D models were obtained by modifying and printing the CT scan of a young patient using the Voco® Solflex 350 3D® printer and the Voco® V-print resin (figure 1). 34 students were asked to perform a pulpotomy and a preparation for stainless steel pediatric crown among the tooth 85 on both 3D printed model and industrial model (Frasaco®), and then to answer a questionnaire. The data were analyzed using the R software.

Results: Both models obtained high rated scores. The potential learning effect as well as the interest for the preparation to the clinical practice show no statistically significant difference. Although the color and the simulation of proximal area disturbed the students ($p=0.009$), the 3D models were saw as a good idea ($p=0.012$). When it comes to model design, the students appreciate the simulation of the caries on 3D models ($p=0.0001$) and considered the use 3D models as a more realistic experience ($p=0.017$).

Conclusions: This is the first time that a work aims to compare the student's perception among 3D and series models. It shows that this technology makes it possible to obtain models of similar quality while offering a more realistic experience. Finally, these 3D models offer the possibility to give to the patient a more central place in the education of future practitioners.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL10 **Session:** P7

Title: Mobile learning among dental and medical students: Active measures are needed to integrate new technology into the clinical context

Authors: *Eväsoja T¹, Karaharju-Suvanto T², Pyörälä E³

Authors Affiliations:

^{1&2} Department of Oral and Maxillofacial diseases, Faculty of Medicine, University of Helsinki, Helsinki, Finland

³HYPE, Center of University Teaching and Learning, University of Helsinki, Helsinki, Finland

Contact: Dr Terhi Karaharju-Suvanto

Institution: University of Helsinki

Abstract:

Background: Since 2013, the University of Helsinki has given new dental and medical students iPads for their personal study use. Simultaneously, an action research project on mobile learning started.

Aim and objectives: The aim of this study was to compare dental and medical students' self-reported study uses of mobile devices in the preclinical and clinical study years.

Materials and methods: The iPad project followed the first student cohort (52 dental students and 124 medical students) with iPads from the 1st until the 5th study years. The data were collected with online questionnaires. The response rates varied between 74% and 91%. We analysed students' descriptions of their most important study uses of mobile devices and statements concerning the use of iPads in the preclinical and clinical context

Results: Note taking and information seeking on the Internet were the most frequently reported study uses of iPads along the study years. The study use of iPads was at its peak in the 2nd study year, and among the dental students remained high in the clinical study years but started to diminish among the medical students. In the dental clinic, the device usage was better accepted and incorporated into teaching and learning activities than in the medical context. Dental teachers revised learning materials into a compatible format with iPads, provided new videos on dental procedures and encourage to use of mobile devices in skills labs. Guidelines for the mobile device use with patients were delivered.

Conclusions: Teachers' attitudes towards mobile device use were pivotal in integrating mobile devices into student learning. The compact and practice-oriented dental clinic accepted the students' new technology and the dental students continued to actively use mobile devices in their studies, enabling them study anywhere, anytime during their busy clinical study years, whereas the medical students' tablet computer use decreased.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL11 **Session:** P7

Title: Wikipedia Collaboration of Dental Schools

Authors: Geres N¹, Clarkson J², Mossey P³, Innes N⁴, Radford J⁵, Hector M⁶, Lai SM⁷, Quek J⁸, Littlewood A⁹, Veitz-Keenan A¹⁰, *Liu N¹¹, Azarpazhooh A¹²

Authors Affiliations:

^{1-9 & 12} University of Dundee, Nethergate, Dundee, United Kingdom

^{10&11} Department of Oral and Maxillofacial Pathology, Radiology and Medicine, New York University College of Dentistry, New York, United States

Contact: Miss Nicole Liu

Institution: NYU College of Dentistry

Abstract:

Background: Wikipedia is the fifth most frequently accessed website on the internet.¹ Yet, the majority of dental articles on the site are poorly developed and insufficiently cited. For many topics, articles are non-existent altogether. In 2016, with the support of the Cochrane Collaboration, Dundee Dental School launched the Wikipedia Editing Project in an effort to improve dental content on the online Encyclopaedia. Shortly after, numerous other Dental Schools from across the globe joined the initiative and formed the Wikipedia Collaboration of Dental Schools, an international initiative with the goal of applying high quality, evidence-based dental information onto Wikipedia.

Aim and objectives: To apply high quality, evidence-based dental information onto Wikipedia

Materials and methods: The Wikimedia-trained Dundee team aims to lead and co-ordinates all Schools involved in the Collaboration. At the beginning of each editing cycle, a committee at every participating Dental School is trained to edit Wikipedia and run their own Editing Group. These committees then recruit dental students, post-graduates and faculty members from their individual schools. Thereafter, deficient Wikipedia articles are identified, relevant research is studied, evaluated, paraphrased and applied to Wikipedia.

Results: To date, the Collaboration includes participants from the UK, USA, Canada, and Egypt. At present, the Wikipedia Collaboration of Dental Schools consists of 130 editors who have completed approximately 2,000 edits in two languages.

While striving to improve as many articles as possible, we realize the importance of producing high quality information. For this reason we are continually working to ensure edits made by participants are completed to the highest standard.

Conclusions: Despite the significant efforts invested, dental editor are still in high demand. Our vision is to create a substantially large community of active dental users who will constantly monitor and update articles with the most recently published evidence. We invite dental schools across the world to join the initiative to this worthwhile cause.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL12 **Session:** P7

Title: USEFULNESS OF SMART GLASSES IN UNDERGRADUATE STUDENTS' PROSTHODONTICS COURSES: A PILOT STUDY

Authors: *Scazzero N¹, Dalessandri D², Tonni I³, Massetti F⁴, Savoldi F⁵, Bonetti S⁶, Botelho MG⁷, Paganelli C⁸

Authors Affiliations:

^{1-4, 6 & 8} University of Brescia, Brescia, Italy

^{5 & 7} The University of Hong Kong, Hong Kong, Hong Kong

Contact: Mr Nicola Scazzero

Institution: University of Brescia

Abstract:

Background: In order to provide more personalized, real time and effective learning experiences, dental industry has recently proposed the use of smart glasses as a remote tutoring tool.

Aim and objectives: The aim of this pilot study was to evaluate the use of Google Glass paired with a remote digital teaching software (DDIra) as a new digital tutoring approach and to compare this, in terms of teaching and learning experience from the perspective of the student and the teacher, to traditional tutoring method for dental impressions taking.

Materials and methods: Two undergraduate dental students performed two dental alginate impressions of the lower arch on a volunteer. On the first attempt students were guided by a chair-side expert tutor, according to the traditional method and on the second attempt, students were guided with real-time tele-mentoring from the same expert located remotely. The student was wearing a Google Glass device paired with DDIra software via Wi-Fi connection. Students and teacher compared the digital and traditional methods through use of a questionnaire and an interview. Wi-Fi connection, overall ergonomics, glasses usability and impression making procedural steps were evaluated.

Results: A preliminary evaluation of the data collected with the questionnaires and the interviews showed that the digital tutoring method made the teaching process more attractive for the students rather than traditional tutoring method, while the teacher reported that tutoring at a distance had the same effectiveness as chair-side. The stability of the Wi-Fi connectivity created some problems with the digital protocol however, overall the Google Glass protocol was judged positively, especially due to the possibility for the student to receive an immediate feedback from the tutor.

Conclusions: In this pilot study dental students were able to perform dental impressions through tele-mentored education using DDIra software: preliminary data suggest smart glasses as appropriate means to enhance communication, education and provide feedback during clinical activities.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL13 **Session:** P7

Title: Dental students and staff collaborating to enhance the learning experience using technology

Authors: *McKerlie RA

Authors Affiliations:

Dental School, University of Glasgow, Glasgow, United Kingdom

Contact: Mr Robert McKerlie

Institution: Glasgow Dental Hospital and School

Abstract:

Background: Technology used to enhance the learning experience has become an integral part of the dental curriculum, with a marked increase in use over recent years. Technology enhanced learning (TEL) although often used to refer to e-learning can also be used to refer to technology used in the classroom. With technology enhance learning and teaching (TELT) dental student involvement has tended to be as recipients of the technology rather than active participants. Bovill et al (2011) conclude that it is incumbent upon us to reconsider students' roles in their education and reposition students to take a more active part as co- creators of teaching approaches, course design and curricula.

Aim and objectives: To establish a technology enhanced learning and teaching (TELT) Partnership to provide the space for student and staff working together to oversee the implementation of technologies to enhance the student learning experience. The TELT Partnership will advise, engage with and provide feedback on TELT projects undertaken within the school while providing the dental voice in School, College and University TELT projects.

Materials and methods: All dental students and academic staff with a demonstrable interest in the utility of technology in their teaching were encouraged to express an interest in becoming TELT Partners. Fourteen students and eighteen staff expressed an interest in becoming involved. An online space created within the school VLE (Moodle) and regular meetings planned where current TELT related projects can be discussed and evaluated.

Results: Although in its infancy the TELT Partnership has already overseen a number of TELT related initiatives including: the development of the new mobile app "Be a Dentist"; development of e-learning resources; and is currently in the planning stage of a Digital Wellbeing event open to all students and staff.

Conclusions: The TELT Partnership is now the recognised forum within the school where these technologies are discussed and reviewed.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL14 **Session:** P7

Title: Let's start to play: Using games in Dental education

Authors: *Pereira AC, Dias da Silva MA, Walmsley AD

Authors Affiliations:

School of Dentistry, Birmingham Dental Hospital, Birmingham, United Kingdom

Contact: Mrs Andresa Costa Pereira

Institution: Birmingham Dental Hospital

Abstract:

Background: Society is changing and students are no longer passive learners. The challenge is to create modern strategies to increase students' engagement and enhance their learning. The use of games is a playful approach that can motivate students and be an innovative methodology in Dental education.

Aim and objectives: The aim of this study was to evaluate the use of digital games as a complementary approach to Anatomy teaching, especially in relation to Trigeminal Nerve lectures.

Materials and methods: After receiving traditional lectures about the Trigeminal Nerve, students were given an access to three online games to enhance their learning. The games had images where the player identifies branches of the Trigeminal Nerve. This website was closed only to students who attended the lectures. The games were created at www.purposegames.com, an easy and open source for teachers who want to explore this approach. The data collected included the number of plays and the average time to finish the games.

Results: Over 5 years, "Game 1" was played 506 times, "Game 2" 388 times and "Game 3" 314 times. To identify the 14 structures (mainly about ophthalmic nerve) on "Game 1", students used around 5.57 seconds per question. On "Game 2", 19 questions were related to maxillary branch and students needed around 6.47 seconds to complete the task. "Game 3" had 7 questions about the mandibular nerve and 6.14 seconds were spent by players on each question. The three games had a total of 40 questions and around 4 minutes were needed to finish all of them.

Conclusions: This study shows that it is possible to use games technology for teaching preclinical subjects such as Anatomy. More research is needed to investigate the specific effects of such games in assessments and knowledge retention.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL15 **Session:** P7

Title: To design, construct and evaluate a computer assisted learning (CAL) package on anatomy with undergraduate dental students.

Authors: *Robinson EE

Authors Affiliations:

Dental Education, Scholarship and Innovation Theme (DESi), School of Dentistry, Cardiff University, CARDIFF UNIVERSITY, CARDIFF, United Kingdom

Contact: Mrs ELIN ROBINSON

Institution: CARDIFF UNIVERSITY

Abstract:

Background: Anatomy forms an integral part of dental education. During the primary foundation teaching, students are taught the basics of anatomy through a series of lectures, seminars and dissection of cadavers. There is anecdotal evidence that although taught the principles of anatomy, students are presented this information in isolation with no or minimal clinical relevance. This project will enhance student experience by providing them with a student-made package that is interactive and can be accessed by any of the students. It will increase the clinical relevance of what they are learning and also act as a revision aid to those students who are further into the course. It will also be possible to develop interdisciplinary links.

Aim and objectives: To enable students to gain an appreciation and highlight the relevance and importance of anatomy during the first years of dental education to the practice of dentistry

As a revision aid on anatomy for students who are about to undertake clinical work

To provide student-led teaching and learning resources

Materials and methods: A CAL package will be developed and shown to various undergraduate students and its usefulness will be assessed via questionnaires. Data from the questionnaires will be collected and entered into SPSS for breakdown and analysis.

Results: Students responded favourably to having these types of resources available to supplement their clinical teaching. The availability and ease of access was popular amongst all those who responded.

Conclusions: Students are keen to learn via technology and have instant access to resources that supplement their clinical teaching. Often anatomy becomes more relevant and engaging further into the curriculum when the students can see the clinical benefit of this knowledge so it is important that resources are made available for them and teaching is integrated throughout the course.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL15 **Session;** P7

Title: Using Feedback Derived from Simulation Technology to Enhance Dental Education

Authors: *Birtles A, Smith J

Authors Affiliations:

Restorative, Aberdeen Dental School, Aberdeen, United Kingdom

Contact: Ms Alison Birtles

Institution: University of Aberdeen Dental School

Abstract:

Background: This study looked at visual and descriptive feedback from a new digital scanning technology improved students' abilities to self-assess performance and enhance the speed and accuracy of pre-clinical technical skills. The ability of dental students to progress from the laboratory to clinical patient care provision is a critical one (1), with tutor feedback to assess and improve these skills known to be subjective (2), unconstructive (3) and error prone (4). This new technology (PrepCheck, Dentsply, Sirona) will allow faculty judgement for student transition on robust scientific evidence.

Aim and objectives: To evaluate the efficiency and effectiveness of a new digital scanning technology analysis system in improving clinical skills

Materials and methods: 19 third year dental students were randomly allocated into two groups. One group was to initially receive tutor feedback only (Group A) and the other was to receive tutor feedback and that provided by the PrepCheck scanner (Group B). The examiner was blinded to the grouping of the participants.

Four attempts to satisfy standard outcome measures for gold shell crowns were performed and assessed by the instructor and the scanning device, with the feedback from group A only being available mid-way through the 6 session teaching block.

Results: Analysis revealed that there was no statistical difference between the groups. However, what can be derived from the data is that the group receiving both types of feedback reached a passing grade sooner. Self-assessment of their performance in the intervention group was more likely to agree with the tutor than the control group.

Conclusions: A larger sample size is needed to show any statistically significant difference between the groups. Early findings might suggest that this visual multisource feedback may enhance the students' ability to perform clinical skills tasks.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL17 **Session:** P7

Withdrawn:

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL18 **Session:** P7

Title: Software Systems: Simulation and Clinical Application

Authors: *Forna N, Agop Forna D

Authors Affiliations:

Department Of Implantology, "Gr. T.Popa" University Dental Faculty, Iasi, Romania

Contact: Prof Dr Norina Forna

Institution: Iasi University of Medicine & Pharmacy

Abstract:

Background: Digital patient chart are is a simple and effective way of creating a data base for statistical evaluation of the health status, treatment plan and medium term prognosis according to the complete patient evaluation.

Aim and objectives: Two types of software were used in the study to evaluate the health status of the patient and the treatment plan and to determine a prognosis of medium and long term success of the therapeutic plan.

Materials and methods: Statistical evaluation was made on the 856 clinical digitized charts and the to the scoring of the patient after evaluation of the success rate of the treatment.

Results: Prodent chart and Scoring evaluation software are two digital instruments developed by Prof Norina Forna, and applied in the Dental Medicine Faculty from 2010. The statistical data resulted from the charts evaluation in correlation with the scoring program showed that thorough evaluation of the clinical and para-clinical evaluation have a key role in correct assessment of the case and correct choice of the treatment plan. However, for 2,3% of the evaluated cases the prognosis was indicated incorrect by the scoring program and that was mainly because of the fulminant disease evolution of either general health, especially diabetes and local modifications that modified the overall prognosis of the case.

Conclusions: The software used in evaluation have proven to be an useful instrument in assessing the treatment plan, it is an excellent tool in the use of students and young dentists which lack the experience in decision taking for medical reasoning.

Poster Stream: Technology Enhanced Learning **Poster Number:** TEL19 **Session:** P7

Title: A new 3D scanning evaluation system for tooth preparation

Authors: *JIANG YONG¹, WU LEI²

Authors Affiliations:

¹Education Administration Office; Department of General Dentistry 2, Peking University, School and Hospital of Stomatology, Beijing, China

²NISSIN DENTAL PRODUCTS CO.,LTD, Kunshan, China

Contact: Prof Dr Yong JIANG

Institution: Peking University, School and Hospital of Stomatology

Abstract:

Background: Tooth preparation is a very important link in dental education. The teaching effect is largely manifested in the quality of the preparation. The volume of natural tooth preparation is generally less than 15mm*15mm*10mm. The accuracy of evaluation should be about 0.1 millimeters. It is difficult for teachers to evaluate the quality of preparation.

Aim and objectives: To develop a new smart evaluation system for tooth preparation.

Materials and methods: A new evaluation system was developed: using blue light grating to scan the object surface in a non-contact way, get the 3D solid data, and reconstruct the surface of the object surface. The scanning precision can reach 0.035 millimeters. A new software was developed for this system: the shape of a surface or plane can be determined, the minimum undercut can be found, the convergence angle can also be calculated accurately. The reduction is determined by comparing the data of the preparation with the complete artificial teeth in different section. These parameters are compared with the gold standard of the textbook, and different proportions are set up to get the overall evaluation score of the preparation. And the results are used to guide the following training.

Results: The system has been used for more than 3 years and the results have shown its effectiveness in finding out details that teachers can not accurately discover or judge by naked eyes. It takes about 30 seconds to scan a preparation, and 60 seconds to reconstruct and evaluate by the system.

Conclusions: This evaluation system can fulfil an evaluation of the result for tooth preparation. And the evaluation of the process for tooth preparation is also very important, it should be carried out by other method.