



## King's Research Portal

[Link to publication record in King's Research Portal](#)

### *Citation for published version (APA):*

Sharka, R., San Diego, J., Banerjee, A., & Nasseripour, M. (2019). A mixed method study protocol: Assessing the risks of using digital and social media amongst dental professionals and dental students. In *A mixed method study protocol: Assessing the risks of using digital and social media amongst dental professionals and dental students* (pp. 53) <https://adee.org/sites/default/files/Abstracts%20Booklet%20August%2012th%20Update.pdf>

### **Citing this paper**

Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

### **General rights**

Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the Research Portal

### **Take down policy**

If you believe that this document breaches copyright please contact [librarypure@kcl.ac.uk](mailto:librarypure@kcl.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



# Topic related and e-poster abstracts

ADEE 2019 Berlin

Issued 9<sup>th</sup> August 2019

ADEE2019 Berlin

## Contents list of authors by sub section

<b>Introduction</b> .....	4
<b>Timetable for e-poster presentations:</b> .....	4
<b>Topic Related Presentations</b> .....	5
Johnson IG.....	5
Ioannidou K, Kalyva D, *Basdeki EI, Tranoulis G, Kossioni AE.....	5
San Diego J .....	6
<b>Assessment</b> .....	8
*Kirnbauer B <sup>1</sup> , Avian A <sup>2</sup> , Rugani P <sup>3</sup> , Jakse N <sup>4</sup> ..	8
*Atkin PA <sup>1</sup> , Willis AM <sup>2</sup> .....	8
*Hissink E, Creugers NHJ, Wieberdink M, Fokkinga WA .....	9
Van Tubergen E <sup>1</sup> , Ramaswamy V <sup>2</sup> , Janos M <sup>3</sup> , Karl E <sup>4</sup> , Fitzgerald M <sup>5</sup> , *de Peralta TL <sup>6</sup> .....	10
*Amir Rad FA <sup>1</sup> , Kaklamanos EG <sup>2</sup> .....	10
*Postma TC <sup>1</sup> , Merbold KH <sup>2</sup> .....	11
Ellis JS <sup>1</sup> , Freeman Z <sup>2</sup> , Cairns A <sup>3</sup> , Binnie V <sup>4</sup> .....	12
*Postma TC <sup>1</sup> , Merbold KH <sup>2</sup> .....	12
*Merbold KH <sup>1</sup> , Postma TC <sup>2</sup> .....	13
*Merbold KH <sup>1</sup> , Postma TC <sup>2</sup> .....	14
*Manton S <sup>1</sup> , Geraghty A <sup>2</sup> , Saunders W <sup>3</sup> , Bereznicki T <sup>4</sup> , McKernon S <sup>5</sup> , O'Brien T <sup>6</sup> , McColl E <sup>7</sup> , Winchester L <sup>8</sup> , Nattress B <sup>9</sup> , Felix D <sup>10</sup> , Ross A <sup>11</sup> , Youngson G <sup>12</sup> , Paterson-Brown S <sup>13</sup> .....	14
Baghizadeh M <sup>1</sup> , Ashofteh K <sup>2</sup> , Sadighpour L <sup>3</sup> , Dehghani S <sup>4</sup> .....	15
*Gevrey AM <sup>1</sup> , Gasqui MA <sup>2</sup> , Laforest L <sup>3</sup> , Dupont-Butez L <sup>4</sup> , Beaurain M <sup>5</sup> , Ceinos R <sup>6</sup> , Chemla F <sup>7</sup> , Chevalier V <sup>8</sup> , Colon P <sup>9</sup> , Fioretti F <sup>10</sup> , Kérourédan O <sup>11</sup> , Le Clerc J <sup>12</sup> , Maret D <sup>13</sup> , Mocquot C <sup>14</sup> , Ozcan C <sup>15</sup> , Pelissier B <sup>16</sup> , Perez F <sup>17</sup> , Terrer É <sup>18</sup> , Turpin YL <sup>19</sup> , Arab-Chiran R <sup>20</sup> , Seux D <sup>21</sup> , Doméjean S <sup>22</sup> .....	16
Jayasinghe J, Gupta E .....	17
*Giwa AA <sup>1</sup> , Patel NS <sup>2</sup> .....	17
*Gigineishvili EG <sup>1</sup> .....	18

*Gibson BJ <sup>1</sup> , Craig C <sup>2</sup> , Jowett A <sup>3</sup> , Deery C <sup>4</sup> , Marshman Z <sup>5</sup> , Zijlstra-Shaw S <sup>6</sup> .....	19
Shembesh, T <sup>1</sup> , Dalessandri, D <sup>2</sup> , Tricio, J <sup>3</sup> , Scazzero, N <sup>4</sup> , Bindi, M <sup>5</sup> , Tonni, I <sup>6</sup> , Pagenlli C <sup>7</sup> 19	
<b>Curriculum</b> .....	21
Yusuf H <sup>1</sup> , *Yeung JS <sup>2</sup> , Shetty S <sup>3</sup> , Gupta L <sup>4</sup> , Hurst D <sup>5</sup> .....	21
*McKerlie RA, Binnie V, Ross AJ.....	21
*Johnson IG <sup>1</sup> , Woolford P <sup>2</sup> , Milward PJ <sup>3</sup> .....	23
*Ali S .....	23
Marty M <sup>1</sup> , Gendron, B <sup>2</sup> , Vergnes, JN <sup>3</sup> .....	24
Mirzazadeh A <sup>1</sup> , *Shirazian S <sup>2</sup> .....	25
*Wardman MJ.....	25
*Schick SG <sup>1</sup> , Frese C <sup>2</sup> , Wohlrab T <sup>3</sup> , Schmidt P <sup>4</sup> , Schulte AG <sup>5</sup> .....	26
*Shirazian SHIVA <sup>1</sup> , Mirzazadeh AZIM <sup>2</sup> .....	27
*Tranoulis G <sup>1</sup> , Basdeki EI <sup>2</sup> , Koufatzidou M <sup>3</sup> , Karveleas I <sup>4</sup> , Kossioni AE <sup>5</sup> .....	27
Cunningham, I.....	28
*McKernon SL <sup>1</sup> , Patel A <sup>2</sup> , Sall K <sup>3</sup> , Heggie C <sup>4</sup> , Gartshore L <sup>5</sup> .....	29
*Blank ECJ, Haas JMK, Gaßmann GG .....	30
<b>Evaluation</b> .....	31
*Elliott E <sup>1</sup> , Omar A <sup>2</sup> , Sharma S <sup>3</sup> , Hurst D <sup>4</sup> .....	31
Chioti S <sup>1</sup> , Leung, A <sup>2</sup> , Fine, PD <sup>3</sup> .....	31
*Malta V <sup>1</sup> , Gallagher J <sup>2</sup> , Fine PD <sup>3</sup> , Blizard R <sup>4</sup> , Leung A <sup>5</sup> .....	32
*Hameed M, Smorthit K, Dingle M, Taylor K, Flannigan N, Stevenson H .....	33
Bernowicz K <sup>1</sup> , Louca C <sup>2</sup> , Fine PD <sup>3</sup> , Blizard R <sup>4</sup> , *Leung A <sup>5</sup> .....	33
*Kelly GM, Worne A.....	34
Emanuel C, Milward P, Jones RJ, Morgan M, and Johnson I .....	35
*Sabarinathan J, Maya R.....	35
*Le Clerc J <sup>1</sup> , Gasqui MA <sup>2</sup> , Laforest L <sup>3</sup> , Dupont-Butez L <sup>4</sup> , Beaurain M <sup>5</sup> , Ceinos R <sup>6</sup> , Chemla F <sup>7</sup> , Chevalier V <sup>8</sup> , Colon P <sup>9</sup> , Fioretti F <sup>10</sup> , Gevrey A <sup>11</sup> , Kérourédan O <sup>12</sup> , Maret D <sup>13</sup> , Mocquot C <sup>14</sup> ,	

Ozcan C <sup>15</sup> , Pelissier B <sup>16</sup> , Perez F <sup>17</sup> , Terrer E <sup>18</sup> , Turpin YL <sup>19</sup> , Arbab-Chiran R <sup>20</sup> , Seux D <sup>21</sup> , Doméjean S <sup>22</sup> .....	36
*Ashtari P <sup>1</sup> , Koh J <sup>2</sup> , Davda L <sup>3</sup> .....	37
*Gartshore L.....	37
*Morgan E, Gartshore L.....	38
Kuscu OO <sup>1</sup> , *Ozcelik SM <sup>2</sup> , Kucuktepe C <sup>3</sup> , Akyuz S <sup>4</sup> .....	39
<b>Faculty Development</b> .....	40
*Williams EO <sup>1</sup> , Milward PJ <sup>2</sup> , Johnson IG <sup>3</sup> .....	40
<b>Inter Professional Education (IPE)</b> .....	41
*Koufatzidou M, Gratsia S, Karveleas I, Basdeki EI, Koumentou E, Tranoulis I, Kyriakouli A, Oikonomidi E, Korakaki A, Kotoula I, Rahiotis C .....	41
*Giner L <sup>1</sup> , Balaguer A <sup>2</sup> , Arregui M <sup>3</sup> , Bosch J <sup>4</sup> , Castillo J <sup>5</sup> , Elorduy M <sup>6</sup> , Gallart A <sup>7</sup> , Rodríguez E <sup>8</sup> , Virumbrales M <sup>9</sup> , Monforte-Royo C <sup>10</sup> .....	41
Jukes A <sup>1</sup> , *Johnson IG <sup>2</sup> .....	43
*Tranoulis G <sup>1</sup> , Karveleas I <sup>2</sup> , Koufatzidou M <sup>3</sup> , Basdeki EI <sup>4</sup> , Kossioni AE <sup>5</sup> .....	44
*Iniesta M <sup>1</sup> , De la Hoz CJ <sup>2</sup> , Hidalgo JJ <sup>3</sup> , Alonso B <sup>4</sup> , Figuero E <sup>5</sup> , Herrera D <sup>6</sup> .....	44
*Mcilwaine CL, Belfield L, Zahra D, Brookes Z, Bennett J, Zaric S, Collingwood J.....	45
*Sandhu S <sup>1</sup> , Daldry M <sup>2</sup> , Stevenson M <sup>3</sup> , Zahra D <sup>4</sup> , Collingwood J <sup>5</sup> .....	46
*Hirsch CA <sup>1</sup> , Cox A <sup>2</sup> , Attrill D <sup>3</sup> , Hill K <sup>4</sup> , White D <sup>5</sup> .....	46
*Merrick D <sup>1</sup> , De Lap E <sup>2</sup> .....	47
<b>Other</b> .....	49
*Nakhapaksirat D <sup>1</sup> , Lent N <sup>2</sup> , Foley J <sup>3</sup> .....	49
*Milward PJ <sup>1</sup> , Woolford P <sup>2</sup> , Johnson IG <sup>3</sup> .....	50
*Hofer P, Fuentes R, Puchi R.....	51
Shirazian S <sup>1</sup> , *Vatanpour M <sup>2</sup> .....	52
*Dale CD <sup>1</sup> , Patel NP <sup>2</sup> , Cro SC <sup>3</sup> .....	52
*Sharka R <sup>1</sup> , San Diego J <sup>2</sup> , Banerjee A <sup>3</sup> , Nasseripour M <sup>4</sup> .....	53
*Alrashdan MS <sup>1</sup> , Alazzam M <sup>2</sup> , Philips C <sup>3</sup> .....	54

Finnegan M, *Duffy K, Foo Chieun W, Guinness J, Saqib A, Tohidi M, MacGiolla Phadraig C, FitzGerald K, Duane B, Sagheri D .....	54
Berlin B <sup>1</sup> , Puriene A <sup>2</sup> , Hysi D <sup>3</sup> , Katrova L <sup>4</sup> , Nikolovska J <sup>5</sup> , Oancea R <sup>6</sup> , Stangvaltaite- Mouhat L <sup>7</sup> , *Chafas R <sup>8</sup> .....	55
*Jikia MJ.....	56
*Abudaqqa Z, Aldurgham K .....	57
<b>Student Selection</b> .....	58
*Cunningham C.....	58
<b>Teaching Methods</b> .....	59
*Butcher SCR, Niggli J .....	59
*Seeballuck C <sup>1</sup> , Milne R <sup>2</sup> , Richardson K <sup>3</sup> , Innes N <sup>4</sup> .....	59
*Rocafort Sánchez G <sup>1</sup> , Parellada Insa H <sup>2</sup> , Arregui Gambús M <sup>3</sup> , Navalón Codina F <sup>4</sup> , Giner Tarrida L <sup>5</sup> , Paez Jurado S <sup>6</sup> , García Sala I <sup>7</sup> .....	60
*Pino Valenzuela DA <sup>1</sup> , Torres Hidalgo PM <sup>2</sup> , Perez Cabezas PA <sup>3</sup> .....	61
*Olms C <sup>1</sup> , Blum SL <sup>2</sup> , Horn M <sup>3</sup> .....	61
*Milne RA, Seeballuck C, Bearn DR, Innes NP .....	62
*Albagami H <sup>1</sup> , Ortega-Asencio I <sup>2</sup> , Zijlstra-Shaw S <sup>3</sup> , Field J <sup>4</sup> , Stokes CW <sup>5</sup> .....	63
*Vatanpour M <sup>1</sup> , Khadem P <sup>2</sup> , Kazemi H <sup>3</sup> , Haji- Niaraki M <sup>4</sup> .....	63
*Ni Riordain R <sup>1</sup> , Supple B <sup>2</sup> .....	64
*IHM JJ.....	65
*Tonkaboni DR.....	65
*McNeil RA, Sinha A, Keeling A, Osnes C.....	66
*Ye L <sup>1</sup> , Zhang LL <sup>2</sup> , Wang L <sup>3</sup> , Zheng QH <sup>4</sup> , Wang SD <sup>5</sup> .....	66
Negrutiu, ML <sup>1</sup> , Stoia, AE <sup>2</sup> , Cojocariu, CA <sup>3</sup> , Rominu, M <sup>4</sup> , Sinescu, C <sup>5</sup> .....	67
Negrutiu, ML <sup>1</sup> , Coste CM <sup>2</sup> , Bodnar AM <sup>3</sup> , Pop DM <sup>4</sup> , Rominu, M <sup>5</sup> , Sinescu, C <sup>5</sup> .....	68
Wyatt P, *Dagher A, Quinn B.....	68
<b>Technology Enhanced Learning</b> .....	70
*AL-ANI Z, McAllan W, Dewhurst D.....	70

*Dunn S <sup>1</sup> , Kennedy C <sup>2</sup> , McKerlie R <sup>3</sup> .....	70
Collingwood J1, Zahra D2, .....	71
*McAllan WP, Brocklebank LM .....	72
*Ozolins K <sup>1</sup> , Slaidina A <sup>2</sup> , Abeltins A <sup>3</sup> , Springe B <sup>4</sup> , Berzina S <sup>5</sup> .....	72
Dias da Silva MA, Patel U, Pereira AC, Walmsley AD .....	73
*Younas S .....	74
*Pereira AC, Dias da Silva MA, Patel US, Tanday AK, Hill KB, Walmsley AD .....	74
*Cresswell-Boyes AJ1, Barber AH2, Krishnamoorthy M3, Davis GR4 .....	75
*Wassmann T, Schubert A, Kurbad O, Deseniß M, Bürgers R.....	76
*Parekh S, Ashley P .....	76
*Blum IR, Chau KK, Saravanamuttu R, Davies BR .....	77
*Rittich AR <sup>1</sup> , Wolfart SW <sup>2</sup> , Renardy CR <sup>3</sup> , Raissi TR <sup>4</sup> , Lemos ML <sup>5</sup> .....	77
Scazzero N, Dalessandri D, Tonni I, Massetti F, Fontana P, Bonetti S, Paganelli C .....	78
Massetti F, Rezzani R, Dalessandri D, Scazzero N, Buffoli B, Visconti L, Rodella LF.....	79
Wulfman C, Gosset M, Valencien C, Germa A, Gaucher C, Boukpepsi T, Moreau N, Radoi L, Colombier ML, *Vital S.....	79
Dalessandri D, Scazzero N, Massetti F, Laffranchi L, Fontana P, Bonetti S, Paganelli C .....	80
*Forna N.....	81
*Muthukrishnan A <sup>1</sup> , Mills C <sup>2</sup> .....	81



## Introduction



Welcome to ADEE 2019 Berlin. This booklet contains the accepted TOPIC Related and e-poster abstract for presentation at ADEE 2019 Berlin.

Each abstract is assigned a poster stream (theme) and unique poster number. Posters are outlined in this document in poster stream (theme) order.

- Assessment
- Curriculum
- Evaluation
- Faculty Development
- Inter Professional Education
- Other
- Student Selection
- Teaching Methods
- Technology Enhanced Learning

Posters will be presented by authors in Sessions. Sessions P1, P2, P3 & P4 are presented on Wednesday, Sessions P5, P6, P7 & P8 on Thursday.

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 e-poster (including a QR code to connect you to the online e-poster) are displayed at the venue.

All presenters will use the online e-poster to present. Thus those selected for Topic related sessions and Freestage sessions will also have their material available on the Learning Tool Box Platform.

ADEE expresses its thanks to the abstract evaluators Dr Ronald Gorter, Prof Julia Davies, Prof Rui Amaral Mendes and Dr Barry Quinn.

We hope you enjoy the meeting.

**Professor Deborah White EJDE Editor in Chief.**

## Timetable for e-poster presentations:

Wednesday 21 <sup>st</sup> August @ 14:00	
Session 1	Curriculum 1 to 12 Room: Langenbeck
Session 2	Evaluation 1 to 12 Room: Koch
Session 3	Faculty Development (1) IPE (11) Room: Virchow
Session 4	Teaching Methods 1 to 12 Room: Bier
Thursday 22 <sup>nd</sup> August @ 14:00	
Session 5	Assessment (19) Room: Langenbeck
Session 6	Technology Enhance Learning (19) Room: Koch
Session 7	Other (17) Room: Virchow
Session 8	Curriculum 13 to 15 Evaluation 13 to 15 Student Selection (1) Teaching Methods 13 to 17 Room: Sauerbruch h(Workshop)
Friday 23 <sup>rd</sup> August @ 14:00	
All	Topic Related Abstracts Horsaal

Please check the meeting app and on site signage for up to date room allocations. Each session is chaired as follows:

Wednesday 21 <sup>st</sup> August @ 14:00	
Session 1	Dr Barry Quinn & Prof Ilze Akota
Session 2	Prof Julia Davies & Prof Corrado Paganelli
Session 3	Prof Amaral Mendes & Prof Sibylle Vital
Session 4	Prof Cristina Manzanares & Prof Sebastian Paris
Thursday 22 <sup>nd</sup> August @ 14:00	
Session 5	Dr Barry Quinn & Prof Ilze Akota
Session 6	Prof Julia Davies & Prof Corrado Paganelli
Session 7	Prof Amaral Mendes & Prof Sibylle Vital
Session 8	Prof Cristina Manzanares & Prof Sebastian Paris
Friday 23 <sup>rd</sup> August @ 14:00	
All	Prof Cristina Manzanares

## Topic Related Presentations

**Theme:** Topic

**ID:**T01

### **Augmented Reality- Modern Approaches to Communicating Oral Health**

**Submitter:** Dr Ilona G Johnson

**Institution:** Cardiff University

**Authors:**

Johnson IG

**Authors Affiliations:**

Cardiff University, United Kingdom

**Abstract:**

**Background:**

Mobile technologies and applications are a day-to-day part of modern communication. These technologies can be used to communicate oral health information to children, their parents and health care professionals but despite this, there is very limited evidence to demonstrate which aspects of these technologies are considered most useful or effective for modern communication.

**Aims & Objectives:**

Evaluate public and dental professional views of the value and utility within dental practice and teaching settings of augmented reality applications designed for children's dental waiting areas.

**Materials and Methods:**

A mobile application was co-produced by a software engineering student project team, a consultant in paediatric dentistry and consultant in dental public health, a learning technologist and human computer interaction academics. Following ethical approval, interviews were undertaken with stakeholders including family units, dental students, dentists and dental team members purposively selected for the study. Interviews were unstructured and involved participants user testing the applications, in order of preference. Participants thoughts and opinions were audio recorded. Data were analysed using a thematic approach.

**Results:**

Stakeholders described the applications in terms of engagement, anxiety management, and communication for health messages. The augmented reality colouring, posters, sugar destroyer and sugar avoidance games were

deemed to be entertaining and useful for children and parents within and external to the dental setting. The use of characters and subtle messages within the game concepts were considered particularly engaging and useful for communicating oral health information. The applications were also considered useful for engaging students with modern methods of communication with children.

**Conclusions:**

Augmented reality applications, particularly those that connect the real and virtual environment can be useful for communicating health information. They can also provide an alternate lens for looking at dentistry and patient needs which can engage students, helping them to understand modern approaches to communicating oral health.

---

**Theme:** Topic

**ID:**T02

### **Dental students' attitudes towards treating older patients: a qualitative analysis**

**Submitter:** Ms Kyriaki Ioannidou

**Institution:** National and Kapodistrian University of Athens

**Authors:**

Ioannidou K, Kalyva D, \*Basdeki EI, Tranoulis G, Kossioni AE

**Authors Affiliations:**

National and Kapodistrian University of Athens, Athens, Greece

**Abstract:**

**Background:**

The older population is continuously increasing, presenting complex socio-medical and dental needs. However, their oral problems are largely undertreated because of various barriers, including ageism in care provision. It is therefore important to explore the attitudes and stereotypes of dental students, the future dental professionals, towards treating older patients.

**Aims & Objectives:**

To record the stereotypes and attitudes of senior dental students towards treating elderly patients.

**Materials and Methods:**

An anonymous written questionnaire including two open-ended questions about the positive and

negative issues when treating older patients was administered to 8th and 10th semester dental students at the National and Kapodistrian University of Athens. A content analysis was conducted to identify the main themes.

**Results:**

A total of 135 students responded to the questionnaire (response rate 88%). Five key themes were identified for the positive aspects and six for the negative ones. The positive aspects of treating older people were the promotion of the patients' health and quality of life, the good interaction and communication with the older patients, the dentist's intrinsic reward treating older people, the positive feedback from the patients and the improvement of professional dental competences when treating complex cases. The negative issues included communication and cooperation problems, treatment challenges related to disease and disability, patients' negative beliefs about oral health, barriers to access dental care, complex and time-consuming treatment plans, and communication and cooperation problems with the patients' carers.

**Conclusions:**

The dental students identified a number positive and negative issues of treating older people that should be further explored. More research is necessary on the educational content and methods that will help the students deal with their fears and increase their level of confidence and satisfaction when treating older people. As the proportion of the older dental patients is increasing it is important to equip future dental professionals to meet their needs.

---

**Theme:** Topic

**ID:**T03

**Dental Professionals Knowledge, Understanding and Needs of Artificial Intelligence and Related Technologies**

**Submitter:** Dr Jonathan San Diego

**Institution:** King's College London

**Authors:**

San Diego J

**Authors Affiliations:**

Centre for Dental Education, King's College London, London, United Kingdom

**Abstract:**

**Background:**

The ability of computer systems to carry out tasks that require thinking logically, learning and problem solving is known as Artificial Intelligence (AI). The use of AI in Dentistry has the potential to transform the industry's ability to diagnose and treat illnesses, for example scanning machines have the ability to distinguish between healthy and diseased states. However, the use of AI in all industries (including healthcare) comes with challenges such as the lack of understanding of how AI technologies work and how they are perceived, moreover our research and understanding are weak in these areas.

**Aims & Objectives:**

This session aims to conduct an interactive discussion amongst ADEE members and participants to gain an understanding of the social, political and ethical challenges posed by AI&RT (artificial intelligence and related technologies).

**Materials and Methods:**

This session will involve a live online poll and descriptive results will automatically be generated in front of a live audience. Data collected will be anonymised using a licenced online polling system. The questions will consist of Likert-type questions and open-ended questions. The survey requires the use of participants' personal devices e.g. mobile phones, tablets and laptops.

**Results:**

Descriptive results will be further analysed after the session. The understanding of AI&RT amongst dental professionals will be categorised using the Wellcome Trust's report themes, namely: a) Process Optimization b) Clinical Pathways c) Training Application and d) Patient Facing Application.

**Conclusions:**

The online poll results will highlight the need to further understand and explore dental professionals' understanding of artificial intelligence and related technologies; and using the four thematic applications of artificial intelligence may help develop guidance to educate and optimise healthcare outcomes in dentistry.

---



**Theme:** Topic

**ID:**T04

**Enhancing Education While Increasing Access to Care Through Sustainable and Accountable Community Service**

**Submitter:** Dr Lisa B. Nguyen

**Institution:** University of California, Los Angeles (UCLA) School of Dentistry

**Authors:**

Nguyen LB, \*Piskorowski WA

**Authors Affiliations:**

Public Health and Community Dentistry, University of California, Los Angeles (UCLA), Los Angeles, United States

**Abstract:**

**Background:**

Access to oral healthcare services remains a major problem among vulnerable and low-income communities across the globe while dental student preparedness for independent practice may be declining.

**Aims & Objectives:**

The Community-Based Clinical Education (CBCE) program aims to enhance education while increasing access to care through sustainable and accountable community service, making the most of the educational network by adding value to the community and not depending on student tuition for funding. Advanced IT brings providers together for quality person-centered care.

**Materials and Methods:**

In preparing to implement a CBCE template created 13 years ago at a third major Dental School in the U.S., 40 dentists working in underserved areas were credentialed and onboarded by the Dental School whilst the curriculum was adjusted to allow for 4th year dental students to complete two 2-week rotations with increased time allotted annually. A secure, HIPAA compliant, cloud-based IT system was used as an educational and program management tool to gather and swiftly deliver data, including patient demographics, ICD-10 medical/dental codes and 360 assessment.

**Results:**

In the pilot year, 131 students delivered care worth \$1.5M to 5,865 patients in underserved areas. Students reported increased confidence in each area measured in a 13-point assessment tool.

Areas where students felt they lacked confidence were confirmed by faculty assessment of students giving way for curriculum improvements. Swift data reporting allows for creation of novel programs to serve students, faculty and communities.

**Conclusions:**

More graduates chose public health dentistry as a career due to CBCE experiences. Novel programs stemming from the template along with collaboration across Dental Schools are necessary to successfully lessen oral health disparities. Multiple schools utilizing the same assessment tools and evolving technology gives way to a richer data set upon which to evaluate our curricula and current practices to ensure the highest knowledge standards for all future dental professionals.

## Assessment

**Theme:** Assessment      **ID:** GPP ASM 01

### Evaluation of a German-language Dental Progress Test at the Medical University of Graz

**Submitter:** Dr Barbara Kirnbauer

**Institution:** Medical University of Graz

#### Authors:

\*Kirnbauer B<sup>1</sup>, Avian A<sup>2</sup>, Rugani P<sup>3</sup>, Jakse N<sup>4</sup>

#### Authors Affiliations:

<sup>1,3&4</sup> Division of Oral surgery and Orthodontics, Medical University of Graz, Graz, Austria

<sup>2</sup> Institute for Medical Informatics, Statistics and Documentation, Medical University of Graz, Graz, Austria

#### Abstract:

##### Background:

The study programme of “Dental medicine” was introduced in Austria in 1998 and has, since then, also been offered at the Medical University of Graz. Despite the subjective impressions of offering a qualitative education, student outcomes do not always meet the expectations of the educators.

##### Aims & Objectives:

The presented intervention facilitated the evaluation of knowledge levels and differences regarding the oral surgery education in the undergraduate dental curriculum of the Medical University of Graz for the first time in a standardised way, using Dental Progress Test (DPT) as a recognised longitudinal assessment tool.

##### Materials and Methods:

DPT participation was introduced as a compulsory examination for all dental students passing their clinical education (terms 7-12) between summer term 2016 and 2017 followed by explorative and Rasch-analysis

##### Results:

Overall 173 students, participated in all tests. Item responses resulted in similar levels at all three test time points for the categories “correct”, “false” and “don’t know” (Test 1: 61.6%, 26.6%, 11.8%; Test 2: 56.0%, 27.8%, 16.3%; Test 3: 62.1%, 26.5%, 11.4%). A significant increase in “correct” answers was observed in Test 2. A significant decrease of “don’t know” answers was seen in Test 1 and 2. Concerning “false” answers, even a significant

increase occurred, however only in Test 1. The reliability ranged from 0.82-0.88. Within the Rasch analyses the assumption of parallel ICC was met (T1:  $\chi^2=51.071$ ,  $df=74$ ,  $p=.981$ ; T2:  $\chi^2=57.044$ ,  $df=67$ ,  $p=.802$ ; T3:  $\chi^2=58.443$ ,  $df=72$ ,  $p=.876$ ) and item difficulties for the thematic fields were similarly distributed across the latent dimensions.

#### Conclusions:

Results showed a favourable, homogeneous response behaviour, along with a similar distribution of included and excluded items within the separate tests and fields. Furthermore, an accurate range of difficulty of the questions could be drawn from the collected data, which provides the basis for further research.

---

**Theme:** Assessment      **ID:** GPP ASM 02

### Current and future assessments in Human Disease: A UK & Ireland Teachers Survey

**Submitter:** Dr Philip Atkin

**Institution:** Cardiff University

#### Authors:

\*Atkin PA<sup>1</sup>, Willis AM<sup>2</sup>

#### Authors Affiliations:

<sup>1</sup> Oral Medicine, Cardiff University Dental Hospital & School, Cardiff, United Kingdom

<sup>2</sup> Oral Medicine, Queens University Dental Hospital & School, Belfast, United Kingdom

#### Abstract:

##### Background:

Collaboration for best practice: Human Disease

##### Aims & Objectives:

Building on a previous meeting where curriculum content and delivery was the focus, the UK & Ireland Teachers of Human Disease/Clinical Medical Sciences for Dentistry (HD/CMSD) chose to review current and future formative and summative assessments in their schools and the possibility of sharing a question bank.

##### Materials and Methods:

All 18 UK and Ireland schools completed an online survey and a meeting was convened with the goal of sharing the current and future trends for assessment in HD/CMSD.

**Results:**

Representatives from UK and Ireland dental schools completed the survey (100% response). Formative assessment styles included logbooks, OSCE, SBA, MCQ and SAQ with appropriate feedback. Summative, stand-alone, assessments in HD/CMSD were held by 14 schools. The remainder included HD/CMSD topics in other formal assessments. 14 schools used OSCEs in the assessment and used simulated patients in some stations. Most schools used a combination of SAQs, EMQs and MCQs in their assessments. 10 schools used electronic marking for at least part of their assessments and 12 reported marking by hand with some double-marking where appropriate. In 12 schools the HD/CMSD lead was always involved in standard-setting and in the remainder a mix of clinical/non-clinical, dental and medical staff were used. 16 schools used Angoff/modified Angoff and one each used Abel and Hoftsee methods. 11 schools reported that HD/CMSD was examined outside of a stand-alone assessment and 10 schools using a clinical scenario in final examinations would always include an element of HD/CMSD. 16 of 17 respondents were in favour of sharing a question bank.

**Conclusions:**

All schools held formative assessments in HD/CMSD and the majority also had stand-alone summative assessments in their programs. In some schools the HD/CMSD was integrated into other assessments. The large majority of schools were in favour of sharing a question bank, principally of EMQs and OSCEs.

---

**Theme:** Assessment      **ID:** GPP ASM 03

**Entrustable Professional Activities (EPAs) through the eyes of dental students**

**Submitter:** Mrs Elske Hissink

**Institution:** Radboudumc Nijmegen Dental School

**Authors:**

\*Hissink E, Creugers NHJ, Wieberdink M, Fokkinga WA

**Authors Affiliations:**

Dentistry, Radboud university medical center, Nijmegen, Netherlands

**Abstract:****Background:**

In September 2017, the Student Run Dental Clinic (SRDC) was introduced in the Master curriculum. The SRDC is an interprofessional clinical workplace where 4rd, 5th and 6th undergraduate dental students work together with 3rd and 4th years Oral Hygiene students. Supervised by teachers of both professions, they take care of about 750 patients during three years.

The learning and development of students is monitored through the use of EPAs, a way to translate competencies into clinical practice. 14 specific EPAs were developed for the Master period.

**Aims & Objectives:**

To describe and share the experiences with EPAs used by dental students in a unique clinical workplace: the Student Run Dental Clinic of the dental school in Nijmegen (the Netherlands).

**Materials and Methods:**

The SRDC and the use of EPAs are evaluated twice a year, using a questionnaire for all students. The questionnaire consists of 31 questions, using a 5-points Likert scale. Additionally, students were asked to give narrative feedback. During the evaluation in March 2019, 66 Dentistry students (33,0%) and 36 Oral Hygiene students (26,3%) responded.

**Results:**

- Students are very satisfied with the learning opportunities in de SRDC (overall marks from 7,6 to 7,8 on a scale from 0-10).
- Students feel that working with EPAs enhances both their technical (dental) skills and their professional development.
- Students appreciate the additional learning possibilities of EPAs more when working on tasks that they perceive as difficult than when working on tasks that they perceive as relatively easy.
- Students in their first year in the SRDC appreciate working and learning with EPAs more than older students.
- More research is going be done at our school concerning the use of EPAs.

**Conclusions:**

In conclusion, students appreciate the overall learning environment of the SRDC. Working with EPAs enhances their learning.

---

**Theme:** Assessment      **ID:** GPP ASM 04

**Student confidence in self- and peer-assessment scoring as a predictor of clinical performance in a dental simulation laboratory**

**Submitter:** Prof Tracy de Peralta

**Institution:** University of Michigan School of Dentistry

**Authors:**

Van Tubergen E<sup>1</sup>, Ramaswamy V<sup>2</sup>, Janos M<sup>3</sup>, Karl E<sup>4</sup>, Fitzgerald M<sup>5</sup>, \*de Peralta TL<sup>6</sup>

**Authors Affiliations:**

<sup>1,4,5 & 6</sup> Department of Cariology, Restorative Sciences and Endodontics, University of Michigan School of Dentistry, Ann Arbor, United States

<sup>2</sup> Office of Academic Affairs, University of Michigan School of Dentistry, Ann Arbor, United States

<sup>3</sup> Pathways Program, University of Michigan School of Dentistry, Ann Arbor, United States

**Abstract:**

**Background:**

Confidence is defined as a feeling of self-assurance arising from one's appreciation of one's own abilities or qualities. Confidence in self-assessment applies skills in which students are aware of their strengths and their learning needs for any particular competency being measured in a skills assessment. Traditionally, a formative multisource assessment strategy involves a combination of assessor groups for the purpose of performance feedback in working environments (Shumway & Harden 2003).

**Aims & Objectives:**

The aim of this study was to investigate the relationship of confidence in scoring between assessor groups (self-assessors (SA), peer-assessors (PA), and expert-assessors (EA)) and to determine if confidence is a predictor of assessment outcomes for clinical competency in a simulated tooth preparation procedure.

**Materials and Methods:**

Scores and feedback provided by multi-sources (self-assessors (SA), peer-assessors (PA) and expert-assessors (EA)) in an assessment of a Class III tooth preparation by first-year dental students in a skills-simulation laboratory was collected in a formative and summative phase 2-weeks apart. Expert assessors were considered the golden standard in scoring of this clinical competency. Inter-rater agreement was determined between SA and PA, SA and EA, as well as PA and EA in the formative

assessment to determine reliability of the assessment tool used. Inter-rater agreement

**Results:**

A significant correlation between scoring and the inter-rater agreement for the formative assessment was found between SA/PA and SA/EA, ultimately validating this multisource assessment tool. However, there was not a significant correlation between student confidence in scoring and student clinical outcomes measured by the EA.

**Conclusions:**

Overall, this study did not find confidence to be a predictor of the student's assessment outcomes for clinical competency in a simulated tooth preparation procedure, based on the EA being the golden standard in scoring.

---

**Theme:** Assessment      **ID:** GPP ASM 05

**Which tools have been used to assess professionalism in dentistry? A systematic review.**

**Submitter:** Dr Fatemeh Amir Rad

**Institution:** Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences

**Authors:**

\*Amir Rad FA<sup>1</sup>, Kaklamanos EG<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Prosthodontics, Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

<sup>2</sup> Orthodontics, Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

**Abstract:**

**Background:**

Recently the demonstration of professionalism has been highlighted as a key component of the skills base of healthcare professionals.

**Aims & Objectives:**

The aim of the present systematic review was to identify the tools that have been used for the assessment of professionalism in the context of dentistry.

**Materials and Methods:**

Search without restrictions for published and unpublished literature and hand searching took place. Relevant information was extracted and methodological quality was evaluated following relevant guidelines.

**Results:**

Six studies involving tools specifically developed for dentistry or instruments adapted from the medical context were finally identified. Assessment was usually carried out by dental faculty, but also instruments assessing professionalism from the patient perspective were located. Assessment of methodological quality revealed various problems.

**Conclusions:**

More methodological rigorous studies are needed in order to identify the most suitable tools for the assessment of professionalism in dentistry, enabling in turn the appraisal of the effectiveness of teaching methods.

---

**Theme:** Assessment      **ID:** GPP ASM 06

**Self-regulation feedback to develop self-regulated independent practitioners**

**Submitter:** Assoc Prof Thomas Corné Postma

**Institution:** University Of Pretoria, Faculty Of Health Sciences, South Africa

**Authors:**

\*Postma TC<sup>1</sup>, Merbold KH<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Dental Management Sciences, University of Pretoria, Pretoria, South Africa

<sup>2</sup> Maxillo-oral and Facial Surgery, University of Pretoria, Pretoria, South Africa

**Abstract:****Background:**

Programmatic workplace-based assessment (WBA) systems should catalyse students to increasingly become independent self-regulated thinkers who can render high quality care. Evidence in this regard is lacking and hence a need exists to examine students' self-regulation in such contexts.

**Aims & Objectives:**

We therefore aimed to elicit fourth-year dental students' goal setting, thoughts, focus and strategy

during exodontia, as part of continuous assessment and feedback received.

**Materials and Methods:**

The study was conducted in a dental school in a developing country within a programmatic WBA system, aiming to develop students' exodontia skills, based on theories of progressive independence and self-regulation. A total of 14075 conventional and surgical tooth extractions, involving fourth-year dental students, were assessed in this pilot project (2014-2017). This included quarterly task-level feedback regarding independence ratios (IR) and level of difficulty (LOD) achieved in relation to achievable pre-set targets. After two rounds of feedback consenting fourth-year students (2015-2017) (n=144) anonymously answered questions with regards to their 1) goal setting, and 2) thoughts and focus during exodontia, in written format. Narratives were deductively analysed and thematically coded based on the first two phases of Zimmermann's model of self-regulated learning. Percentage distributions were calculated for emerging themes.

**Results:**

At least 85% had performance targets in mind with ±10% not setting targets at all. Respectively, 58% and 38% set higher than required targets for IR and LOD. During exodontia students had a focus on patient safety/comfort (69%), their own comfort/safety (22%) as well as their surgical skills (60%) while 41% had task failure thoughts.

**Conclusions:**

Formative assessment should be expanded to include formal and individualized self-regulation feedback to those who lack progression and do not set targets. Self-regulation feedback should also focus on improving self-efficacy belief to reduce thoughts of task failure. Individual feedback should focus on improving students' meta-cognition of patient safety/comfort, occupational safety and surgical techniques during exodontia.

---

**Theme:** Assessment      **ID:** GPP ASM 07

### **A feedback utility model**

**Submitter:** Dr Robert McAndrew

**Institution:** Cardiff University

**Authors:**

Ellis JS<sup>1</sup>, Freeman Z<sup>2</sup>, Cairns A<sup>3</sup>, Binnie V<sup>4</sup>

**Authors Affiliations:**

<sup>1&2</sup> Newcastle University, Newcastle-upon-Tyne, United Kingdom

<sup>3&4</sup> Glasgow University, Glasgow, United Kingdom

**Abstract:**

**Background:**

Feedback may be delivered to students using a variety of methods and in multiple contexts. Whilst thought to be highly valued by students for its ability to enhance learning, it is not clear from the literature how students actually use feedback and whether this varies depending on context and method of delivery.

**Aims & Objectives:**

To explore how dental students actually use feedback in a variety of contexts.

**Materials and Methods:**

Qualitative methods involving the thematic analysis of transcripts of audio-recorded focus groups were used to explore the use of both clinical and non clinical feedback by undergraduate dental students studying at three UK dental schools.

**Results:**

Six focus groups involving 72 students (24 from each school) were undertaken. Thematic analysis identified 6 main themes relating to use of feedback; value, utility, accessibility, credibility, understanding and institutional processes. The inter-connectivity and interaction of the themes (along with their 20+ identified sub themes) were used to develop a model for optimising feedback and thus enhancing its potential use by students and staff.

**Conclusions:**

The use of feedback by students is strongly influenced by a number of factors. This exciting and uniquely derived model of feedback describes these factors in a way that could be helpful to education providers in assessing their own practices and processes.

**Theme:** Assessment      **ID:** GPP ASM 08

### **Rationale for integrating progressive independence into programmatic workplace-based assessment**

**Submitter:** Assoc Prof Thomas Corné Postma

**Institution:** University Of Pretoria, Faculty Of Health Sciences, South Africa

**Authors:**

\*Postma TC<sup>1</sup>, Merbold KH<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Dental Management Sciences, University of Pretoria, Pretoria, South Africa

<sup>2</sup> Maxillo-oral and Facial Surgery, University of Pretoria, Pretoria, South Africa

**Abstract:**

**Background:**

A need exists to simplify workplace-based assessment (WBA) systems to effectively develop competence in busy clinical environments without losing validity.

**Aims & Objectives:**

The aim of this review was to formulate a theoretical rationale for integrating “progressive independence”, “self-regulation theory” and “feedback” into a new simplified WBA system to ensure feasibility.

**Materials and Methods:**

“Progressive Independence” (PI), “WBA” and “programmatic assessment” (PRA) were entered as title keywords in a Medline Web of Science database. Inclusion criteria included English articles relating to competence development in medical education. AMEE guide no. 58 on self-regulation theory and the most extensive review on feedback “The Power of Feedback” were also consulted. A method of using PI as indicator of competence development was subsequently devised and theoretically tested against criteria for good assessment including: feasibility, validity/coherence, reproducibility/consistency, and catalytic/educational effects.

**Results:**

Five, one and five relevant articles were finally chosen to respectively inform theory about PI, WBA and PRA. A novel WBA system was piloted to develop undergraduate students’ conventional and surgical tooth extraction competencies in a busy



clinical environment using students' ability to progressively work without assistance (independence ratios) as key performance indicator. This method allows for simplification of measurement, improving reliability, whilst retaining coherence and validity. It also allows for periodic task-level feedback, generated through programmatic assessment, to drive learning forward based on self-regulation theory and by providing additional learner support to those identified to be lagging behind. The review revealed that student and clinical supervisor factors and the nature of the competency come into play when assessing progressive independence. Level of difficulty of a procedure always needs to be controlled for and progressive independence can only be calculated if a procedure is often performed.

**Conclusions:**

Independence ratios appear to be a feasible performance measure to validly (and reliably) develop undergraduate students' clinical skills in a busy environment.

---

**Theme:** Assessment      **ID:** GPP ASM 09

**Holistically accounting for factors influencing progressive independence and competence**

**Submitter:** Dr Karl-Heinz Merbold

**Institution:** University of Pretoria

**Authors:**

\*Merbold KH<sup>1</sup>, Postma TC<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Maxillofacial and Oral Surgery, University of Pretoria, Pretoria, South Africa

<sup>2</sup> Dental Management Sciences, University of Pretoria, Pretoria, South Africa

**Abstract:**

**Background:**

Universities are obliged to optimise formative assessment systems to ensure development of competent independent practitioners. Dijksterhuis (2009) published a model highlighting factors that should be accounted for to realise progressive independence (PI) in post-graduate medical education. Unfortunately, this remains relatively unexplored in undergraduate formative assessment.

**Aims & Objectives:**

We therefore aimed to identify factors that impact on PI in an undergraduate context using the Dijksterhuis methodology.

**Materials and Methods:**

The study took place in an exodontia clinic in a dental school in a developing country utilising a workplace-based assessment system based on the theories of self-regulation and PI. PI of three consecutive fourth-year cohorts (2015-2017) (n=144) were measured by means of independence ratios (IRs) involving >14000 tooth extractions. IRs were calculated based on assistance received from clinical supervisors. Quarterly feedback to students included progress in IRs, "level of difficulty" achieved (LOD) and extraction counts (ECs) (previously reported). After two feedback episodes, students had to anonymously indicate in writing why some students had better IRs, LOD and ECs. Narratives were qualitatively analysed and thematically organised according to the Dijksterhuis model's overarching factors: "TRAINEE", "SUPERVISOR", "ACTIVITY" and "ENVIRONMENT".

**Results:**

Emerging themes included: "TRAINEE": inherent ability (51%), self-regulation (44%), audacity to perform the task (42%), unethical behaviour (28%), gender biases (10%) and knowledge about the activity (3%); "SUPERVISOR": inconsistency (30%), undue interference by the supervisor (28%), audacity to allow student independence (19%), favouritism (2%), gender bias (2%), lack of proper guidance (1%), and sub-optimal student-supervisor ratios (1%); "ACTIVITY": difficulty level (54%); and "ENVIRONMENT": unfair patient allocation (94%), time of day (7%) and time constraints (1%).

**Conclusions:**

Emerging themes provide a model according to which the development of PI in exodontia can be improved at undergraduate level by systematically addressing negatively impacting factors. These methods are essential to holistically optimise competence development and may be applicable to similar contexts in dentistry.

---

**Theme:** Assessment      **ID:** GPP ASM 10

**Self-reflection aimed at self-improvement in a busy workplace-based assessment environment**

**Submitter:** Dr Karl-Heinz Merbold

**Institution:** University of Pretoria

**Authors:**

\*Merbold KH<sup>1</sup>, Postma TC<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup>Maxillofacial and Oral Surgery, University of Pretoria, Pretoria, South Africa

<sup>2</sup>Dental Management Sciences, University of Pretoria, Pretoria, South Africa

**Abstract:**

**Background:**

Self-reflection is important to improve competence over time. Formalized reflection is not always feasible in busy workplace-based assessment (WBA) systems. In such environments it is hoped that formative feedback given to students will automatically elicit some form of self-reflection on self-improvement needs.

**Aims & Objectives:**

We therefore aimed to determine whether fourth-year dental students' thoughts on how they could improve their abilities to extract teeth, associated with feedback received, in a busy programmatic WBA system.

**Materials and Methods:**

The study took place in a dental school in a developing country. The WBA system aims to develop students' exodontia skills, based on theories of progressive independence and self-regulation. A total of 14075 conventional and surgical tooth extractions were assessed in this pilot project (2014-2017). Quarterly task-level feedback focused on students' progression in terms of extraction counts, independence ratios and level of difficulty achieved in relation to predetermined targets. Unfortunately, time constraints do not allow for structured self-evaluation, but it was assumed that verbal chair-side advice and target-achievement feedback may elicit improvement of self-reflection. After two rounds of formal feedback, consenting fourth-year students (2015-2017) (n=144) were asked to anonymously indicate how they could improve their exodontia skills. Narratives were inductively analysed and

thematically coded, accompanied by percentage distributions.

**Results:**

Emerging themes associated with fourth-year students' level of development and feedback were received. Students suggested that more purposeful practice (53%); gaining experience (30%); improving skills (25%) and techniques (13%); increasing difficulty level (19%), independence (12%), confidence (15%) and patience (1%); asking for more demonstrations (3%); expanding knowledge (9%); would be required to improve their exodontia skills. Many provided weak surface-level reflections only.

**Conclusions:**

To enhance reflection on self-improvement, establishment of some form of structured reflection as part of the preoperative discussion with the student and post-operative portfolio work should be considered to negate the lack of deep reflection in busy environments.

---

**Theme:** Assessment      **ID:** GPP ASM 11

**Development of a Taxonomy to Rate Dental Non-Technical Skills (DeNTS)**

**Submitter:** Dr Sarah Manton

**Institution:** The Royal College of Surgeons of Edinburgh

**Authors:**

\*Manton S<sup>1</sup>, Geraghty A<sup>2</sup>, Saunders W<sup>3</sup>, Bereznicki T<sup>4</sup>, McKernon S<sup>5</sup>, O'Brien T<sup>6</sup>, McColl E<sup>7</sup>, Winchester L<sup>8</sup>, Nattress B<sup>9</sup>, Felix D<sup>10</sup>, Ross A<sup>11</sup>, Youngson G<sup>12</sup>, Paterson-Brown S<sup>13</sup>

**Authors Affiliations:**

Faculty of Dental Trainers, The Royal College of Surgeons of Edinburgh, Edinburgh, United Kingdom

**Abstract:**

**Background:**

Non-technical skills (NTS) taxonomies provide a framework to evaluate skills such as decision-making, communication, leadership and team-working, as well as for delivering constructive feedback to improve performance. Deficiencies in NTS are common contributory factors to adverse events in healthcare. Taxonomies are context-specific and have been developed for other healthcare providers, including surgeons (NOTSS) and anaesthetists (ANTS). This is the first NTS

taxonomy to be developed for dentistry and it is called DeNTS.

#### **Aims & Objectives:**

The aim was to develop a method to rate the NTS of dentists. These are the cognitive, social and personal resource factors that complement technical skills. They support safe, efficient clinical working and enhance patient safety.

#### **Materials and Methods:**

A group of dentists and subject-matter experts was brought together. A modified Delphi method was used to codify, through an iterative process, a dental taxonomy consisting of categories and elements. Good and bad behaviours relating to NTS for dentists were then identified and appended to the taxonomy. A rating scale was drawn up to enable formative assessment of the NTS observed during the performance of a clinical procedure.

#### **Results:**

The DeNTS Taxonomy comprises four CATEGORIES, each with three Elements:

**SITUATION AWARENESS:** Gathering information; Understanding information; Anticipating the future situation.

**DECISION MAKING:** Considering options; Selecting & communicating decisions; Implementing & reviewing decisions.

**TEAMWORK & COMMUNICATION:** Exchanging information; Co-ordinating activities; Establishing a shared understanding.

**TASK MANAGEMENT:** Setting & maintaining standards; Coping with pressure; Supporting others.

Three examples of good and bad behaviours are appended to each Element. A five-point rating scale for NTS is described: 'good', 'acceptable', 'unsatisfactory', 'poor', and 'not observed'.

#### **Conclusions:**

DeNTS has been developed to aid the improvement of the NTS of dentists working in all clinical settings. It is relevant for both undergraduate and postgraduate training situations. A pilot of DeNTS is to commence in 2019.

---

**Theme:** Assessment      **ID:** GPP ASM 12

#### **Development and psychometric analysis of a tool to assess professionalism among clinical dental students**

**Submitter:** Prof Mohammad Reza Khami

**Institution:** School of Dentistry, Tehran University of Medical Sciences

#### **Authors:**

Baghizadeh M<sup>1</sup>, Ashofteh K<sup>2</sup>, Sadighpour L<sup>3</sup>, Dehghani S<sup>4</sup>

#### **Authors Affiliations:**

<sup>1&4</sup> General Dentist, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

<sup>2</sup> Department of Endodontics, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

<sup>3</sup> Department of Prosthodontics, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

#### **Abstract:**

##### **Background:**

Professionalism and ethics principles are essential to a strong trusted patient-doctor relationship, which is believed, could lead to more patient compliance and improved treatment outcomes.

##### **Aims & Objectives:**

The purpose of our study was to design and psychometric analysis of an assessment tool for the professional behavior of dental students.

##### **Materials and Methods:**

The study was done in School of Dentistry, Tehran University of Medical Sciences. After providing a pool of various criteria to assess professionalism in educational settings, an expert panel comprising developers and tutors of Medical Ethics course and members of dental curriculum revision committee prepared the primary version of the tool. The tool was set in a questionnaire frame to explore significance level and evaluation feasibility of each criterion. The questionnaire was completed by tutors of Medical Ethics course (N=6). After necessary revisions, in order to evaluate face and content validity, the checklist was given to eight experienced educators to determine the relevance, clarity and simplicity of the questions. At the second stage, the final checklist, prepared with 37 items, was given to educators from four different clinical departments in Dental School to evaluate twenty students. To assess the reliability of this checklist, at least two professors evaluated each student and the weighted-κ was calculated. Finally, minor revisions were done according to feedbacks from previous stages.

##### **Results:**

According to the obtained data, the total validity of the tool (S-CVI) was 100%. In all items, except just

for one item, the weighted-k was greater than or equal to 0.5 showed sufficient reliability of these items.

#### Conclusions:

The designed tool to evaluate the professionalism among dental students in different clinical departments seems to be both valid and reliable.

---

**Theme:** Assessment      **ID:** GPP ASM 13

#### French dental students' attitudes and behaviour regarding deep carious lesion management

**Submitter:** Dr Alexis-Michaël A-M Gevrey

**Institution:** UFR d'Odontologie, Nancy, France

#### Authors:

\*Gevrey AM<sup>1</sup>, Gasqui MA<sup>2</sup>, Laforest L<sup>3</sup>, Dupont-Butez L<sup>4</sup>, Beaurain M<sup>5</sup>, Ceinos R<sup>6</sup>, Chemla F<sup>7</sup>, Chevalier V<sup>8</sup>, Colon P<sup>9</sup>, Fioretti F<sup>10</sup>, Kérourédan O<sup>11</sup>, Le Clerc J<sup>12</sup>, Maret D<sup>13</sup>, Mocquot C<sup>14</sup>, Ozcan C<sup>15</sup>, Pelissier B<sup>16</sup>, Perez F<sup>17</sup>, Terrer É<sup>18</sup>, Turpin YL<sup>19</sup>, Arab-Chiran R<sup>20</sup>, Seux D<sup>21</sup>, Doméjean S<sup>22</sup>

#### Authors Affiliations:

<sup>1&17</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Nancy, France  
<sup>2,3& 22</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Lyon, France  
<sup>4&21</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Clermont-Ferrand, France  
<sup>5</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Lille, France  
<sup>6</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Nice, France  
<sup>7</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Paris Descartes, France  
<sup>8&20</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Brest, France  
<sup>9&14</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Paris Diderot, France  
<sup>10</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Strasbourg, France  
<sup>11</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Bordeaux, France  
<sup>12&19</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Rennes, France  
<sup>13</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Toulouse, France  
<sup>15</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Reims, France  
<sup>16</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Montpellier, France

<sup>18</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Marseille, France

<sup>19</sup> Operative Dentistry and Endodontics, UFR d'Odontologie, Rennes, France

#### Abstract:

##### Background:

A questionnaire survey was recently undertaken among French dental students (DS) to investigate their practices, knowledge and opinions in various domains of Minimal Intervention (MI) in cariology.

##### Aims & Objectives:

The present work focuses on data related behavior, attitudes and beliefs regarding deep carious lesion management.

##### Materials and Methods:

A questionnaire survey has been administrated (Spring 2018) to all the fifth-year students of the 16 French dental schools (n=1.370). Statistical tests (descriptive,  $\chi^2$ ) were performed.

##### Results:

The response rate was 84.5% (32.9-100%). Globally, a wide disparity of responses was observed among French DS. Hardness was the most commonly reported criterion for assessing the endpoint of carious tissue removal as respondents preferred to leave hard dentine (53.9%) compared with leathery dentin (40.1%). Reading scientific article was significantly associated to the choice of leathery dentin rather than hard dentin to complete excavation (46.1% vs. 37.1%,  $p<0.004$ ). Color (normal to yellow) was also a relevant point for 53.5% of respondents. When asked about attitudes towards leaving carious dentine under a restoration, 41.9% of the respondents agreed that carious tissues should always be removed completely, since residual caries is a risk for the vitality of the pulp. For a given clinical case, for which 79.7% of the respondents diagnosed a reversible pulpitis, therapeutic options varied markedly: 69.3% would perform a complete dentine excavation (in one or two steps), 25.1% a partial/selective dentine excavation and 5.7% a pulpal therapy.

##### Conclusions:

The present results show a gap between practices, knowledge and opinions of French DS toward deep carious lesion management and evidence-based dentistry. Despite continued efforts to develop evidence-based MI education in French dental schools, the present results show the need for an

harmonization of teaching according to the latest European recommendations.

---

**Theme:** Assessment      **ID:** GPP ASM 14

**Comparison of Two Criterion Referenced Methods in Standard Setting Objective Structured Practical Examination (OSPE)**

**Submitter:** Prof Dr Jaya Jayasinghe

**Institution:** University of Aberdeen Dental School

**Authors:**

Jayasinghe J, Gupta E

**Authors Affiliations:**

Institute of Dentistry, School of Medicine, Medical Sciences and Nutrition, University of Aberdeen

**Abstract:**

**Background:**

The OSPE assesses practical skills in early stage of the Dental Curriculum. Setting a defensible cut score through the process of standard setting is an essential component that supports exam validity. Angoff is the most popular method, but the values of item difficulties are not always very close to their actual values.

**Aims & Objectives:**

To identify an alternative standard setting technique Angoff was compared with Ebel method, which rates items according to standards of difficulty and importance.

**Materials and Methods:**

9 judges rated Anatomy and Oral Biology OSPE by Angoff and Ebel methods. The intra-class correlation coefficient (ICC) was used to measure inter-rater and intra-rater agreement for both standard setting techniques. Statistical analyses were performed using SPSS. Standard setting scores and actual student scores were compared using the paired sample t-test.

**Results:**

The inter-rater reliability was overall high for both standard setting methods with Ebel (0.80) giving higher agreement between the raters as compared to Angoff (0.70). Out of the 9 raters 1 had excellent (0.82), 3 had good (0.6-0.74), 1 had fair (0.51) and 4 had poor intra-rater reliability (0.14-0.31). No significant difference was found in the mean standard set scores obtained using Angoff

(Mean=53.0) and the mean actual student scores (Mean=55.5) ( $p=0.472$ ). The standard set scores obtained through Ebel (Mean=65.7) were significantly higher than the actual student scores (Mean 55.5) ( $p=0.014$ ).

**Conclusions:**

The Angoff appears to provide the values close to actual students' values. However, inconsistencies of intra-rater reliability cast doubts on judge's ability in estimating the minimally competent student for OSPE. Judges inadequate knowledge of the subject, difficulty in conceptualizing hypothetical target candidates and estimating proportion correct may have contributed to these discrepancies. Identifying right judges and giving appropriate training is essential to standard set OSPE. Further experiments with other techniques will be useful in identifying the best standard setting method for OSPE.

---

**Theme:** Assessment      **ID:** GPP ASM 15

**Case study of assessment practices in a UK (United Kingdom) dental school**

**Submitter:** Dr Abimbola Giwa

**Institution:** Queen Mary University of London/Barts and The London School of Medicine & Dentistry

**Authors:**

\*Giwa AA<sup>1</sup>, Patel NS<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup>Centre for Teaching & Innovation, Institute of Dentistry, Queen Mary University of London/Barts and The London School of Medicine & Dentistry, London, United Kingdom

<sup>2</sup>Institute of Health Sciences Education, Queen Mary University of London/Barts and The London School of Medicine & Dentistry, London, United Kingdom

**Abstract:**

**Background:**

The General Dental Council is the statutory body for regulating dental education and practice in the United Kingdom and have published guidance regarding standards for education as part of their oversight to ensure appropriate standards and quality in undergraduate dental training by providers. Assessment constitutes a significant aspect of their oversight and dental education

trainers are mandated to adhere to set standards and demonstrate sufficiency in this area. Arguably, undergraduate dental training is rigorous with often varied and complex assessment methodologies which may be justifiably so. Against a background of high expectations from dental training by statutory bodies and stakeholders, this study explores how assessment within our institution meets the professional regulatory standards within the UK.

#### **Aims & Objectives:**

The aim and objectives of this study was to explore the assessment protocol in a dental school within the United Kingdom by identifying and describing factors influencing current practice including making useful comparisons between this area of educational practice locally and statutory standards.

#### **Materials and Methods:**

The study design utilised qualitative research methodology through timed semi-structured interviews. Interview data were transcribed, coded and emerging themes identified. Data analysis was by thematic analysis to identify/isolate themes and or patterns relevant to the research question.

#### **Results:**

Eleven themes originated from the data analysis and a thematic matrix was used to depict these. Themes included professionalism, safe beginner, equal opportunities for learners, embedding reflection, multiple assessment methods and assessment literacy. Vivid data extracts from participants were used to corroborate individual themes.

#### **Conclusions:**

The study provides useful and valuable insight into current assessment practice locally and demonstrates its conformity to the professional regulatory requirements of the General Dental Council. It is hoped that the rich data in the study serves as a tool to share good and best practice whilst being a suitable scaffold for further research in this area.

---

**Theme:** Assessment      **ID:** GPP ASM 16

#### **Assessing Performance-Competence Examination in OSCE**

**Submitter:** Ms Elene Gigineishvili  
**Institution:** University of Georgia

#### **Authors:**

\*Gigineishvili EG<sup>1</sup>

#### **Authors Affiliations:**

<sup>1</sup> Dentistry Department, University Of Georgia, Tbilisi, Georgia

#### **Abstract:**

**Background:** The evaluation of student's practical skills in dental education is crucial. The University of Georgia implemented Global Rating Scale with checklists in assessment process, which gives an opportunity to cover wide range of results. OSCE, which is most relevant examination method of preclinical studying in Health sciences, also is implemented in place. Prior of this examination the responsibility was lying on objectivity of evaluator. National Center of Educational Quality Enhancement of Georgia mandates the OSCE examination methods for single cycle degree programs, to develop preclinical and clinical competencies of the field. Simulation based education for practical skills and theory supports the teaching through the clinical education. They can be used before and together with real patient.

**Aims & Objectives:** Aim of this study was to evaluate second year students in preclinical skills, related to pediatric dentistry.

#### **Materials and Methods:**

For evaluation we used 4-point global rating scale (GRS) and checklist with 7 practical skills in each station. The OSCE laboratory was equipped with video/audio equipment. 6 station were observed by 6 blinded faculties raters, independently scored each subject in live using the GRS checklist. In checklist, field was added for comments. Dentist evaluators were describing in comment fields, which practical skills were not done successfully and the reason of it.

**Results:** 67 students were evaluated in preclinical pediatric dentistry in OSCE. The evaluation system gave the possibility for combined assessment of student's theoretical or cognitive practice. On the basis of division, of manipulation on particular procedures, it is possible not only to finalize results but also to evaluate each procedure, which enables the correction of the specific action or knowledge that will improve the final result;

**Conclusions:** OSCE examination shows the evidence of development the practical skills in dental education, and promotes the modern examination methods regarding the dentistry program.

---



---

**Theme:** Assessment      **ID:** GPP ASM 17

**“It’s like being a real dentist”: students’ reflections on learning in outreach placements.**

**Submitter:** Prof Barry Gibson

**Institution:** School of Clinical Dentistry

**Authors:**

\*Gibson BJ<sup>1</sup>, Craig C<sup>2</sup>, Jowett A<sup>3</sup>, Deery C<sup>4</sup>, Marshman Z<sup>5</sup>, Zijlstra-Shaw S<sup>6</sup>

**Authors Affiliations:**

<sup>1,3,4,5&6</sup> School of Clinical Dentistry, University of Sheffield, Sheffield, United Kingdom

<sup>2</sup> Sheffield Hallam University, Sheffield, United Kingdom

**Abstract:**

**Background:**

The assessment of outreach at the University of Sheffield is being revised to reflect students learning in alignment with educational goals and outcomes.

**Aims & Objectives:**

To explore what students learn in outreach with a view to changing how they are assessed.

**Materials and Methods:**

Unstructured interviews with 10 students (at the time of submission) who had completed outreach placements in the 4th and 5th years of the Bachelor of Dental Surgery programme at the University of Sheffield were conducted. Students were asked to “Tell me about outreach?” They were allowed to take the interview in whatever direction they wished. Data were analysed by examining how students ‘constructed’ their learning from within their own perspectives.

**Results:**

Students compared their experiences of outreach to dental school by elaborating on the different institutional logics of each setting. Outreach was primarily constructed in terms of what it means to be a “real dentist”, this involves being able to understand “the flow of patients” through a practice, understanding how the practice is organised around the patient and being competent enough to enable this flow. This necessitated adjusting clinical skills to a range of settings, learning to streamline communication in order to establish good working relationships with patients and handling difficult challenges. These experiences

were contrasted with experiences of learning in dental school which were organised around a different institutional logic associated with patient safety, ‘high quality’ or ‘state of the art’ treatment, as well as locating a range of treatment experiences for students rather than patient centred dentistry. The result was a contrasting learning experience characterised by the slow flow of treatment, highly controlled circumstances, queues for equipment, queues for tutors and frequent interruptions during treatment.

**Conclusions:**

Future assessment should reflect what students learn through the development of reflective diaries exploring the communicative, organisational and skills based dimensions of outreach.

---

**Theme:** Assessment      **ID:** GPP ASM 18

**Translation of a validated Reflection Questionnaire of Kember et al (2010) in Italian to help evaluate the levels of reflection in Italian dental students**

**Submitter:** Dr Tarik Shembesh

**Institution:** University of Brescia

**Authors:**

Shembesh, T<sup>1</sup>, Dalessandri, D<sup>2</sup>, Tricio, J<sup>3</sup>, Scazzero, N<sup>4</sup>, Bindi, M<sup>5</sup>, Tonni, I<sup>6</sup>, Pagenlli C<sup>7</sup>

**Authors Affiliations:**

<sup>3</sup> Healthcare Teaching & Learning / Dental School, University of Los Andes, Santiago, Chile

<sup>1,2,4,5,6&7</sup> Dental School University of Brescia, Brescia, Italy

**Abstract:**

**Background:**

Previous studies on other sciences show that by students knowing their level of Action / Understanding / Reflection at different stages of their training can make a significant contribution to their learning process. The validated Reflection Questionnaire of Kember et al (2010) has been used in Dentistry and translated into Spanish. A tool that allows to establish whether this is also true for Italian dental students is needed.

**Aims & Objectives:**

This part of the research aims to present the evaluation of an Italian translation of a validated Reflection Questionnaire of Kember et al (2010). It

is a self-reported online questionnaire developed as a simple instrument to examine students' engagement in reflective thinking in professional academic programmes.

**Materials and Methods:**

The questionnaire was translated to Italian before its application and content validation following the "universal approach" model proposed by Eremenco et. al (2005). Translation was piloted on 5 undergraduate dental students & tested on 15. Qualitative methods of validation used cognitive debriefing interviews & Quantitative method was Internal consistency analysis.

**Results:**

Two translations were reconciled and reviewed by the team before finalisation, proofreading and formatting. Students reported clear and correct interpretations of the questionnaire. The overall questionnaire Cronbach's alpha score was 0.722. The Means & standard deviation of the sub scores was comparable to previous studies.

**Conclusions:**

The data provides preliminary evidence for internal consistency. Following a rigorous translation methodology such as proposed by Eremenco et. al (2005) gives confidence in that the produced translation is equivalent to the source version. This is important in this context if the questionnaire is to be used to compare the level of reflection between different cohorts of European students such that any differences detected would be the result of true differences between the groups being assessed and not the result of differences inherent in the measurement tool used to gather the data.

---

**Theme:** Assessment      **ID:** GPP ASM 19

**Does Clinical Reasoning Test of Team-Based Learning Enhance Dental Students' Performance in Esthetic Dentistry?**

**Submitter:** Prof Dr JUNGJOON IHM

**Institution:** Seoul National University School of Dentistry

**Abstract:**

**Aim:** The objective of the study was to examine how clinical reasoning questions in Esthetic Dentistry would enhance dental students' competency for critical reasoning and solving

problems by implementing Team-Based Learning (TBL) methodology.

**Methods:** A total of 97 third-year dental students who registered for Esthetic Dentistry course in a dental school in the Republic of Korea in 2018 were assigned to 16 teams consisting of five to six students each. A four-phase TBL setting (pre-study, readiness assurance test, appeal/feedback, and summative test) was designed to examine how question types such as clinical reasoning and factual knowledge would enhance the performance of both academically high and low achieving students. A 2X3 repeated measures ANOVA was calculated to examine the effects of each question type on individual and team performance.

**Results:** Overall, TBL proved to be an effective method for small group learning in Esthetic Dentistry. Team performance in the TBL was consistently better than individual performance. Majority of the students have actively engaged in TBL sessions and demonstrated critical thinking skills as well as knowledge acquisition. In particular, clinical reasoning questions may provide the most benefits to academically low-achieving students as well as high-achieving students in a four-phase TBL setting.

**Conclusion:** TBL facilitated a deeper understanding of Esthetic Dentistry through contributing to developing critical thinking and cooperative learning in preparation for patient care.

## Curriculum

**Theme:** Curriculum      **ID:** GPP CUR 01

### **Development of dental undergraduate teaching to enhance student behaviours in delivering prevention**

**Submitter:** Miss Ji-Yun Stephanie Yeung

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

#### **Authors:**

Yusuf H<sup>1</sup>, \*Yeung JS<sup>2</sup>, Shetty S<sup>3</sup>, Gupta L<sup>4</sup>, Hurst D<sup>5</sup>

#### **Authors Affiliations:**

Institute of Dentistry, Barts and The London School of Medicine and Dentistry, London, United Kingdom

#### **Abstract:**

##### **Background:**

The majority of research on outreach dental education has assessed students' knowledge and skills in diagnosis, treatment planning and provision of treatment. There is limited research in determining student behaviours in delivering preventive advice in outreach dental clinics.

##### **Aims & Objectives:**

To develop and audit a structured student teaching programme to enhance student behaviours in delivering preventive advice in outreach dental clinics at Queen Mary (University of London).

##### **Materials and Methods:**

A structured teaching programme was delivered to dental undergraduate students. Teaching focused on communication, principles of Motivational Interviewing, oral hygiene, diet, tobacco (Very Brief Advice), Alcohol Identification, and Brief Advice. An audit was led by dental students to determine if patients were being engaged in discussions regarding prevention before and after delivery of teaching. 50 patient records were assessed at baseline (June 2017), after six months and at one year (June 2018).

##### **Results:**

Teaching was successfully delivered. There were improvements in delivering preventive advice for all four domains. The proportion of patients who were asked about their diet increased from 40% at baseline to 54% at six months and 100% at one year. Delivering very brief advice on smoking increased from 60% at baseline to 91% at one year.

Similarly, the proportion of patients given brief advice on alcohol using the Audit-C tool increased from 0% at baseline to 59% at one year.

#### **Conclusions:**

The newly introduced teaching programme was successful in improving student behaviours in delivering prevention to their patients in outreach clinics as demonstrated by the two audits. However, there are still inconsistencies around delivering alcohol advice.

---

**Theme:** Curriculum      **ID:** GPP CUR 02

### **Systems Thinking for Everyday Practice (STEP): Tales of Transition**

**Submitter:** Mr Robert McKerlie

**Institution:** Glasgow Dental Hospital and School

#### **Authors:**

\*McKerlie RA, Binnie V, Ross AJ

#### **Authors Affiliations:**

Dental School, University of Glasgow, Glasgow, United Kingdom

#### **Abstract:**

##### **Background:**

Recent guidance[1] from the General Dental Council (GDC) strengthens the requirements in the areas of communication, professionalism and management/leadership. Human Factors[2] is the science of behaviour in work systems, and offers methods appropriate for teaching and assessment in these

##### **Aims & Objectives:**

This project aims to produce a Reusable Learning Object (RLO) to be utilised in a variety of settings e.g. facilitator-led lectures and small group tutorials as well as online availability for guided study.

##### **Materials and Methods:**

A small staff/student team co-produced a Systems Thinking for Everyday Practice (STEP) film based on Human Factors entitled Tales of Transition. Final year students (BDS5; n = 53) evaluated a 2-hour educational session using the STEP filmed scenario. A validated Human Factors skills instrument (HufShi)[3] modified for the dental setting was applied in a within-subject, pre and post design. The instrument measures confidence in effectively managing 12 aspects of non-technical care on a 10-point scale.

**Results:**

Confidence improved after the exercise from a mean summed score of 81 (SD 12.5) to 89.3 (SD 12.4);  $p < .0001$ . All 12 items were in the predicted direction (more confident after training with 9 items being significant (all  $P < .0001$ ). The three items where confidence did not improve significantly afterwards were those observed to have the highest scores both pre and post-exercise: Requesting help from colleagues; Involving colleagues in your decision-making process; Working effectively with a new team in clinical situations.

**Conclusions:**

With 10 out of the 12 aspects of non-technical care management seeing a significant improvement after the learning exercise, there is merit in expanding this project nationally. A three-center evaluation is planned for academic session 2019/20 involving Glasgow, Dundee and Aberdeen dental schools. Further work will involve the creation of an eLearning package based on the STEP film and exploring the issues raised by the main protagonists: vocational trainer; vocation trainee, practice nurse/manager; patient.

**Ref:** 1. Preparing for Practice: Outcomes for registration, General Dental Council, 2015, London. 2. Ross, A. (2016) Human factors and ergonomics for the dental profession. Dental Update, 43(7), pp. 688-695. 3. Development of the Human Factors Skills for Healthcare Instrument: a valid and reliable tool for assessing interprofessional learning across healthcare practice settings. Reedy GB, Lavelle M, Simpson T, et al. BMJ Stel 2017;3:135–141

---

**Theme:** Curriculum      **ID:** GPP CUR 03

**Addressing the physio-patho-clinical continuum in undergraduate dental education: Illustration with a French third-year anesthesiology course**

**Submitter:** Dr Nathan MOREAU

**Institution:** Université Paris Descartes

**Authors:**

\*Moreau N

**Authors Affiliations:**

Oral Medicine and Oral Surgery, Paris University Dental Faculty, Paris, France

**Abstract:****Background:**

One of the goals of dental education is to bridge the gap between basic science and clinical practice. Dental students eager to engage in real-life clinical curricula may fail to recognize the relevance of basic science to their future practice. This often leads to poor retention of basic science information by the time they reach their first clerkships.

A major issue on that matter is the frequent separation between preclinical basic sciences taught in the first years of dental education and clinical sciences taught during clerkships a few years later.

**Aims & Objectives:**

We believe that increased knowledge contextualization and integrated learning can facilitate better understanding and long-term retention of relevant preclinical and clinical knowledge.

**Materials and Methods:**

We reviewed the relevant medical literature and - using the example of a third-year anesthesiology course in our Faculty- illustrate the importance of addressing what can be construed as a “physio-patho-clinical continuum” during the preclinical and clinical years.

**Results:**

Convergent data from the literature (van Gessel et al. 2003, Wilkerson et al. 2009, Dennis 2010, Scheven 2011...) advocate the creation of transitional learning units to bridge the gap between preclinical (physiology, pathology) and clinical knowledge (semiology, diagnostic sciences, therapeutics). This is especially relevant for subjects such as dental anesthesiology requiring concomitant neurophysiological, anatomical, procedural and pharmacological knowledge for adequate mastery of this clinical skill.

**Conclusions:**

Articulating both basic and clinical sciences within a single learning unit can help maintain the physio-patho-clinical continuum with the hope of better knowledge contextualization and thus better long-term retention.

---

**Theme:** Curriculum      **ID:** GPP CUR 04

**Developing Dental Students' Strategies to Cope with Stress**

**Submitter:** Dr Ilona G Johnson

**Institution:** Cardiff University

**Authors:**

\*Johnson IG<sup>1</sup>, Woolford P<sup>2</sup>, Milward PJ<sup>3</sup>

**Authors Affiliations:**

<sup>1</sup> Applied Clinical And Public Health Research, Cardiff University School of Dentistry, Cardiff, United Kingdom

<sup>2</sup> Dental Student, Cardiff University School of Dentistry, Cardiff, United Kingdom

<sup>3</sup> Dental Education Scholarship and Innovation, Cardiff University School of Dentistry, Cardiff, United Kingdom

**Abstract:**

**Background:**

Stress is common amongst dental undergraduates and students' mechanisms for coping with stressful situations are important for their development and wellbeing.

**Aims & Objectives:**

To explore undergraduate dental students' approaches towards coping in stressful situations and how these strategies link to resilience with a view to developing educational content for students.

**Materials and Methods:**

A cross-sectional, questionnaire study was used. This included COPE inventory and resilience tools. This was distributed to students in years 3 to 5 of the dental course for anonymous completion. Data were entered electronically. Scores were calculated for the tool domains and analyses were undertaken using SPSS for descriptive and correlation analyses.

**Results:**

In total, 66 out of the 150 questionnaires distributed were completed. Students most commonly reported using emotion focussed (EF) and problem focussed (PF) strategies. The use of emotional social support e.g. seeking sympathy (EF), positive reinterpretation e.g. reframing the situation (EF) and instrumental social support e.g. seeking advice (PF) were most commonly used. The next most common strategy was venting of emotions and expressing feelings, a strategy deemed less useful for coping. Positive reinterpretation (EF) was strongly associated with better resilience. Acceptance (EF), humour and active coping (PF) were moderately correlated with better resilience and there was a weak correlation between the use of planning (PF) and resilience.

Venting of emotions and behavioural disengagement correlated with poor resilience.

**Conclusions:**

Students use a range of coping strategies for dealing with difficult and stressful situations. Some of these strategies are more effective than others. Those who use positive coping strategies (e.g. looking at something going wrong as an opportunity to learn) are often more resilient than those who use less constructive approaches. This study has found opportunities to help dental students to develop their coping skills and strategies during their dental training, which may better prepare them for their future careers.

**Theme:** Curriculum

**ID:** GPP CUR 05

**A review of the Special Care Dentistry Undergraduate Curriculum and Recommendations**

**Submitter:** Dr Shabnum Ali

**Institution:** University of Bristol

**Authors:**

\*Ali S

**Authors Affiliations:**

Special Care Dentistry, University of Bristol, Bristol, United Kingdom

**Abstract:**

**Background:**

The British Society of Disability and Oral Health UK Teacher's group have defined learning outcomes for an Undergraduate Curriculum in Special Care Dentistry (SCD) reproduced from the core curriculum defined by the International Association of Disability and Oral Health (IADH) and in keeping with the GDC learning outcomes.

**Aims & Objectives:**

Aim: To systematically review the current undergraduate SCD curriculum at Bristol Dental School mapped to each of the GDC/IADH learning outcomes, and make recommendations for improvement.

**Materials and Methods:**

The current 5 year undergraduate curriculum was looked at in detail to identify all ear marked Special Care Dentistry teaching, including any lectures, problem based learning tutorials, chair side teaching, and workshops, as well as current assessment methods. This was mapped to the six

learning outcomes to include knowledge, skills and behaviours within:

- Scope of Special Care Dentistry
- Access and barriers to oral health for people with disability and other marginalised groups
- Consent
- Communication skills
- Impact of impairments, systemic conditions & disabilities on oral health & oral function
- Clinical management of patients requiring special care dentistry

#### **Results:**

Recommendations were made for each of the learning outcomes to include:

- Work based assessment where students are assessed while taking valid consent from a patient on clinic - to hone skills of Montgomery consent before building onto best interest discussions.
- Workshop/Lecture on alternative communication methods eg gestures, picture boards, Makaton
- Students could keep a log book of complexity of patients using the British Dental Association case mix tool which quantifies the complexity of a patient on a four point scale: 'ability to communicate', 'ability to cooperate', 'medical status', 'oral risk factors', 'access to oral care' and 'legal and ethical barriers to care'.

#### **Conclusions:**

The above recommendations encourage a co-ordinated approach to teaching helical themes that span different disciplines, encouraging holistic patient care.

---

**Theme:** Curriculum      **ID:** GPP CUR 06

#### **Narrative dentistry : an educational tool for dental student.**

**Submitter:** Dr Mathieu Marty

**Institution:** Toulouse Dental School

#### **Authors:**

Marty M<sup>1</sup>, Gendron, B<sup>2</sup>, Vergnes, JN<sup>3</sup>

#### **Authors Affiliations:**

<sup>1</sup> Paediatric Dentistry, Toulouse Dental Faculty, Toulouse, France

<sup>2</sup> Educational Sciences, Université Paul Valéry Montpellier 3, France

<sup>3</sup> Epidemiology and Public Dental Health, McGill University, Montréal, Canada

#### **Abstract:**

##### **Background:**

Narrative medicine is commonly used as a pedagogical tool to enhance students' attention to the patient, empathy, and creativity. To date, there is no program using narrative approach in the dental education field.

##### **Aims & Objectives:**

The aim of this study was to evaluate the impact of the first 2 years Narrative Dentistry program among dental students.

##### **Materials and Methods:**

This was a monocentric observational study. A narrative dentistry program was proposed to a 4th year undergraduate promotion (N=84) for over 2 years. Narratives were included in all forms of direct instruction, such as lectures and practical or clinical training. Several narrative tools have been used: close reading, creative writing, parallels charts writing. 30 students followed all the interventions and completed the empathy questionnaires at T0 and T+2 years. The questionnaires used were Jefferson Scale of Physician Empathy (JSPE) and the Toronto Empathy Questionnaire (TEQ). Semi-directive interviews were conducted among 12 participants. A mixed data analysis was provided: The empathy scores were analysed with R software using the Wilcoxon rank-sum test. A qualitative, thematic analysis of the verbatim interviews was carried out using the NVivo® software.

##### **Results:**

A statistically significant difference in the JSPE score before and after the Narrative Dentistry program was found ( $p=0.035$ ). No statistically significant difference in the TEQ score was found ( $p=0.90$ ).

The qualitative analysis demonstrate that although narrative approach is not appreciated by all the students, it allows them to put themselves in a realistic emotional situation, increase awareness of the human side of dental care, and could have a positive impact on student's attention.

##### **Conclusions:**

This is the first study to focus on the impact of a narrative dentistry program among dental students. The quantitative results show the positive impact on self-evaluated empathy. Moreover, the qualitative results, demonstrate the potential of this approach within the dental education field.

---



**Theme:** Curriculum      **ID:** GPP CUR 07

**Dentistry-Patient Communication Skills Curriculum Development for Dental Students**

**Submitter:** Dr Shiva Shirazian

**Institution:** Tehran University of Medical Sciences

**Authors:**

Mirzazadeh A<sup>1</sup>, \*Shirazian S<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Department of Medicine, Department of Medical Education (second affiliated) School of Medicine, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

<sup>2</sup> Department of Oral Medicine School of Dentistry, Department of Medical Education (second affiliated) School of Medicine, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

**Abstract:**

**Background:**

One of the important competencies in dentistry is communication skills between dentist-patient. The teaching of this skill in different cultural environments needs to be done differently and in accordance with the cultural conditions of the country. The purpose of this study was to design a dentist-patient communication skills curriculum in the School of Dentistry, Tehran University of Medical Sciences.

**Aims & Objectives:**

The purpose of this study was to design a dentist-patient communication skills curriculum in the School of Dentistry, Tehran University of Medical Sciences.

**Materials and Methods:**

After a systematic search of original studies, necessary data gathered for development of a communication skills curriculum based on the Kern model. Extracted topics were finalized in the expert panel sessions. Target learners, target environment, general goals and specific goals and appropriate training strategies for each goal were determined. The student's performance was planned and assessed. Course evaluation was designed using questionnaires and semi-structured interviews.

**Results:**

The final topics include the importance of effective communication between the dentist-patient,

communication components/barriers, body language, active empathy/listening, dentist-patient communication models, Cambridge- Calgary guidance, communication in specific cases. The course presentation designed for all 5th semester dental students who were at the end of the pre-clinic period and before entering the clinic. The final goal of the course was education of qualified dentists who can have a good relationship with the patient, with an effective method for gaining the trust and satisfaction of the patients and ultimately achieving optimal therapeutic outcomes. Specific objectives were divided into knowledge, skills and attitudes. Appropriate learning strategies, including lectures, discussion in small groups, role play, feedback, film show and discussion by learners, and learning project.

**Conclusions:**

The curriculum was assessed in the expert panel, and it was confirmed that overall and specific goals were covered well. It was recommended the faculty development program before the course is held.

---

**Theme:** Curriculum      **ID:** GPP CUR 08

**Envisioning undergraduate leadership education for dentistry: a critical, exploratory approach**

**Submitter:** Miss Margaret Jane Wardman

**Institution:** University of Leeds

**Authors:**

\*Wardman MJ

**Authors Affiliations:**

Restorative Dentistry, School of Dentistry, University of Leeds, Leeds, United Kingdom

**Abstract:**

**Background:**

'Leadership' is increasingly being considered an essential component of contemporary professional programmes (medicine, law, business). Dentistry is no exception and there is growing interest as to how leadership may be integrated into undergraduate curriculum.

**Aims & Objectives:**

**Aim:** To produce leadership education approaches to prepare undergraduate students for leadership in professional dental practice

**Objectives:**

- To explore leadership in the specific context of everyday, routine dental practice
- To translate exploratory findings into practice informed approaches to leadership education

**Materials and Methods:**

An entirely interpretative and qualitative methodological approach was taken to this multi-stage inductive project.

Stage 1: semi-structured interviews with dentists, dental nurses, dental hygienists, receptionists, practice managers working in general dental practice.

Stage 2: a longitudinal ethnographically informed observational study. The researcher spent time in two general dental practices over a six-month period to gain a rich insight into the everyday leadership practices found in this context.

Stage 3: collaborative working groups involving dental practice staff and clinical academic educators to translate findings into the design of educational approaches.

**Results:**

Multiple examples of leadership could be found and these can be shared and distributed among all members of the dental team.

Case scenarios, based on ethnographic observations, were used to identify key areas of leadership: it's values, purposes, challenges, people and practices.

Examples of integrated, active and experiential educational approaches were designed.

**Conclusions:**

This study demonstrates a critical approach to envisioning leadership education by questioning assumptions found in the literature – about the nature of leadership, where it is found, who is involved and how students are prepared for it. An alternative is offered which considers leadership as it is found in everyday dental practice to more meaningfully prepare graduates for their practising lives.

---

**Theme:** Curriculum      **ID:** GPP CUR 09

**Evaluation of undergraduate dental students experiences with special needs patients**

**Submitter:** Dr Simona Schick

**Institution:** University of Heidelberg

**Authors:**

\*Schick SG<sup>1</sup>, Frese C<sup>2</sup>, Wohlrab T<sup>3</sup>, Schmidt P<sup>4</sup>, Schulte AG<sup>5</sup>

**Authors Affiliations:**

<sup>1,2&3</sup> Department of Conservative Dentistry, School of Dental Medicine, Ruprecht-Karls-University, Heidelberg, Germany

<sup>4&5</sup> Department for Special Care Dentistry, Faculty of Health, School of Dentistry, University of Witten/Herdecke, Witten/Herdecke, Germany

**Abstract:**

**Background:**

Availability of education and training in Special Care Dentistry varies largely at undergraduate level in Germany. Most dental students receive limited theoretical and clinical teaching and are hardly able to provide adequate oral health care for special need patients.

**Aims & Objectives:**

The aim of the present study was to explore dental students' experience concerning patients with Special Health Care Needs to be able to improve and enhance undergraduate education in the field of Special Care Dentistry.

**Materials and Methods:**

Fourth-year dental students of the Ruprecht-Karls-University Heidelberg volunteered in participating in a conducted questionnaire-based survey developed by University of Witten/Herdecke.

**Results:**

Out of the fourth-year dental students of the years 2017/2018 and 2018/2019 (n=115) in total 93 completed the questionnaire-based survey showing a response rate of 80.9%. The mean age was 25.1±3.6 years, and 51 of the respondents were female, 40 male while two gave no gender-specific information. 52.7% of the participants stated to have once been present at a dental treatment of a special needs patient. 62.4% already attended a lecture in the field of Special Care Dentistry. The vast majority of students (94.6%) would like to learn more about how to deal with special needs patients in daily practice. One third of the students (35.5%) reported some fear of contact with regard to people with disabilities, whereas 41.9% had a former classmate with disability. In terms of oral hygiene, 67.7% deemed to be able to advise a caregiver on proper oral hygiene for special needs patients, but only 36.6% were ever involved in brushing other individuals' teeth. Nevertheless, 74.2% of the students had experience in wheelchair transfer techniques adequate for dental treatments.

**Conclusions:**

Despite theoretical knowledge and attendance in a dental treatment, many students feel insecure in dealing with special needs patients. Almost all students expressed interest to extend education in this field of dentistry.

---

**Theme:** Curriculum      **ID:** GPP CUR 10

**Development, implementation, and assessment of “dentist-patient communication skills” course for general dentistry students, in Tehran University of Medical Sciences**

**Submitter:** Dr Shiva Shirazian

**Institution:** Tehran University of Medical Sciences

**Authors:**

\*Shirazian SHIVA<sup>1</sup>, Mirzazadeh AZIM<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Department of Oral Medicine Department of Medical Education (second affiliated) School of Medicine, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

<sup>2</sup> Department of Medicine Department of Medical Education (second affiliated) School of Medicine, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

**Abstract:****Background:**

Doctor-patient communication skill is an important educational subject and it is affected by environment and cultures.

**Aims & Objectives:**

In this project the course of dentist-patient communication skills for students of Tehran University of Medical Sciences, School of Dentistry was designed, implemented and evaluated.

**Materials and Methods:**

The type of study was mixed- method and was conducted in three stages:

- In curriculum designing based on Kern model.
- The designed curriculum was run for the students of the fifth semester with the help of faculties who participated in the faculty development course.
- Course evaluation was carried out by questionnaires and semi-structured interviews

of students and teachers and course organizers.

- Results were analyzed using descriptive statistics.

**Results:**

Final headings were consisting of the importance of effective communication between dentist-patient, communication's components/barriers, body language, empathy and active listening, communication skills, dentist-patient communication, Calgary-Cambridge model, communication in special issue for all dental students in fifth semester that were at the end of pre-clinical course and before of clinic. The ultimate goal and special objectives were determined. Lecture and small-group-teaching methods were used as instructional strategies. Faculty development was done in a 3-days workshop. Students' assessment was including student participation in working group sessions, written exam, an interview with standard simulation patients and portfolio.

Questionnaires for course evaluation were reliable ( $\alpha=0.89$ ) and valid (Lawshe CVI=0.94). Fifty-nine students were participated in 5-days course. Daily performance evaluation of students, written exam and interview with standard patients were done. Students and staff satisfaction from the course were 70.8% and 90% “great and good” respectively.

**Conclusions:**

According to participation of different faculty members with various experiences and use of different teaching/assessment methods this course could satisfied either students or faculty members.

---

**Theme:** Curriculum      **ID:** GPP CUR 11

**How common is community-based training in European dental schools?**

**Submitter:** Mrs Marianna Koufatzidou

**Institution:** National and Kapodistrian University of Athens

**Authors:**

\*Tranouli G<sup>1</sup>, Basdeki E<sup>2</sup>, Koufatzidou M<sup>3</sup>, Karveleas I<sup>4</sup>, Kossioni AE<sup>5</sup>

**Authors Affiliations:**

<sup>1,2,3&4</sup> Student, Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

<sup>5</sup> Associate Professor in Gerodontology, Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

**Abstract:**

**Background:**

Community-based training (CBT) provides educational experiences outside the dental school to supplement the traditional students' training and better prepare them for future practice. Remote locations include schools, prisons, nursing homes etc.

**Aims & Objectives:**

The aim of this survey was to record the prevalence and practice of CBT in European dental schools.

**Materials and Methods:**

Senior dental students, members of the EDSA, and faculty from the National and Kapodistrian University of Athens developed an electronic questionnaire that was sent to EDSA representatives in 17 European countries. The questionnaire investigated the prevalence of CBT and the training locations, the dental procedures they were practicing, and whether these programmes were obligatory or elective. When clarifications were needed, further 9 online interviews were conducted with students from Slovakia, Serbia, Finland, Croatia, Romania, Italy, Malta and UK.

**Results:**

Data from 66 schools in 12 countries were collected. Ten schools in six countries (15.2%) (one in France, two in Finland, three in Croatia, one in Malta, one in UK, two in Greece) offered CBT courses. All of them (15.2%) offered CBT in primary and secondary schools, eight (12.1%) in health care centers or hospitals, and eight (12.1%) in nursing homes. Common topic for all schools in CBT was oral health education, while in seven schools treatment planning was part of CBT and in six schools clinical procedures such as fillings and extractions were part of CBT. Four schools had compulsory CBT and five schools elective CBT.

**Conclusions:**

The present findings indicate that only 15.1% of the responding dental schools offered CBT courses. More training opportunities should be offered to European dental students in community settings to increase their patient care and cultural competences.

---

**Theme:** Curriculum

**ID:** GPP CUR 12

**Leading Dental School Curriculum Change: Perspectives from Theory and Practice**

**Submitter:** Ms Isabelle Cunningham

**Institution:** Bristol University

**Authors:**

Cunningham, I

**Authors Affiliations:**

School of Dentistry, Bristol Dental School, United Kingdom

**Abstract:**

**Background:**

To suitably equip students to be dentists of the future, dental schools may wish to review and change their curriculum. Major curriculum change is complex and depends upon effective leadership to navigate through the complexity and achieve a successful outcome (Fullan, 2001). Bristol Dental School has been undertaking curriculum change since 2016, with a new curriculum commencing September 2019.

**Aims & Objectives:**

This presentation aims to:

1. Provide an overview of Bristol Dental School's new curriculum.
2. Introduce 'complexity theory' and explain its relevance to large teaching institutions.
3. Describe different leadership models for leading curriculum change, including 'managerial', 'participative', 'distributed', 'transformational', and 'contingent'.
4. Highlight some strengths and shortcomings of the described leadership models, with particular relevance to curriculum change within dental schools.

**Materials and Methods:**

This presentation draws upon knowledge from the following sources:

- The author's personal experiences and observations during three years of curriculum change planning.
- A Bristol University Doctorate in Education teaching unit.
- Educational, leadership and change management literature.

**Results:**

Complexity theory recognises that large organisations are characterised by unpredictability, ambiguity, unknowable long-term outcomes, and spontaneous self-organisation (Morrison, 2010).

Complexity theory is particularly relevant when there is organisational instability during times of change (Fullan, 2001). Although contingent leadership has been recommended in conditions of complexity (Bush, 2011), the literature does not advocate a specific leadership model for teaching institutions. Wise leaders should be aware of a range of approaches, and the strengths and shortcomings. The need to establish local communication channels to enable self-organisational change should not be underestimated.

**Conclusions:**

By presenting leadership models which may be unfamiliar to delegates, and by introducing complexity theory to show that change in large organisations is inevitably complex, this presentation aims to be thought-provoking for all those involved in curriculum change in dental schools - not just those in recognised leadership positions.

---

**Theme:** Curriculum      **ID:** GPP CUR 13

**Withdrawn by author**

---

**Theme:** Curriculum      **ID:** GPP CUR 14

**Beauty Is In The Eye Of The Beholder: Student Perceptions Of Dental Career Pathways**

**Submitter:** Miss Sarah McKernon

**Institution:** University of Liverpool Department of Dental Sciences

**Authors:**

\*McKernon SL<sup>1</sup>, Patel A<sup>2</sup>, Sall K<sup>3</sup>, Heggie C<sup>4</sup>, Gartshore L<sup>5</sup>

**Authors Affiliations:**

<sup>1,4&5</sup> School of Dentistry, University of Liverpool, Liverpool, United Kingdom

<sup>2&3</sup> Undergraduate Student, University of Liverpool, Liverpool, United Kingdom

**Abstract:**

**Background:**

Dental students may have limited experience and knowledge of the options for their future career pathways. Little is known about the influences that

impact on dental students' eventual career choices, or their perceptions of the dental specialties and those who work within them.

**Aims & Objectives:**

**Aim:** To assess dental students' perceptions of the 13 dental specialties recognised in the UK.

**Objectives:** To compare the perceptions of first and fifth-year dental students and of dental specialists in training with respect to the dental specialties. To identify factors that may influence career pathway on graduation. To inform novel curricula design.

**Materials and Methods:**

Ethical approval was sought for an anonymous, self-administered, online survey. The target population was 100% of first and fifth-year (n=76) undergraduate dental students and dental specialists in training (n=15). Item generation was conducted following literature review. Concepts for exploration of the research question were defined. Item reduction was completed to restrict the questionnaire length and to minimise responder burden. Quantitative and qualitative data was gathered using mixed item formats. The survey was pre-tested, piloted, and administered to students prior to scheduled teaching sessions at which the entire target population was available. There was no pre-notification. Missing item data was excluded from analysis.

**Results:**

The response rate was 95%. Thematic analysis disclosed the existence of strong stereotypes of dental specialists. 25% of dental students wish to become specialists. 100% of specialists in training did not predict their career choice prior to graduation. Students wish to receive career pathway advice throughout the entire undergraduate programme. Opportunities for personal development, enjoyment, cost of training, and perceptions of specialties influence career pathway.

**Conclusions:**

Stereotypes may influence future career choice. Academic and specialist dental careers may be undersubscribed. Dental educators and specialists should collaborate to equip our students to deliver the comprehensive dental workforce of the future.

---

**Theme:** Curriculum      **ID:** GPP CUR 15

**Implementation of evidence-based medicine in dental hygienist's education - Necessities and chances of an interprofessional approach**

**Submitter:** Dr Julia Blank

**Institution:** PraxisHochschule/ European University of Applied Sciences

**Authors:**

\*Blank ECJ, Haas JMK, Gaßmann GG

**Authors Affiliations:**

Dental Hygiene And Preventative Management, PraxisHochschule/ EUFH, Cologne, Germany

**Abstract:**

**Background:**

The alignment of therapy decisions to the results of scientific examinations is an essential principle of modern medicine. Thus, in most European countries patient care based on the principles of evidence-based medicine (EBM) in Germany is required by law. The necessity of acting based on evidence applies not only to physicians, but also includes all those working on the patient.

**Aims & Objectives:**

The degree program Dental Hygiene & Prevention Management (praxisHochschule/EUFH, Germany) follows the standard that is most common throughout Europe and trains prospective dental hygienists at the Bachelor level. A central component of the study is the teaching of the basic principles of scientific work, which are initially far away from most students due to the mostly reproductive structure of learning in medical education. Gradually, they are thus familiarized with the methodology during the course of study.

**Materials and Methods:**

In each learning unit of the modular study, the examination of at least one original scientific publication takes place. The studies are read and then critically reflected in groups. In the fifth semester, students learn the systematic approach to literature research (i.e. using the database pubmed with the help of Boolean operators). Finally, the competence gained leads to the answer to a research question within the bachelor thesis.

**Results:**

The implementation of EBM from the beginning of the studies enables the students to systematically work on a scientific topic within their own discipline. The bachelor thesis is written independently and successfully in 89% of the cases.

In evaluations, the graduates state that they increasingly make their therapy decisions based on scientific studies, instead of relying on expert opinions.

**Conclusions:**

For a modern, patient-oriented dentistry, it is necessary to involve dental hygienists in EBM. The required methodological competence can be taught and within the scope of a Bachelor's program (HQR-Level 1) completed with a scientific thesis.

---

## Evaluation

**Theme:** Evaluation

**ID:** GPP EVL 01

### **A Service Evaluation Exploring the Level of Confidence of Dental Students and Clinicians when Interacting with Patients with Suspected or Reported Mental Health Conditions**

**Submitter:** Miss Emma Elliott

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

**Authors:**

\*Elliott E<sup>1</sup>, Omar A<sup>2</sup>, Sharma S<sup>3</sup>, Hurst D<sup>4</sup>

**Authors Affiliations:**

<sup>1,2&3</sup> Undergraduate, Barts and the London School of Medicine and Dentistry, LONDON, United Kingdom

<sup>4</sup> Clinical Lecturer, Barts and the London School of Medicine and Dentistry, LONDON, United Kingdom

**Abstract:**

**Background:**

Patients must have self-awareness of need to visit a doctor regarding a psychiatric condition but visit the dentist either infrequently with dental pain or routinely. Psychiatric conditions frequently have unique dental manifestations due to self-neglect practices, making dentists an under-utilised, first point of contact for psychiatric referrals. In order to utilise this pathway, practitioners must be confident in their manner when addressing patients with psychiatric conditions.

In cases where a psychiatric condition is potentially the cause of dental disease it is essential it is addressed as part of prevention and holistic, whole patient care.

**Aims & Objectives:**

The aim was to assess the confidence of dental students/clinicians within 'Barts and the London School of Dentistry', when interacting with patients with mental health conditions. The objective was to identify and implement changes to improve confidence with mental health.

**Materials and Methods:**

A scenario-based survey was distributed amongst students and clinicians, asking participants to rate how confident they would be proceeding in each mental health clinical scenario and focus groups were run for each of the three clinical year groups exploring participants thoughts and ideas about

mental health and how confidence could be improved.

**Results:**

Average confidence ratings from ranged a low of 4/10 when interacting with patients with eating disorders to a high of 6/10 when addressing patients with anxiety. Focus Group themes included 'prejudice', 'lack of education' and 'insufficient patient care', with unanimous agreement across year groups that they avoided difficult conversations about mental health because of limited guidance. Ideas for improvement included 'on-clinic' mental health screening aids, roleplay sessions with actors and lectures focusing on presentations of mental health.

**Conclusions:**

Confidence in this dental university when interacting with patients experiencing mental health conditions was found to be low, however participants were passionate about improvement. Focus group improvement concepts are to be implemented and subject to review.

---

**Theme:** Evaluation

**ID:** GPP EVL 02

### **Impact of various teaching pedagogy on postgraduate dental course planning**

**Submitter:** Dr Peter Fine

**Institution:** UCL Eastman dental Institute

**Authors:**

Chiotti S<sup>1</sup>, Leung, A<sup>2</sup>, Fine, PD<sup>3</sup>

**Authors Affiliations:**

<sup>1</sup> Continuing Professional Development, UCL Eastman Dental Institute, London, United Kingdom  
<sup>2&3</sup> Department of CPD, UCL Eastman Dental Institute, London, United Kingdom

**Abstract:**

**Background:**

Planning for effective postgraduate educational courses for general dental practitioners (GDPs) is a complex process, which involves a good understanding of GDPs preferred teaching methods.

**Aims & Objectives:**

This study aimed to assess GDPs' preferred teaching methods for postgraduate education, and the rationale that influenced their choices. It also

investigated specific course characteristics that GDPs perceived as adding value to a programme, which affected their choices of courses.

#### **Materials and Methods:**

This was a cross-sectional online quantitative study that enquired about GDPs preferences of different teaching methods. The questionnaire enquired about the following teaching methods: i) face-to-face, ii) blended learning and iii) online. In addition, this study correlated teaching methods preference to particular course characteristics. Finally the study explored the changes which the respondents wished to see in future postgraduate dental education.

#### **Results:**

147 completed questionnaires were received. 66% (n=97) of the respondents were female. The age range was 24-59 (mean=35.12), and 95.9% (n=141) had completed a postgraduate programme. 59.2% (n=87) of the respondents were GDPs; 21.8% (n=32) were specialists. Postgraduate teaching experience was reported as 80.1% (n=113), 15.6% (n=22) and 1.4% (n=2), for face-to-face, blended and online respectively. 23% (n=34) respondents reported current postgraduate course lacked hands-on elements. Important characteristics for future programme planning were reported as: i) access to lecture material, ii) case discussion of contemporaneous techniques, and iii) good communication with tutor.

#### **Conclusions:**

Face-to-face was the most preferred teaching method amongst the respondents. This enabled them to develop a more in-depth relationship with tutors and to work in small groups. Lecture based teaching was considered better to be delivered on-line, as there was no need for direct contact. Differences in preferences of course characteristics between teaching methods were observed. These preferences could be factored into planning future postgraduate dental education, which could lead to higher student satisfaction.

---

**Theme:** Evaluation

**ID:** GPP EVL 03

#### **Minimally Invasive Dentistry Teaching in UK & Ireland Undergraduate Schools**

**Submitter:** Dr Peter Fine

**Institution:** UCL Eastman dental Institute

#### **Authors:**

\*Malta V<sup>1</sup>, Gallagher J<sup>2</sup>, Fine PD<sup>3</sup>, Blizard R<sup>4</sup>, Leung A<sup>5</sup>

#### **Authors Affiliations:**

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

#### **Abstract:**

##### **Background:**

Minimally Invasive Dentistry (MID) is a contemporary philosophy for caries management, leading to early diagnosis and active prevention. The development of resin based composite (RBC) filling materials has encouraged a move away from attempts to 'cure' dental caries with operative treatment.

##### **Aims & Objectives:**

This study aimed to assess to what degree there was consistency in teaching MID to undergraduate dental students in the UK and Ireland.

##### **Materials and Methods:**

This was a mixed-methods study, combining a cross-sectional questionnaire with personal interviews. Questionnaires were sent to all undergraduate dental schools in the UK and Ireland. Domains included: i) demographic information, ii) teaching methods employed, iii) assessments, iv) barriers to teaching MID and v) respondents' views of MID. Supplementary interviews were arranged to elicit detailed information, thereby triangulating the total data set. Quantitative data was analysed using descriptive statistics. Qualitative data was analysed using a thematic approach.

##### **Results:**

All questionnaires were returned (100%; n=18). 72% (n=13) respondents were male, 67% (n=12) graduated in the 1980's and 1990's. 97% (n=17) of respondents reported that MID was part of the undergraduate curriculum; 39% (n=7) reported most MID teaching occurred in years 2 & 3, with more time spent on clinical than theoretical teaching. 94% (n=17) respondents reported, that written assessment was the most popular method. 33% (n=6) respondents commented that staff inadequacy contributed to barriers in teaching MID. 33% (n=6) respondents participated in interviews. Main themes identified from qualitative data were: teaching pedagogy, assessment, barriers to teaching MID and views of MID. Respondents perceived that graduating students were better prepared in theoretical knowledge than practice.

##### **Conclusions:**



This study reported the variable approaches adopted by undergraduate dental schools in the UK and Ireland in teaching MID, with any one approach not necessary being superior. It recommends a coordinated teaching strategy within the curricula to effectively endorse MID education in the undergraduate schools.

---

**Theme:** Evaluation

**ID:** GPP EVL 04

### **AUTOTRANSPLANTATION- "WHAT DO RECENTLY QUALIFIED DENTISTS KNOW?"**

**Submitter:** Miss Mubeen Hameed

**Institution:** Liverpool Dental Hospital

**Authors:**

\*Hameed M, Smorthit K, Dingle M, Taylor K, Flannigan N, Stevenson H

**Authors Affiliations:**

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

**Abstract:**

**Background:**

Dental Core Trainees (DCTs) in role at Liverpool University Dental Hospital (LUDH) graduate from different dental schools within the last 3 years. Each programme has varying levels of education and training as part of their undergraduate BDS syllabus. The current syllabus at LUDH currently has limited teaching on autotransplantation.

**Aims & Objectives:**

The aim is to evaluate the current knowledge and awareness of DCTs on the treatment modality of autotransplantation.

**Materials and Methods:**

A paper based questionnaire was designed and distributed to DCTs at LUDH. This questionnaire was also distributed at an Oral Surgery (BAOS) study day, where additional DCTs were in attendance from different parts of the UK. Data was collated and evaluated to assess knowledge and awareness.

**Results:**

A total of 28 questionnaires were completed. 96% (n= 27) of the trainees had an understanding of what autotransplantation was. University of Leeds graduates had greater knowledge than graduates from other UK dental schools as this is a regional centre for autotransplantation. 36% (n=10) of DCT's

were either unaware or gave incorrect percentages of success rates of autotransplantation, and 18% (n= 5) of trainees were either not aware of when to refer for treatment or incorrectly thought complete root formation with closed apex was the most appropriate time.

**Conclusions:**

The outcome of this questionnaire highlights that although there is adequate basic knowledge, certain key aspects of autotransplantation was lacking amongst some newly qualified dentists and varied depending upon which university the trainee graduated from. This necessitates a need to increase education and training in this subject, potentially at undergraduate level to ensure a national standard of knowledge for all newly qualified dentists. This creates an opportunity to deliver training as part of the undergraduate syllabus at Liverpool University Dental Hospital and disseminate this regionally to increase awareness amongst qualified dentists in the region.

---

**Theme:** Evaluation

**ID:** GPP EVL 05

### **Influence of a postgraduate dental programme on careers and education**

**Submitter:** Dr Peter Fine

**Institution:** UCL Eastman dental Institute

**Authors:**

Bernowicz K<sup>1</sup>, Louca C<sup>2</sup>, Fine PD<sup>3</sup>, Blizard R<sup>4</sup>, \*Leung A<sup>5</sup>

**Authors Affiliations:**

<sup>1,3,4&5</sup> Department of Continuing Professional Development, UCL Eastman Dental Institute, London, United Kingdom

<sup>2</sup> Portsmouth Dental Academy, Portsmouth Dental Institute, Portsmouth, United Kingdom

**Abstract:**

**Background:**

Assessing the impact of a postgraduate programme is important for quality assurance and to help prospective students decide whether to embark upon the postgraduate programme.

**Aims & Objectives:**

This study aimed to explore the influence of the Master's in Restorative Dental Practice (RDP) programme on the career and further educational interventions of participants. It aimed to establish

whether graduates or current students were: i) working in different roles, ii) on different career pathways, or iii) had decided upon career changes.

#### **Materials and Methods:**

This was a mixed method study, including current (n=79) and contactable graduate students (n=61) of the RDP programme. The questionnaire elicited quantitative data, including: i) demographic information, ii) participants' roles in practice iii) RDP influence of other/future learning, iv) impact of the programme on practice and v) perceived levels of confidence. Qualitative data were collected via comments on questionnaires and personal interviews. Quantitative data were analysed using SPSS (Version 24). Semi-structured interviews were transcribed verbatim and analysed thematically.

#### **Results:**

55 questionnaires were collected and 5 interviews were conducted. Mean age was 34.6 years (range 26-66). 49.1% (n=27) were female. 85.5% (n=47) and 76.4% (n=42) were associate dentists before and after the programme. 73% (n=40) respondents indicated the programme had influenced their future course choice. 43.6% (n=24) agreed that the programme had helped clinical practice. Confidence level in clinical skills increased from 2 to 4 on a 5 Point Likert Scale (1=not confident, 5=very confident). Thematic analysis of qualitative data revealed six themes.

#### **Conclusions:**

The RDP programme had a significant impact on attendees' clinical practice and their choice of future courses. Confidence influenced participants' careers as it impacted on work life, clinical work and interaction with peers and patients. Further educational interventions were helped by increased ability to make decisions on future courses, improvement of self-directed learning and identification of further leaning areas.

---

**Theme:** Evaluation

**ID:** GPP EVL 06

**A survey of staff and student attitudes on the use and teaching of dental hypnosis at Cardiff Dental School**

**Submitter:** Dr Grace Kelly

**Institution:** Cardiff University School of Dentistry

**Authors:**

\*Kelly GM, Worne A

#### **Authors Affiliations:**

Special Care and Sedation, Cardiff University School of Dentistry, Cardiff, United Kingdom

#### **Abstract:**

##### **Background:**

With convincing evidence supporting clinical hypnosis in medicine, for pain and anxiety management, dental hypnosis use and training is under-reported.

##### **Aims & Objectives:**

To investigate the attitudes of dental staff and undergraduate dental students towards dental hypnosis use and teaching, and explore the hypotheses: 1) with increased clinical experience and 2) increased training, the greater the use and value is placed on dental hypnosis.

##### **Materials and Methods:**

A cross-sectional study was carried out, with two arms of participants obtained by stratified sampling; second and fourth year dental students and clinical dental hospital staff. Two survey questionnaires were formulated to cover key core themes comparable for both groups, but differed to allow students perspective towards the quality and quantity of dental hypnosis training received, and confidence and potential barriers to the pedagogical delivery of dental hypnosis by staff; with 132 responses.

Qualitative and quantitative data were analysed, using Pearson's Chi Squared tests, Fisher's Exact tests; and thematic analysis.

##### **Results:**

The majority (74.4%, n=99) of respondents appreciated the use of dental hypnosis and would be interested in further training. There was a statistically significant association between participant opinion on the use of hypnosis and training received. There was no hypnosis teaching received by second year students, compared to 39.3% of fourth year students, predominantly in their sedation course by clinical practice. This mirrored staff responses, with 21.7% (n=5) reporting teaching through clinical practice. Despite low staff participation in teaching, 47.8% (n=11) thought it should be included within the undergraduate curriculum. Most staff (87.0% (n=20)) identified barriers to teaching including: lack of time, resources and knowledge. However, 60.9% staff (n=14) reporting training in dental hypnosis; 35.7% (n=5) at undergraduate level.

**Conclusions:**

This survey offers insight into dental staff and student opinions about dental hypnosis, suggesting its place within dental clinical practice and consideration for formal introduction into the undergraduate curriculum.

---

**Theme:** Evaluation

**ID:** GPP EVL 07

**Resilience – Teaching to develop an essential tool for dentistry?**

**Submitter:** Mrs Charlotte Emanuel

**Institution:** Cardiff University

**Authors:**

Emanuel C, Milward P, Jones RJ, Morgan M, and Johnson I

**Authors Affiliations:**

Cardiff university, Cardiff, United Kingdom

**Abstract:****Background:**

The dental undergraduate program can be highly stressful and demanding with many dental students experiencing effects on physical, mental-health and social life. Approaches to support students to develop resilience and skills to manage stress are increasingly being considered as part of university programmes and dental training.

**Aims & Objectives:**

Explore self-reported resilience and stress amongst dental undergraduates attending a newly implemented 'Mind-coach' workshop at a single University Dental Hospital, and evaluate the usefulness of this teaching.

**Materials and Methods:** Year 3, 4 and 5 (n=288) dental undergraduates were invited to attend a half-day 'Mind-coach' training session. Participants completed a pre-training questionnaire using a validated tool; the Resilience Scale (10 items) and a post-workshop evaluation (13 questions). Participation was voluntary with data being anonymised and analysed using SPSS.

**Results:**

49 (Male: 34.7%; Female: 65.3%) undergraduate dental students attended the workshop and completed the questionnaire. The majority (77%) of participants reported feeling stressed about studies over the last 12 months. 14.3% of participants had

previously engaged with stress management/resilience strategies. 30.6% of participants had used online mindfulness tools and 22.4% reported using techniques to increase resilience. Resilience scores ranged from 15-49 (mean 27.8) with lower scores correlating with high stress/anxiety and poor work-life balance. Two thirds of participants reported finding the workshop useful (67.5%); reports of usefulness correlated with feeling highly stressed.

**Conclusions:**

Many dental undergraduates experience stress but few seek and use mindfulness tools or techniques. The Mind-coach' workshop attracted attendance from a number of students with low resilience scores and significant levels of self-reported stress; the most stressed found it most useful. Mindfulness should be considered as part of the basic training of dental undergraduates to prepare them for their future careers.

---

**Theme:** Evaluation

**ID:** GPP EVL 08

**Withdrawn by author**

**Theme:** Evaluation

**ID:** GPP EVL 09

**Perception, Knowledge And Attitude Of Problem Based Learning Among Dental Students – A Questionnaire Study**

**Submitter:** Prof Dr Jaganathan Sabarinathan

**Institution:** Vinayaka Missions Research Foundation

**Authors:**

\*Sabarinathan J, Maya R

**Authors Affiliations:**

Vinayaka Missions Research Foundation (Deemed To Be University), Salem, India

**Abstract:****Background:**

Problem based learning is one of the innovative instructional methods implemented in dental education since its introduction. In India, PBL is a part of the learning process in very few colleges. It has been introduced in dental curriculum along with the traditional curriculum of our college. A questionnaire was prepared and a research was

carried out among students regarding their perception, knowledge and attitude on PBL

#### **Aims & Objectives:**

Aim was to evaluate newly introduced PBL curriculum using a questionnaire. Objectives were to identify the perception, knowledge and attitude of dental students on PBL using a questionnaire.

#### **Materials and Methods:**

Questionnaire on PBL was prepared. It consisted of 22 open ended questions converted to a 5 point Likert scale to assess responses to each of the 22 questions, ranging from strongly disagree (1) to strongly agree (5). A pilot study was carried out in 10% of the target population to check validity and feasibility. Finally the study was conducted in the targeted population of 185 first, second and third year students.

#### **Results:**

The responses for the questionnaire thus received from the students were compiled and tabulated in Microsoft Excel followed by statistical analysis. Our dental students showed positive reaction to problem based learning irrespective of gender or year of learning. 70 % of the students of our study gave completely satisfied remark and 30% gave satisfied remark for the overall rating of PBL.

#### **Conclusions:**

Problem based learning is proven to be a fun imparting long term retention of knowledge by active participation of students in a small group. It also promotes life-long self-directed learning. This research will address how the students have responded to the specific aspects of PBL such as working in groups, imparting content knowledge, improvement of group skills, improvement of communication skills and carrying out self-directed learning within the Indian context of dental health education.

---

**Theme:** Evaluation

**ID:** GPP EVL 10

**French dental students' attitudes and behavior regarding caries risk assessment and preventive strategies**

**Submitter:** Dr Justine Le Clerc

**Institution:** université de Rennes 1

**Authors:**

\*Le Clerc J<sup>1</sup>, Gasqui MA<sup>2</sup>, Laforest L<sup>3</sup>, Dupont-Butez L<sup>4</sup>, Beaurain M<sup>5</sup>, Ceinos R<sup>6</sup>, Chemla F<sup>7</sup>, Chevalier V<sup>8</sup>, Colon P<sup>9</sup>, Fioretti F<sup>10</sup>, Gevrey A<sup>11</sup>, Kérourédan O<sup>12</sup>, Maret D<sup>13</sup>, Mocquot C<sup>14</sup>, Ozcan C<sup>15</sup>, Pelissier B<sup>16</sup>, Perez F<sup>17</sup>, Terrer E<sup>18</sup>, Turpin YL<sup>19</sup>, Arbab-Chiran R<sup>20</sup>, Seux D<sup>21</sup>, Doméjean S<sup>22</sup>

#### **Authors Affiliations:**

<sup>1,19</sup> UFR Odontologie, RENNES, France

<sup>2,3,21</sup> UFR Odontologie, LYON, France

<sup>4,22</sup> UFR Odontologie, CLERMONT-FERRAND, France

<sup>5</sup> UFR Odontologie, LILLE, France

<sup>6</sup> UFR Odontologie, NICE, France

<sup>7</sup> UFR Odontologie, PARIS DESCARTES, France

<sup>8,20</sup> UFR Odontologie, BREST, France

<sup>9,14</sup> UFR Odontologie, PARIS DIDEROT, France

<sup>10</sup> UFR Odontologie, STRASBOURG, France

<sup>11</sup> UFR Odontologie, NANCY, France

<sup>12</sup> UFR Odontologie, BORDEAUX, France

<sup>13</sup> UFR Odontologie, TOULOUSE, France

<sup>15</sup> UFR Odontologie, REIMS, France

<sup>16</sup> UFR Odontologie, MONTPELLIER, France

<sup>17</sup> UFR Odontologie, NANTES, France

<sup>18</sup> UFR Odontologie, MARSEILLE, France

#### **Abstract:**

##### **Background:**

This study was conducted to obtain concrete information about the teaching of caries risk assessment (CRA) in all French dental schools.

##### **Aims & Objectives:**

A questionnaire survey was recently undertaken among French dental students (DS) to investigate their practices, knowledge and opinions in various domains of Minimal Intervention (MI) in cariology. The present work focuses on data related to CRA and preventive strategies.

##### **Materials and Methods:**

A questionnaire survey was administrated (Spring 2018) to the fifth-year students of all 16 French dental schools (n=1.370). Statistical tests (descriptive,  $\chi^2$ ) were performed.

##### **Results:**

The response rate was 84.5% (32.9-100%). Respondents overwhelmingly linked MI with minimally invasive dentistry (87.8%) or with a concept based on prevention (77.4%), while only 57.7% associated it with a concept based on the understanding of the risk factors. If 81.1% of the respondents stated they assess the caries risk of their patients, it seems that specific CRA forms are rarely used (only 7.6% of DS declared using CRA forms). The three most cited factors that are considered as important in CRA were: oral hygiene (87.4%), patient's motivation (45%) and the

presence of active carious lesion (37%). On the opposite, factors that were cited as irrelevant were: coverage by the health insurance (73.7%), dentist's subjective assessment (53.2%) and patient's age (31.6%). Men were more likely than women to denounce the problem of billing and reimbursement as barriers to CRA ( $p=0.037$ ). Only 55.1% would plan preventive strategies based on CRA. Dental sealants, topical application of fluoride varnish and prescription of fluoride toothpaste  $>1,500\text{ppm}$  were the preferred options (83.4%, 69% and 41.6%, respectively).

**Conclusions:**

Although French DS seemed to be aware of the importance of CRA and preventive treatments in cariology, the present results showed the need for harmonization of teaching according to the latest European recommendations.

---

**Theme:** Evaluation

**ID:** GPP EVL 11

**Clinical audit to evaluate the assessment and the management of tooth-wear by undergraduate dental students**

**Submitter:** Miss Parnyan Ashtari

**Institution:** King's College London Faculty of Dentistry, Oral and Craniofacial Sciences

**Authors:**

\*Ashtari P<sup>1</sup>, Koh J<sup>2</sup>, Davda L<sup>3</sup>

**Authors Affiliations:**

<sup>1&2</sup> King's College London Faculty of Dentistry, Oral and Craniofacial Sciences, London, United Kingdom  
<sup>3</sup>University of Portsmouth Dental Academy, Portsmouth, United Kingdom

**Abstract:**

**Background:**

Over the past 25 years, tooth-wear has become one of the forerunners of dental disease. The Adult Dental Health Survey 2009, highlighted that 77% of the UK adult population exhibit tooth-wear extending into dentine. Seldom causing symptoms such as pain, patients are less likely to raise concerns to dentists resulting in under prioritisation in its monitoring and management. It is of critical importance to prevent tooth-wear becoming the next dental litigative concern as with periodontal disease. With the evolution of the information available on internet, raising concerns of negligence against dental professionals can be accessed with a

touch of a button. The Basic Erosive Wear Examination (BEWE) score was developed to aid in the assessment and management of tooth-wear in general practice and has been incorporated in undergraduate clinical teachings to improve dental care regarding tooth-wear.

**Aims & Objectives:**

Investigate the use of the BEWE score by final year undergraduate dental students and their compliance with guidelines on providing advice and information to patients.

**Materials and Methods:**

Institutional approval was granted to conduct an audit in a primary care teaching in south of England. Retrospective data was collected from the clinical records of Oral Health Assessments conducted by the dental students from 1st October 2018 - 2nd November 2018. A descriptive data analysis was undertaken.

**Results:**

A total of 53 patient records were reviewed. Only 43% ( $n=23$ ) had a BEWE score recorded. Out of those, only 43% ( $n=10$ ) managed and provided prevention for tooth-wear for their patients in accordance with BEWE guidelines. Only 25% of the overall patients were notified of the outcome.

**Conclusions:**

The majority of students did not record tooth-wear nor carry out management according to BEWE guidelines. Increased training during clinical induction, use of templates in the electronic patient records and additional resources on clinic are recommended to improve practice and student learning.

---

**Theme:** Evaluation

**ID:** GPP EVL 12

**Academic Advising To Equip Our Students To Be Dentists Of The Future**

**Submitter:** Dr Laura Gartshore

**Institution:** University of Liverpool Department of Dental Sciences

**Authors:**

\*Gartshore L

**Authors Affiliations:**

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

**Abstract:**

**Background:**

Dental professionals are expected to demonstrate and document reflective practice, yet there is a lack of understanding about how dental students develop this ability to reflect. Successful completion of competitive, high-stakes dentistry programmes, coupled with requirements to accept and act upon continuous feedback, requires students to develop robust coping mechanisms. Academic Advisers (AA) can identify and guide the complex interaction between a student, their academic progress and their personal development in order to equip students for their future careers.

**Aims & Objectives:**

Review, reform and evaluation of the AA system in dentistry to inform novel curricula development.

**Materials and Methods:**

Critical appraisal of the pedagogic literature informed transformation of the existing system. Strengths, weaknesses, opportunities and threats were identified. Quantitative and qualitative data were gathered in mixed item format via a self-administered, anonymous survey of dental students to evaluate individualised experiences of academic advising in the existing and reformed systems.

**Results:**

Introduction of a structured meeting schedule, portfolio, online learning platform, engagement events, formalised monitoring of student performance, and staff training were welcomed to enhance purpose and consistency. Engagement increased from 25% to 100%. 99% students agreed the reformed system improved student experience. Students valued approachable, accessible, organised advisers who supported personalised target setting, and who understood that personal life impacted on learning and performance.

**Conclusions:**

Academic advisers create an individualised supportive learning environment and a first point of contact for students. The reformed system is distinctive and aligned with educational philosophy, preparing students for lifelong learning. Advisers help students to identify goals and personal development planning by scaffolding longitudinal feedback to formulate individualised portfolios. Inclusion of the reformed system in novel inter-professional curricula is underway. The progressive equipping of students with self-

efficacy, insight, leadership and self-management skills to balance the demands of their future careers, might fast-track the ability of graduates to enjoy a successful working life.

---

**Theme:** Evaluation

**ID:** GPP EVL 13

**Dental students' awareness and preparedness for delivering care to preschool children**

**Submitter:** Miss Emma Morgan

**Institution:** University of Liverpool Department of Dental Sciences

**Authors:**

\*Morgan E, Gartshore L

**Authors Affiliations:**

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

**Abstract:**

**Background:**

Approximately 80% of UK children, aged 1-2 years, do not visit the dentist. Dental Check by One (DCby1) is a British Society of Paediatric Dentistry campaign, which aims to increase dental attendance of young children. Dental graduates have a key role implementing its success. Undergraduates may have limited experience of examining preschool children and may feel underprepared for DCby1.

**Aims & Objectives:**

To establish final-year dental students' awareness of DCby1. To evaluate their self-efficacy in examining and providing preventive care for young children, and to identify perceived barriers to doing so.

**Materials and Methods:**

An anonymous, online survey was designed, pretested, piloted and administered to final-year dental students in 2018 and 2019. Quantitative and qualitative data were gathered via mixed item formats. The 2018 results informed curriculum development and introduced teaching aimed at preparing students for providing dental care for young children. Furthermore, an undergraduate ambassador for DCby1 was identified to engage the student body.

**Results:**

Response rates were 83%(n=63) in 2018 and 91%(n=62) in 2019. In both years, >97% responders were confident to provide preventive care for young children and to share advice with healthcare professionals. 36%(2018) and 60%(2019) responders were prepared to provide breastfeeding and weaning advice. Barriers to providing breastfeeding and weaning advice included lack of knowledge and experience. 90%(2018) and 97%(2019) were willing to examine a child aged up to 1 year. Barriers to examination of the young child included lack of experience and concern about causing distress. Only 6% of graduating students had previously examined a child aged under 1 year. <15% of responders in both years were aware of DCby1.

#### **Conclusions:**

Awareness and preparedness of the impending graduate workforce for DCby1 is suboptimal, however it is improving following curricula reform and engagement. Dental educators and social media may provide suitable platforms for the dissemination of information about oral health campaigns.

---

**Theme:** Evaluation      **ID:** GPP EVL 14

#### **Withdrawn by author**

---

**Theme:** Evaluation      **ID:** GPP EVL 15

#### **Effect of self-efficacy and empathy characteristics of post-graduate residents on local anaesthesia administration performances**

**Submitter:** Mr Selçuk Mert Özçelik

**Institution:** Marmara University, Faculty of Dentistry, Department of Paediatric Dentistry

#### **Authors:**

Kuscu OO<sup>1</sup>, \*Ozcelik SM<sup>2</sup>, Kucuktepe C<sup>3</sup>, Akyuz S<sup>4</sup>

#### **Authors Affiliations:**

<sup>1</sup> Paediatric Dentistry, Istanbul Kent University Faculty of Dentistry, Istanbul, Turkey

<sup>2&4</sup> Paediatric Dentistry, Marmara University Faculty of Dentistry, Istanbul, Turkey

<sup>3</sup> Institute of Educational Sciences, Istanbul University Hasan Ali Yücel Faculty of Education, Istanbul, Turkey

#### **Abstract:**

#### **Background:**

The “Profile and Competences for European Dentist” document addresses some competencies as a must for graduating dentists, some of which are stated as providing humane and compassionate care to all patients and administering local anaesthesia for pain management.

#### **Aims & Objectives:**

Within this perspective, present study aims to investigate the effect of self-efficacy and empathy characteristics of post-graduate residents(post-grads) on perceived pain and anxiety scores of children during local anaesthesia administrations.

#### **Materials and Methods:**

Ten paediatric dentistry post-grads (all female, mean age 25.3±0.78) and 91 children aged between 5-13 (51 boys, 40 girls with mean age 7,62±2,01 and 8,6±2,61) participated in the study. Informed consents were obtained from participants, and the study was approved by the Ethics Committee. Post-grads performed 120 injections as a part of their routine dental treatment in children. Demographic data, self-efficacy and empathy scale scores of post-grads, anxiety and pain scores of children were recorded to evaluate perceived anxiety and pain during injections.

#### **Results:**

Significant and negative correlation were observed between self-efficacy scores of post-grads and pain scores of children (r:-0,205 and p:0.025). Empathy scores of post-grads established significant and positive correlation with children’s anxiety scores (r:0.244 and p<0.007). Significant and positive correlation were observed between total empathy scores and the persistence dimension of self-efficacy scores (r:0,343 and p:0,006) which resulted in significant and negatively correlated pain scores of children during local anaesthesia administrations (r:0,181 and p:0,048).

#### **Conclusions:**

Pain reports of children after local anaesthesia administrations may act as a good end-point performance assessment tool for post-grads. In the present study, empathetic post-grads with self-efficacy provided pain-less injections, indicating an enhanced dental experience for child patients. Therefore, educational programs should also be organized aiming to develop self-efficacy and empathy characteristics of post-grads for a more humane and compassionate dental experience of child patients.

# Faculty Development

**Theme:** Faculty Development      **ID:** GPP FD 01

## Mind the Gap

**Submitter:** Dr Paul Milward

**Institution:** Cardiff University

### Authors:

\*Williams EO<sup>1</sup>, Milward PJ<sup>2</sup>, Johnson IG<sup>3</sup>

### Authors Affiliations:

<sup>1&2</sup> Dental Education, Scholarship and Innovation, Cardiff University School of Dentistry, Cardiff, United Kingdom

<sup>3</sup> Applied Clinical And Public Health Research, Cardiff University School of Dentistry, Cardiff, United Kingdom

### Abstract:

#### Background:

Dentistry is recognised one of the most highly demanding undergraduate programmes. Stress is commonly reported amongst dental students and mental health issues are reportedly increasing.

#### Aims & Objectives:

Identify and explore:

- Current and potential data sources available for the identification of dental students' wellbeing needs in relation to mental health.
- Available information sources for wellbeing needs for other health care professional students.

#### Materials and Methods:

Stakeholders for wellbeing services were identified through discussion with staff and students. They were contacted with regards to available data for students with mental health issues. Anonymised data from the Dental School systems and staff were examined and analysed. Data were also retrieved from Student Wellbeing Services for analysis. Tabulation and descriptive analyses were undertaken.

#### Results:

Dental meetings with pastoral/academic tutors were consistently recorded three times per year, however referrals and issues were only recorded as a signposting event with no further details or follow up indicated. Anonymised data from Student Wellbeing Services indicated the number of self-referrals by school. Overall across all health care professional undergraduate's self-referrals has

increased over the last three years from 18.5% to 21%, with Dentistry increasing from 8% to 10%.

#### Conclusions:

Work is needed to develop a robust system for monitoring student wellbeing needs. Current data collection systems do not facilitate the development of support for students with mental health issues. Systems need to be developed to monitor student well-being and the use of wellbeing services to ensure that appropriate support is available and that systems are responsive to student needs.

---



## Inter Professional Education (IPE)

**Theme:** Inter Professional Education **ID:** GPP IPE 01

**Knowledge, attitude, and practice of medical students about patients' oral health – A national survey**

**Submitter:** Mrs Marianna Koufatzidou

**Institution:** National and Kapodistrian University of Athens

**Authors:**

\*Koufatzidou M, Gratsia S, Karveleas I, Basdeki EI, Koumentou E, Tranoulis I, Kyriakouli A, Oikonomidi E, Korakaki A, Kotoula I, Rahiotis C

**Authors Affiliations:**

National and Kapodistrian University of Athens, Athens, Greece

**Abstract:**

**Background:**

Oral Health is an indispensable part of general health and it is doctors' responsibility to guarantee a holistic health care for their patients by properly guiding and referring them for their oral health management.

**Aims & Objectives:**

The aim of this study is to assess the knowledge and attitude of medical students', all over Greece, as to basic oral health principles and existing correlations between oral and general health.

**Materials and Methods:**

A questionnaire was conducted regarding fundamental dental subjects and especially the ones strongly intercorrelated with general health. Questionnaires were completed by 186/224 medical students (response rate 83%). The questions of the survey included topics like tooth trauma management, pediatric patients' oral health supervision, basic guidelines for orthodontic assessment and other clinical situations that affect or are affected by oral health condition. The answers of medical students were analyzed by the gender, the origin of the University and the year of the student. Descriptive statistics and non-parametric Kruskal-Wallis test were used to indicate the differences among the groups. The statistical analysis was performed with SPSS v20 (IBM statistics) and the significance level was at 0.05.

**Results:**

Only 43% (80/186) would advise their patients to visit a dentist from their 1st year of age. 10.2% (19/186) felt confident to manage a tooth trauma while, 36% (67/186) and 41.4% (77/186) knew the connection between bisphosphonates and osteonecrosis and between osteoporosis and periodontal disease respectively. In both connections, statistical significant results were found regarding age and year of studies. Low frequencies were found in questions regarding basic orthodontic knowledge like the prevalence of crossbite (29/186, 15.6%) or overbite (50/196, 26.9%).

**Conclusions:**

The variance of medical students' knowledge, regarding oral health, underline the importance of interprofessional education and the inclusion of dental lectures in medical curriculum.

---

**Theme:** Inter Professional Education **ID:** GPP IPE 02

**First steps towards interprofessional education model in health sciences**

**Submitter:** Dr María Arregui Gambús

**Institution:** Universitat Internacional de Catalunya

**Authors:**

\*Giner L<sup>1</sup>, Balaguer A<sup>2</sup>, Arregui M<sup>3</sup>, Bosch J<sup>4</sup>, Castillo J<sup>5</sup>, Elorduy M<sup>6</sup>, Gallart A<sup>7</sup>, Rodríguez E<sup>8</sup>, Virumbrales M<sup>9</sup>, Monforte-Royo C<sup>10</sup>

**Authors Affiliations:**

<sup>1,3</sup> Dentistry, Universitat Internacional de Catalunya, Sant Cugat del Vallès/Barcelona, Spain  
<sup>2,4,6&9</sup> Medicine, Universitat Internacional de Catalunya, Sant Cugat del Vallès/Barcelona, Spain  
<sup>5,7,8&10</sup> Nursing, Universitat Internacional de Catalunya, Sant Cugat del Vallès/Barcelona, Spain  
<sup>9</sup> Medicine, Universitat Internacional de Catalunya, Sant Cugat del Vallès/Barcelona, Spain

**Abstract:**

**Background:**

The World Health Organization (WHO) promotes the importance of interprofessional education (IPE) in the health care professionals (HCPs). The WHO state that health and health care are damaged by a lack of communication and collaboration among the HCPs. In this context, several international reports highlight the importance of IPE (both

undergraduate and post-graduate) as a key strategy for ensuring communication among HCPs, and for addressing the high prevalence of chronic illnesses in our century.

IPE is more than bringing students from different professions together; it is a highly complex teaching methodology that requires a deep understanding of the professional cultures, to build a robust conceptual framework model, define the values and principles that everybody will accomplish and formulate the outcomes and to decide which students are going to participate in the IPE.

**Aims & Objectives:**

To design the work plan to implement a teaching model of IPE in the Health Science Campus of the Universitat Internacional de Catalunya.

**Materials and Methods:**

The deans of Dentistry, Medicine and Nursing agreed to implement IPE in their degree programmes. Although there was already some experience with joint activities between medicine and nursing, it seemed important to constitute a working group with teachers of each degree interested in IPE and trained in teaching methodology to draw up the work plan. The proposal was to carry out an exhaustive literature review on IPE to define the framework, the possible outcomes and the themes to be worked on.

**Results:**

A working group of 10 teachers was established. After an exhaustive literature review we designed three doctoral theses to evaluate the outcomes of the implementation of IPE. The conceptual framework is being defined by the working group.

**Conclusions:**

The decision to implement the IPE from the deans to the faculty (top-down plan) and the creation of a working group with professors (from bottom to top)

---

**Theme:** Inter Professional Education **ID:** GPP IPE 03

**Inter Professional Professionalism**

**Submitter:** Dr Sally Hanks

**Institution:** Peninsula Dental School

**Authors:** Hanks S

**Authors Affiliations:**

Peninsula Dental School, University of Plymouth, United Kingdom

**Abstract:**

**Background:**

Professionalism as a domain of the GDC Preparing for Practice learning outcomes for undergraduate education contains areas common to both dentists and dental therapists & hygienists. Indeed it can be argued the need for professionalism comes with the status of being a patient facing clinician, regardless of the 'scope of practice'.

Professionalism however is "an extraordinarily complex phenomenon" that clinicians need to understand for, and in relation to, themselves and their individual practice.

**Aims & Objectives:**

The summative assessment of professionalism was developed as an integrated process for BDS (dentistry) and BSc DTH (therapy/hygiene) students. Assessments vertically integrate through the 5 and 3 years of their programmes respectively; the overarching strategy, assessment processes and assessment criteria are shared.

The aim of the assessment is to support the professional development of students across the two programmes in a personalised and meaningful way.

**Materials and Methods:**

Students complete three written elements of the assessment process each academic year: Critical Event Analysis, Multi Source Feedback, and Personal Development Plan. Assessors are calibrated against clear marking criteria and anonymously assess the efficacy of the reflective process and critical level of reflective writing. Content is discussed in the triannual Regular Portfolio Appraisal meeting with Academic Tutors. Students are provided with Unsatisfactory, Borderline, Satisfactory or Excellent grades, and the overall module grade calculated from the combination of these three results at the end of each academic year.

**Results:**

Students pass or fail the professionalism modules based on the results of these assessments. There is no significant difference in the performance or attainment between BDS or DTH students across all years of their programmes.

**Conclusions:**

An assessment for learning process of professionalism does not need to distinguish

between two clinical programmes. Such interprofessional education strategies support development of successful clinicians, whatever their scope of practice.

**Theme:** Inter Professional Education **ID:** GPP IPE 04

### **Exploring Opportunities for Pharmacy and Dental Inter-professional Learning**

**Submitter:** Dr Ilona G Johnson

**Institution:** Cardiff University

**Authors:**

Jukes A<sup>1</sup>, \*Johnson IG<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Dental Student, Cardiff University School of Dentistry, Cardiff, United Kingdom

<sup>2</sup> Applied Clinical And Public Health Research, Cardiff University School of Dentistry, Cardiff, United Kingdom

**Abstract:**

**Background:**

Inter-professional learning is considered to be a necessary step for preparing the healthcare workforce to deliver the best quality patient care. Dentists and pharmacists have shared responsibilities for patient care, with both routinely working with medical and medication histories and prescribing practices, most often working remotely from each other.

**Aims & Objectives:**

This study aimed to explore the inter-professional learning opportunities for Dental and Pharmacy undergraduates and how to deliver teaching for them.

**Materials and Methods:** A qualitative study using focus groups and one-to-one semi-structured interviews was undertaken with a purposive sample of undergraduate students (pharmacy and dental), dental academics, general dental practice staff and community and hospital pharmacy staff. Focus groups and interviews were audio recorded, then analysed inductively using thematic analysis.

**Results:**

The three themes derived from the data were: 1. mutually beneficial learning 2. topics in common and 3. shared patient care. Teaching topics needed to be of mutual relevance and benefit. Common topics included polypharmacy, medical histories, oral hygiene, smoking cessation, oral cancer, medical emergencies and prescribing processes.

The patient was seen as common ground between Dentistry and Pharmacy. Learning experiences to enhance student understanding of the respective settings (e.g. case studies and visits) were considered helpful if delivered at a point where students had enough background knowledge of their own discipline. Overlapping areas were considered to be a small but important part of each of the courses.

**Conclusions:**

Opportunities exist for authentic inter-professional teaching between Dental and Pharmacy however, overlapping areas only form a small part of each course. The greatest gains for inter-professional learning may be at a later stage of the course when students understand more and can contribute, observe and learn the most.

**Theme:** Inter Professional Education **ID:** GPP IPE 05

### **Interprofessional Education - Evidence from the Literature.**

**Submitter:** Mr Gerard Balague Viladrich

**Institution:** King's College London Dental Institute

**Authors:** Balague Viladrich G

**Authors Affiliations:**

King's College London Dental Institute, United Kingdom

**Abstract:**

**Background:**

The extent to which various medical practitioners perform well together can influence the excellence of the health care that they supply. If there are difficulties in how medical professionals collaborate and communicate with each other, then complications in patient care can arise .

**Aims & Objectives:**

To engage with the literature and investigate how students understand, experience, and interpret the process of Interprofessional Education (IPE).

**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 how IPE works and the theoretical framework behind it.

**Results:**

In health-care education, IPE gives favourable circumstances for students to learn how to perform interprofessionally, enabling them to expand the science behind it, the technique and the ability to work collaboratively in a medical scenario to enhance service delivery. However, a clear comprehension of IPE effects has not yet been achieved due to its inherent complexity. This complexity can be attributed to the different aspects involved, such as the backgrounds of the students, the composition of the group and the curriculum, the skills of facilitators, the organisational situation in which IPE is conveyed, as well as the “active ingredient” of the IPE per se that is effective and which is difficult to determine.

**Conclusions:**

IPE is more and more perceived as a medium to ensure that health-care students have the skills, ability, knowledge and strategies to engage in a collaborative workplace. However, further research is needed to have a better understanding of IPE, its effectiveness, how it affects interprofessional collaboration and in what circumstances it may be most useful.

---

**Theme:** Inter Professional Education **ID:** GPP IPE 06

**Interprofessional education in European dental schools – Results from a pilot survey.**

**Submitter:** Mrs Marianna Koufatzidou

**Institution:** National and Kapodistrian University of Athens

**Authors:**

\*Tranoulis G<sup>1</sup>, Karveleas I<sup>2</sup>, Koufatzidou M<sup>3</sup>, Basdeki EI<sup>4</sup>, Kossioni AE<sup>5</sup>

**Authors Affiliations:**

<sup>1-4</sup> Student, Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

<sup>5</sup> Associate Professor in Gerodontology, Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

**Abstract:****Background:**

Interprofessional education (IPE) occurs when at least two professions learn from, about and with each other in order to get prepared for collaborative practice and improve health outcomes.

**Aims & Objectives:**

The aim of this survey was to record the prevalence and practice of IPE in European dental schools.

**Materials and Methods:**

An electronic questionnaire was developed by National and Kapodistrian University of Athens dental students and faculty, and the link was sent to EDSA representatives in 17 European countries, followed by 9 online interviews where further clarifications were needed, with students from Slovakia, Serbia, Finland, Croatia, Romania, Italy, Malta and the UK. The questionnaire investigated the prevalence of IPE courses, their topics and the participating professions.

**Results:**

Data from 66 dental schools in 12 countries were collected. Based on the students' responses, nine schools in five countries (13.6%) (two in Finland, one in France, one in Greece, four in Serbia, one in Malta) offered IPE courses, (one IPE course per school). In eight out of nine schools with IPE courses, medical and dental students participated, while in one university, nursing and dental students were included in their IPE programme. In many cases the students didn't understand what IPE is about and further clarification was necessary, while in most cases they couldn't offer more details on the IPE programmes implemented in their schools.

**Conclusions:**

Considering the limitations of the current study few European dental schools include IPE courses. Action is needed to promote IPE implementation in healthcare professions.

---

**Theme:** Inter Professional Education **ID:** GPP IPE 07

**Inter-Professional Learning Influenced By Incentive**

**Submitter:** Assoc Prof MARGARITA INIESTA

**Institution:** Universidad Complutense de Madrid

**Authors:**

\*Iniesta M<sup>1</sup>, De la Hoz CJ<sup>2</sup>, Hidalgo JJ<sup>3</sup>, Alonso B<sup>4</sup>, Figuero E<sup>5</sup>, Herrera D<sup>6</sup>

**Authors Affiliations:**

<sup>1,4,5&6</sup> Especialidades Clínicas Odontológicas, University Complutense, Madrid, Spain

<sup>2</sup> Educación Inclusiva, University Autonoma, Madrid, Spain

**Abstract:**

**Background:**

A project was developed where service-learning and inter-professional education experiences were combined: The School of Dentistry and the School of Education. The role of the education group was to train dental students on how to interact with people with different levels of disability.

**Aims & Objectives:**

The general objective was to determine if the type of motivation in the education group influences the development of skills in dental students to manage people with disabilities.

The specific objectives were; (1) to compare learning achievements between students whose peers had intrinsic or extrinsic motivations; (2) to analyze the level of civic engagement in both groups.

**Materials and Methods:** 29 dental students, who were voluntarily enrolled, and 26 education students, who were encouraged with a bonus in their final marks, worked together in small inter-professional groups to develop teaching materials on oral hygiene and healthy dental habits, adapted to people with sensory and/or intellectual disabilities. Fisher's exact and Mann-Whitney tests were used for the statistical analyses.

**Results:**

In the education students group, 14 students attended the project for personal conviction, 11 students did it for the bonus, and 1 student did not answer this question. Dental students whose peers of education students had an intrinsic motivation (group A) shown more skills developed than dental students with peers of education students with an extrinsic one (group B) ( $p = 0.003$ ). There were no differences between both groups of dental students regarding the level of civic engagement after finishing the service-learning project ( $p > 0.05$ ).

**Conclusions:**

The type of incentive in education students influences the skills developed in their peers, after an inter-professional experience. It can also be concluded that a service-learning program may help students to develop civic engagement regardless the level of motivation of their partners.

**Theme:** Inter Professional Education **ID:** GPP IPE 08

**Inter-Professional Dental Education: A Collaborative Dental Care Curriculum**

**Submitter:** Miss Clare CL Mcilwaine

**Institution:** Peninsula Dental School

**Authors:**

\*Mcilwaine CL, Belfield L, Zahra D, Brookes Z, Bennett J, Zaric S, Collingwood J

**Authors Affiliations:**

Dental School, University of Plymouth, Plymouth, United Kingdom

**Abstract:**

**Background:**

With a shortage of healthcare workers and a lack of access to dental care, it is crucial to explore innovative strategies to bolster our healthcare workforce.

In response to this and regulatory changes regarding access to dental care professionals, Peninsula Dental School introduced an integrated dental curriculum whereby Dental Therapy and Hygiene students (DTH) share all teaching, learning, clinical activities, and assessments up to their Scope of Practice with Dental students (BDS). This approach was adopted to desegregate the dental team; remove political, social, and financial barriers to the training and utilisation of dental professionals, to improve access to oral health care and promote best practice collaborative care in a cost effective and sustainable manner.

**Aims & Objectives:**

The aim of this study was to evaluate the DTH student's experiences and perceptions of shared care and the integrated programme.

**Materials and Methods:**

DTH students from all cohorts participated in focus group sessions at the end of the academic year 2018. Students were asked a series of questions on their experience of shared teaching and their preparedness to work alongside their dental colleagues on graduation. Thematic analysis was used to identify emerging themes in the focus group transcripts.

**Results:**

Results from the focus groups showed DTH students enjoyed the integrated programme and felt valued, trusted and respected amongst their BDS colleagues. They also felt recognised for their

skill set and had a better understanding of each other's role. Students felt confident about working alongside BDS colleagues on qualification and comfortable sharing patient care.

**Conclusions:**

This study provides evidence that sharing all aspects, up to Scope of Practice, of DTH and BDS teaching, improves understanding of each other's roles, reducing hierarchy and enhancing shared care. This is also a cost effective and sustainable solution to educating the dental team as teaching and resources are shared.

---

**Theme:** Inter Professional Education **ID:** GPP IPE 09

**An Undergraduate Interprofessional Project between Dentistry and Childhood Nursing: Student perceptions and reported impact on collaborative working skills.**

**Submitter:** Miss Sumeet Sandhu

**Institution:** Peninsula Dental School

**Authors:**

\*Sandhu S<sup>1</sup>, Daldry M<sup>2</sup>, Stevenson M<sup>3</sup>, Zahra D<sup>4</sup>, Collingwood J<sup>5</sup>

**Authors Affiliations:**

<sup>1-3</sup> Undergraduate student, Peninsula dental school, Plymouth, United Kingdom

<sup>4&5</sup> Faculty of Medicine and Dentistry, Peninsula dental school, Plymouth, United Kingdom

**Abstract:**

**Background:**

In the UK in 2016/17 45,000 hospital admissions in 0-19 year olds were due to tooth decay (Public Health England, 2018), yet 90% of decay is preventable (Royal College of Surgeons, 2017). This figure supports the need for innovative and collaborative approaches by dentists, and allied healthcare professionals, to provide preventive advice regarding oral health. A Cochrane review on inter-professional collaboration suggests that it improves healthcare processes and outcomes (Zwarenstein, M. et al, 2009). Childhood nurses are well placed to deliver health promotion advice including relating to oral health.

**Aims & Objectives:**

The project aimed to provide Childhood Nursing Students with the knowledge to embed oral health promotion in to their clinical practice. Secondly

the intervention also aimed to increase the knowledge of the scope of practice and clinical roles between the dental student and childhood nursing student groups to encourage shared interprofessional care.

**Materials and Methods:**

The student groups met on two occasions to undertake discussions using a focus group format. Using the information gained about the role and scope of the childhood nursing students, the dental students created tailored educational interventions to increase oral health knowledge in relevant areas. Qualitative and quantitative data was collected using open-ended questions and the Interprofessional Collaborative Competency Attainment Survey (ICCAS).

**Results:**

Positive feedback was received from both student groups, with the childhood nurses requesting that the intervention becomes a part of their core curriculum in the future. Feedback from the dental students showed an improvement in confidence about the roles and responsibilities of childhood nurses and development in interprofessional working skills.

**Conclusions:**

This project provides an example of an effective student led intervention to support inter-professional collaboration at undergraduate level. Further discussion and research is required to develop the project further.

---

**Theme:** Inter Professional Education **ID:** GPP IPE 10

**Interprofessional therapeutics: Evaluation of workshop for dental and pharmacy students.**

**Submitter:** Dr Christine Hirsch

**Institution:** University of Birmingham

**Authors:**

\*Hirsch CA<sup>1</sup>, Cox A<sup>2</sup>, Attrill D<sup>3</sup>, Hill K<sup>4</sup>, White D<sup>5</sup>

**Authors Affiliations:**

<sup>1&2</sup> College of Medical and Dental Sciences, School of Pharmacy, University of Birmingham, Birmingham, United Kingdom

<sup>3-5</sup> College of Medical and Dental Sciences, School of Dentistry, University of Birmingham, Birmingham, United Kingdom

### **Abstract:**

#### **Background:**

Interprofessional education (IPE) defined as “when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health”, is required by both dentistry and pharmacy UK regulatory bodies to improve the quality and safety of patient care.

#### **Aims & Objectives:**

To develop and evaluate a bi-professional workshop for pharmacy and dental students.

**Materials and Methods:** An undergraduate workshop consisting of three case scenarios addressing aspects of pain, general therapeutics and drug interactions was developed by pharmacy and dentistry faculty addressing key learning outcomes related to patient safety and care likely to present to either profession.

Case discussion took place in a two-hour workshop in mixed groups of six Year 4 students, facilitated by dental and pharmacy faculty. Approaches to consultation, history taking, assessment, therapeutic intervention, and future inter-professional working were shared. Quantitative and qualitative evaluation took place via electronic questionnaire.

#### **Results:**

Overall response rate was 54% (dentistry n=72) and 52% (pharmacy n=62). Students from both disciplines felt able to contribute to group discussion, finding cases appropriate and relevant. Both professions mainly ‘agreed’ or ‘strongly agreed’ that they found listening and learning from colleagues useful. Responses from both cohorts indicated that they were able to compare each other’s therapeutic approaches to oral health conditions through discussing the case studies. Pharmacy students were very positive about the interdisciplinary method of learning, with 90% students indicating that this approach to learning was helpful, compared with 66% of dental students. Themes emerging from free text responses indicated that students from both cohorts welcomed the opportunity to work together through case discussion and feedback.

#### **Conclusions:**

Workshops were deemed successful overall from both staff and student perspectives. Logistics of running the sessions are sustainable and the workshop has become embedded in curricula and part of the College IPE curriculum.

**Theme:** Inter Professional Education **ID:** GPP IPE 11

#### **An Interdisciplinary approach to oral health policy and practice in Irish nursing homes.**

**Submitter:** Dr Eilis Delap

**Institution:** Trinity College Dublin School of Dental Science

#### **Authors:**

\*Merrick D<sup>1</sup>, De Lap E<sup>2</sup>

#### **Authors Affiliations:**

<sup>1</sup>Student, Dublin Dental University Hospital, Dublin, Ireland

<sup>2</sup>Public Dental Health, Dublin Dental University Hospital, Dublin, Ireland

### **Abstract:**

#### **Background:**

Through the use of a questionnaire, this cross-sectional and descriptive study investigated the presence of oral health policy and practice in Irish nursing homes. Ireland has a “Greying population” with older people who are living for longer, often with chronic conditions and falling rates of edentulism. These factors are posing a new challenges for nursing homes.

#### **Aims & Objectives:**

This study aimed to identify what aspects of oral health were incorporated into nursing home policy and practice, the demographics of the residents, who undertook resident’s oral health screening and to identify the training they were provided with.

#### **Materials and Methods:**

After Ethical approval a database of private nursing homes in the Republic of Ireland with a publicly available email was created. A questionnaire was distributed with a cover letter to 249 nursing homes. The cover letter outlined the purpose of the study, information regarding how the data would be anonymously acquired, stored, and erased upon completion of the project in coherence with General Data Protection Regulation [GDPR]. Completion of the survey implied consent. Survey Monkey compiled and analysed the data.

#### **Results:**

The response rate was 13%. Twenty two percent of homes do not have a current provider to undertake residents treatment in the event a need for dental treatment has been identified. Forty eight percent of nursing homes lacked a protocol when a resident was unable to consent. Sixty nine percent of homes

do not have a policy for marking dentures. Only 45% of homes update oral health care training annually.

**Conclusions:**

Trends were identified where improvements could be made to oral care policy and practice in Irish nursing homes with regards education, provision of care and interdisciplinary co-operation. These improvements could be made through development of guidelines at local and national levels.

---



## Other

**Theme:** Other

**ID:** GPP OTH 01

### **The relevance of Clinical Dental Guidelines in Collaborative Relationship between Dental Students, Clinicians and Universities**

**Submitter:** Dr Diana Ostanina

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

**Authors:**

Mitronin, AV<sup>1</sup>, Yanushevich, OO<sup>2</sup>, Volodina, EV<sup>3</sup>, Kuzmina, EM<sup>4</sup>, Ostanina, DA<sup>5</sup>

**Authors Affiliations:**

<sup>1,3&5</sup> Department of Cariology and Endodontics, Moscow State University of Medicine and Dentistry named after A.I. Evdokimov, Moscow, Russian Federation

<sup>2</sup> Department of Periodontology, Moscow State University of Medicine and Dentistry named after A.I. Evdokimov, Moscow, Russian Federation

<sup>4</sup> Department of Preventative Dentistry, Moscow State University of Medicine and Dentistry named after A.I. Evdokimov, Moscow, Russian Federation

**Abstract:**

**Background:**

Evidence-based clinical practice guidelines offer a mode of bridging the gap between policy, best practice, local circumstances and patient management, support effective clinical practice and bring potential benefits to practitioners and patients.

**Aims & Objectives:**

The aim of this research is to assess the extent of the degree to which dental schools are involved in teaching clinical protocols and the familiarity and attitude of dental students and practitioners regarding clinical dental guidelines (CDGs).

**Materials and Methods:**

A common questionnaire consisted of 16 questions was developed by the members of six European National Dental Associations. The questionnaire was filled by a total of 910 dental professionals, which includes 135 national practitioners. An additional questionnaire was made by national working group and introduced in National Dental Universities in order to examine graduating students' knowledge in CDGs and the way of its' acquiring. In total, 550 students were involved in this survey.

**Results:**

Most of the clinicians were familiar with national clinical dental guidelines (68%), stated that they implemented them into daily practice (61.7%), and generally acknowledged their benefits (81.8%), which increased with age and years of practice ( $p < 0.05$ ). However, some dentists believed that CDGs should be revised and updated in every two years (23.0 %). The most frequently received answer among students (72%) and clinicians (32%) relating the limitation of CDGs use was expressed as 'lack of awareness', while participants suggested a role for Dental Universities in spreading clinical guidelines.

**Conclusions:**

Despite a significant familiarity and a positive attitude, clinicians have some perceptions towards clinical dental guidelines, especially regarding the time interval and methodology to update the clinical protocols to be compliant with current practice. It should be noticed that there is a lack of Universities' involvement in clinical guidelines' popularization, so the stronger collaborative relationship between dental students, clinicians and Universities are seemed to be necessary.

---

**Theme:** Other

**ID:** GPP OTH 02

**Withdrawn by author**

---

**Theme:** Other

**ID:** GPP OTH 03

### **Cognitive biases influencing clinical decision-making in dentistry**

**Submitter:** Mr Dechsak Nakhapaksirat

**Institution:** Edinburgh Dental Institute

**Authors:**

\*Nakhapaksirat D<sup>1</sup>, Lent N<sup>2</sup>, Foley J<sup>3</sup>

**Authors Affiliations:**

<sup>1&3</sup> Edinburgh Dental Institute, University of Edinburgh, Edinburgh, United Kingdom

<sup>2</sup> Institute for Academic Development, University of Edinburgh, Edinburgh, United Kingdom

**Abstract:**

**Background:**

Cognitive biases are flawed processing of available information from a patient caused by faulty beliefs that can affect the accuracy of dental students and dentists' decision making. Inattention to detail, individual biases and dentists having a favourite diagnosis and treatment option can be prone to errors in making a clinical decision.

**Aims & Objectives:**

The aim of this study is to explore cognitive biases that can lead to diagnostic and treatment planning errors in dentistry.

**Materials and Methods:**

Purposive sampling was used to recruit 44 dental practitioners with a wide range of expertise. Observation and video-recording were used to observe and capture participants' actions, processing information and interactions with a real patient to explore possible cognitive biases during the processes of oral diagnosis and treatment planning. Subsequently, their performance was reflected upon by using video-elicitation interviews when reviewing the video-recording together. Thematic analysis was used to develop codes and themes related to the cognitive biases.

**Results:**

Nine cognitive biases were identified during the observation and interviews: anchoring bias, confirmation bias, age bias, availability bias, premature closure, representativeness bias, overconfidence, visceral bias and diagnostic momentum bias. These biases can result in incorrect diagnoses and improper treatment plans. Most cognitive biases were from heuristics as mental shortcuts, backward reasoning and pattern recognition of diseases that participants developed over time without re-evaluating their thoughts, feelings and actions. Practitioners made decisions by focusing attention on only salient points or evidence supporting their opinions.

**Conclusions:**

Cognitive biases and reasoning failures can occur in clinical settings that can be prone to errors through personal and systematic problems. Understanding various types of cognitive biases and how the biases might affect patient care are the first step in providing strategies for improving clinical decision-making of dental students and dentists which can enhance the quality of oral care and patient safety.

---

**Theme:** Other

**ID:** GPP OTH 04

**Exploring the Resilience of Dental Undergraduate students**

**Submitter:** Dr Paul Milward

**Institution:** Cardiff University

**Authors:**

\*Milward PJ<sup>1</sup>, Woolford P<sup>2</sup>, Johnson IG<sup>3</sup>

**Authors Affiliations:**

<sup>1</sup> Dental Education, Scholarship and Innovation, Cardiff University School of Dentistry, Cardiff, United Kingdom

<sup>2</sup> Dental Student, Cardiff University School of Dentistry, Cardiff, United Kingdom

<sup>3</sup> Applied Clinical And Public Health Research, Cardiff University School of Dentistry, Cardiff, United Kingdom

**Abstract:**

**Background:**

Dentistry can be a stressful course for many students and dentistry, as a healthcare profession can also be a particularly challenging career. Resilience, is described as a mechanism to protect individuals and help them recover from negative stressors. Therefore the development of resilience is important for dental undergraduates.

**Aims & Objectives:**

Explore resilience and its association with wellbeing amongst dental undergraduates.

**Materials and Methods:**

A cross-sectional study was used. All dental students in Years 3, 4 and 5 (n=230) in a single dental school were invited to participate. A paper based questionnaire with established questions and tools was used for data collection. Optical mark readers were used for data input. Descriptive analyses and correlations were undertaken using SPSS.

**Results:**

A total of 66 students responded. Two thirds (63%) of students reported being stressed about studies over the last 12 months. Health issues had an impact on studies for 24.2% (n=16) of students, a similar proportion were affected by sleep issues n=18 (27.3%). Students' resilience scores were normally distributed (Min 15, Max 40) with a mean of 30 (total possible 40). Four students had very poor resilience scores of 20 or less. There was a significant but moderate correlation(-0.339)  $p < 0.005$  between low resilience and sleep issues

and between low resilience and health issues (-0.312)  $p < 0.00$ .

**Conclusions:**

Resilience varies across the dental student population. The majority of students experience stress but those with poorer resilience scores appear to be more likely to report sleep and health issues. There are therefore opportunities for resilience training for all students. There are also opportunities for improving questions that staff may ask to assist with identifying students who may require additional support for improving resilience and associated wellbeing.

---

**Theme:** Other **ID:** GPP OTH 05

**Withdrawn by author**

---

**Theme:** Other **ID:** GPP OTH 06

**Motivated Strategies for Learning Questionnaire, first year dental students of University de La Frontera Spanish version.**

**Submitter:** Miss paulina hofer

**Institution:** Universidad de La Frontera (UFRO)

**Authors:**

\*Hofer P, Fuentes R, Puchi R

**Authors Affiliations:**

University de La Frontera, Temuco, Chile

**Abstract:**

**Background:**

In Chile, the main determinants of first-year university students dropping out are: vocational problems, financial status and academic performance. In that regard, University de La Frontera has implemented the University Insertion Program (UIP), to strengthen the insertion and retention of its students, implementing the Motivated Strategies for Learning Questionnaire (MSLQ) Spanish version in order to create a profile of its students regarding their motivational characteristics and learning strategies.

**Aims & Objectives:**

To assess results of the (MSLQ) Spanish version in different cohorts of first year dental students of University de La Frontera.

**Materials and Methods:** Four cohorts of first-year dental students were investigated, starting their undergraduate program from 2016 to 2019. The total sample size was 257 students.

Since 2016, UIP has implemented the MSLQ aiming to provide to Heads of programs a student's profile regarding their motivational characteristics and learning strategies in order to initiate relevant and timely support networks.

The MSLQ is a self-report Likert scale, made to evaluate the motivational orientations and level of use of different learning strategies in academic contexts. The MSLQ domains are: self-efficacy; intrinsic motivation; anxiety before evaluations; metacognitive strategies and self-regulation

**Results:**

The mean of self-efficacy was 83% and 96% for intrinsic motivation corresponding to high levels. 70% of student were considered to have medium level of anxiety before evaluation and 18% high level of anxiety. The metacognitive strategies mean was 92% corresponding to high levels on the scale, and 82% of high levels to self-regulation.

**Conclusions:**

The different cohorts of dental program students have shown to have high levels of self-efficacy, intrinsic motivation, metacognitive strategies and self-regulation. The students have shown medium levels of anxiety before evaluations which can be regulated through academic tutorials that UIP offers.

**Theme:** Other **ID:** GPP OTH 07

**Withdrawn by author**

---

**Theme:** Other **ID:** GPP OTH 08

**Explanation of the viewpoint of dental students towards the study guide of the oral medicine course**

**Submitter:** Dr Mahdi Vatanpour

**Institution:** faculty of dentistry, Islamic Azad university tehran

**Authors:**

Shirazian S<sup>1</sup>, \*Vatanpour M<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Department of oral medicine and department of medical education, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

<sup>2</sup> Department of Endodontics, Islamic azad university Tehran, Tehran, Iran, Islamic Rep. of

**Abstract:**

**Background:**

A study guide is a tool for establishing the student-centered learning process. It is an assortment for directing the student in the management of his learning by foreseeing educational obligations, aims, and contents. Considering the important role of study guides in students' learning process

**Aims & Objectives:**

The aim of the present study was to explain the point of view of dental students towards the study guide of the oral medicine course.

**Materials and Methods:**

This study was performed in two phases: 1- Development of a study guide for the clinical course of oral medicine, and 2- presentation of the study guide to 73 dental students and evaluation of their point of view towards its items. At the first step, a preliminary draft of a study guide prepared according to Harden's model. An expert panel consist of specialist in oral medicine and medical education reviewed the preliminary draft to determine necessity of items. In the following steps to matching of the final study guide with students' necessity, the study guide presented to the students at the first of semester and their point of view about each item recorded at the end of the semester and analyzed. It was determined satisfaction of them about the designed study guide.

**Results:**

48.6% of the participants were completely satisfied, 18.1% were moderately satisfied. 26.4% of the students had left the open questions unanswered. 71.2% of the students needed some examples for implementing theoretical lessons in the clinical setting. Few students felt the need to know about the role of the department's personnel.

**Conclusions:**

A high percentage of the students were satisfied moderately/completely. They believed the study guide has improved their learning process, and has even resulted in higher final scores. Knowing the

opinion of students is useful for revision and improvement of the study guides.

---

**Theme:** Other

**ID:** GPP OTH 09

**Which information resources do dental students use? An international study.**

**Submitter:** Dr Clarissa Dale

**Institution:** Manchester Dental Hospital

**Authors:**

\*Dale CD<sup>1</sup>, Patel NP<sup>2</sup>, Cro SC<sup>3</sup>

**Authors Affiliations:**

<sup>1&2</sup> Oral surgery, University Dental Hospital of Manchester, Manchester, United Kingdom

<sup>3</sup> Faculty of Medicine/ School of Public Health, Imperial College London, London, United Kingdom

**Abstract:**

**Background:**

There is an ever-growing body of information accessible to dental students and clinicians. With the availability of online, mobile and electronic information resources the way in which we access information has evolved.

It is essential that students, as practitioners of the future, are able to critically appraise online information resources and develop digital literacy skills.

There is limited information in the field of dental education regarding which information resources students are using to inform their studies.

**Aims & Objectives:**

- 1) Identify which information resources are being used by dental students to inform their studies.
- 2) Assess the factors influencing student choices.
- 3) International comparison of 4 dental schools: UK, Egypt, USA and China.
- 4) Inform, refine and improve undergraduate teaching on resource appraisal and access.

**Materials and Methods:**

Electronic 64-closed-questionnaire distributed to 4 international dental schools. Year 3 students from each institution were invited to take part. Questionnaire was based on Kapoun's Criteria to evaluate online material. Country comparisons were performed using Kruskal-Wallis testing.

**Results:**

- Response rate 34% (294 participants).
- Internet search-engines and mobile apps were the most frequent resource used worldwide.
- Google is used at least daily by 50% of respondents.
- Google was rated as the most useful learning resource.
- Facebook and social media applications had daily usage.
- The least common resource used was physical journals.
- 'Ease of use' and 'appropriate level' were the most common reasons for using a particular resource.

**Conclusions:**

The use of electronic resources is increasing worldwide, with students preferring their ease of use and format. In this changed learning environment, it is out duty as educators to equip students with the necessary tools to critically appraise electronic resources. Improving accessibility to quality resources and educating students on resource suitability seems paramount to ensure future clinical decisions are based on best evidence.

---

**Theme:** Other

**ID:** GPP OTH 10

**Withdrawn by author**

---

**Theme:** Other

**ID:** GPP OTH 11

**A mixed method study protocol: Assessing the risks of using digital and social media amongst dental professionals and dental students**

**Submitter:** Dr Jonathan San Diego

**Institution:** King's College London

**Authors:**

\*Sharka R<sup>1</sup>, San Diego J<sup>2</sup>, Banerjee A<sup>3</sup>, Nasseripour M<sup>4</sup>

**Authors Affiliations:**

<sup>1,2&4</sup> Centre for Dental Education, King's College London, London, United Kingdom

<sup>3</sup> Tissue Engineering & Biophotonics, King's College London, London, United Kingdom

**Abstract:****Background:**

With the rapid adoption of digital and social media (DSM), it is evident in the literature that DSM presents particular risks common to the general public and to dental professionals. However, literature in dentistry highlights certain risks that may only be attributed to dental professionals, such as functional and financial risks. There is a need for empirical studies to understand risks in using DSM as perceived by dental professionals, and students as members of the general public.

**Aims & Objectives:**

With the aim to study risks perceived by dental professionals (DPs) and dental students (DSs) in using DSM, two objectives are:

- To identify different risk facets associated with using DSM by DSs and DPs;
- To develop a survey instrument to qualify the level of perceived risks facets associated with social media usage.

**Materials and Methods:**

This is a mixed method study where data will be gathered through:

- Individual interview with 12 DSs and 6 DPs followed by focus-group interviews with three groups of 3 DSs and 3 groups of 3 DPs. A semi-structured interview questionnaire will be designed from the related literature about the risks associated in using DSM both from general literature (e.g. e-commerce, education, healthcare, etc.) and dentistry.
- Online survey to be conducted in two dental schools to measure the level of perceived risks in using DSM from the different facets identified from the interviews.

**Results:**

Interview data will be analysed using thematic analysis and survey data using factor analysis. We hypothesise that DSs and DPs have different perceptions of risks in using DSM. Ethical approval (LRS-18/19-8867) has been granted by (tbc) Research Ethics Panel.

**Conclusions:**

This mixed method using semi-structured interview and survey instrument designed from risk given in previous literature will provide convincing empirical evidence to assess and understand differences in perception of risks in using DSM amongst DSs and DPs.

**Theme:** Other

**ID:** GPP OTH 12

**Career perspectives of senior dental students from different backgrounds at a single Middle Eastern institution**

**Submitter:** Dr Mohammad Alrashdan

**Institution:** Jordan University of Science and Technology

**Authors:**

\*Alrashdan MS<sup>1</sup>, Alazzam M<sup>2</sup>, Philips C<sup>3</sup>

**Authors Affiliations:**

<sup>1&2</sup> Oral Medicine and Oral Surgery, Jordan University of Science and Technology, Irbid, Jordan  
<sup>3</sup> Department of Orthodontics, School of Dentistry, University of North Carolina Chapel Hill, NC, United States

**Abstract:**

**Background:**

Differences between dental students in terms of social, economic and cultural backgrounds are likely to impact their professional career plans.

**Aims & Objectives:**

The aim of this study was to explore the professional career plans among final year dental students from different backgrounds at a single Middle Eastern institution (Jordan university of Science and Technology-JUST).

**Materials and Methods:**

Fifth year dental students at JUST were invited to fill out a paper based self-administered questionnaire. Data was collected on students' demographics, their future career plans and the impact of social and economic changes on such plans, their interest in postgraduate studies and the specialty of choice in addition to the influence of a group of factors on that choice. Data was also collected on the value of non-academic workshops, guidance regarding career plans, participants' preferred pattern of work (full-time versus part-time) and retirement plans. Pearson's chi squared test, one way ANOVA and post hoc tests were used to measure statistical significance between measured variables and backgrounds of participants.

**Results:**

A total of 227 students completed the survey (response rate=84%). 47% of the participants were Jordanians, 27% were Malaysians, 11% were from Gulf States (Saudi Arabia, Bahrain, Kuwait and Qatar), 10% were from conflict zones in the Middle East (Syria, Iraq, Palestine and Yemen) and 5%

comprised students from other nationalities. Significant differences were found between students from different backgrounds in their funding sources (Chi square=132, P<0.01), practice plans (Chi square=43, P<0.01), the impact of social and economic changes on their career choices (Chi square=34, P<0.01), planned work pattern within the first 10 years post-graduation (chi square=18, P<0.05) and 10-20 years after graduation (69%, Chi square=22, P<0.01) and retirement plans (Chi square=25, P<0.05).

**Conclusions:**

Variations in socioeconomic backgrounds could explain many of the career plan disparities identified between senior dental students.

**Theme:** Other

**ID:** GPP OTH 13

**The Application of Motivational Interviewing in the Treatment of Orthodontic Patients: A Mixed Method Study**

**Submitter:** Dr Darius Sagheri

**Institution:** Trinity College Dublin, School of Dental Science

**Authors:**

Finnegan M, \*Duffy K, Foo Chieun W, Guinness J, Saqib A, Tohidi M, MacGiolla Phadraig C, FitzGerald K, Duane B, Sagheri D

**Authors Affiliations:**

Trinity College Dublin, Dublin, Ireland

**Abstract:**

**Background:**

Motivational Interviewing (MI) is a collaborative, goal-centred, style of interaction, which has proven successful in areas such as alcohol and tobacco abuse and more recently oral care education.

**Aims & Objectives:**

The aim of this study was to investigate the training of MI, the applications of MI in orthodontic patients, what influences the clinician's decision to use MI and what facilitators and barriers may exist to its implementation.

**Materials and Methods:**

A mixed methods study with explanatory sequential design was utilised. The population consisted of 8 orthodontic therapists (OTs), 7 of which participated in a focus group (FG). The initial

quantitative phase included analysis of 240 logbook reports of patient progress throughout the process of MI, completed by the OTs. From this, a focus group was scheduled in order to triangulate the quantitative data collected and to uncover aspects of MI related to its process and training. Thematic analysis was used to analyse the data transcribed from the FG.

**Results:**

The results of the thematic content analysis were coincident with the quantitative results regarding the barriers, limitations, and applications of MI. The FG also provided feedback regarding training and the emotional aspects of MI.

**Conclusions:**

MI is a communication style that has shown success in some areas of orthodontic treatment, but refinement of the skills is required for effective implementation. Two sessions of MI application to patients proves more successful than one. The success of MI depends on both the patient and the clinician. A more extensive training programme is necessary to improve MI efficacy, efficiency and patient selection. Despite the barriers to carrying out MI in practice, it has an important role in holistic orthodontic treatment provision.

---

**Theme:** Other

**ID:** GPP OTH 14

**Multi-country analysis of self-reported physical condition declared by dental students**

**Submitter:** Dr R Chałas

**Institution:** Medical University of Lublin

**Authors:**

Berlin B<sup>1</sup>, Puriene A<sup>2</sup>, Hysi D<sup>3</sup>, Katrova L<sup>4</sup>, Nikolovska J<sup>5</sup>, Oancea R<sup>6</sup>, Stangvaltaite-Mouhat L<sup>7</sup>, \*Chałas R<sup>8</sup>

**Authors Affiliations:**

<sup>1&2</sup> Institute of Odontology, Lithuania, Faculty of Medicine, Vilnius University,, Vilnius, Lithuania

<sup>3</sup> Faculty of Dental Medicine, Medical University, Albania, Albania

<sup>4</sup> Faculty of Dental Medicine of Sofia, Medical University, Sofia, Bulgaria

<sup>5</sup> Faculty of Dental Medicine, University Ss. Cyril and Methodius, N/A, Macedonia

<sup>6</sup> Faculty of Dentistry,, University of Medicine and Pharmacy, Romania, Romania

<sup>7</sup> Department of Clinical Dentistry,, Faculty of Health Sciences, UiT The Arctic University of Norway,, NA, Norway

<sup>8</sup> Department of Conservative Dentistry and Endodontics, Medical University of Lublin, Lublin, Poland

**Abstract:**

**Background:**

The purpose of the study was to evaluate the prevalence of self-reported physical health disorders among undergraduate dental students from seven European countries and investigate whether these disorders originated before or during their dental training.

**Aims & Objectives:**

An anonymous questionnaire survey was carried out among 3rd, 4th and 5th year dental students in universities of seven different countries: Albania, Bulgaria, Lithuania, Macedonia, Norway, Poland and Romania. These countries and universities were chosen as the ones being interested in the project.

**Materials and Methods:**

The ethical approval was obtained. Likert-type scale was used with answers ranging from 1 to 5. Statistical analysis was undertaken using SPSS version 15.0, SPSS Inc., software package. Differences in proportions were tested by Pearson's  $\chi^2$  test and the Student's t test.

**Results:**

The number of students participated in the study was 1511, 70.4% (N=1064) of them responded. Of all dental students, 2.0% reported their general health as bad or very bad. 22.4% reported their general health as satisfactory. Physical health disorders were prevalent: during the last 6 months 63% (n=296) dental students suffered from back pain, 17.2% (n=81) experienced this disorder on a chronic basis. Additionally, 54.1% (n=255) suffered from hand pain, 7.6% (n=36) experienced this disorder chronically; 60.9% (n=287) complained of neck pain, 14.0% (n= 68) experienced it on a chronic basis. Majority of physical health disorders were acquired during the studies ( $p < 0.000$ ).

**Conclusions:**

Results of this study indicated early emerging physical health problems among dental students. Therefore it is necessary to teach dental students ergonomic principles and motivate them to follow ergonomic requirements in daily practice.

---

**Theme:** Other

**ID:** GPP OTH 16

## **Lifestyle and Oral Health among the Students of the University of Georgia**

**Submitter:** Assoc Prof Maia Jikia

**Institution:** University of Georgia

### **Authors:**

\*Jikia MJ

### **Authors Affiliations:**

Head of Scientific Research Division Dentistry Department, School of Health Sciences The University of Georgia, Tbilisi, Georgia

### **Abstract:**

#### **Background:**

Engagement of students in research process is one of the most effective method to increase accessibility to high-quality education. It improves their research skills, ability of critical analyzes, makes possibility to be active and more socially integrated.

#### **Aims & Objectives:**

We take into consideration cultural differences among international students and pay attention on their social and physiological maturity formation process.

#### **Materials and Methods:**

Their habits used to be changed while they are getting professional education aboard. Changes in their lifestyle, including nutrition and oral hygiene habits can result some changes/worsening in their oral health.

#### **Results:**

Our main purpose is to provide our students with good practical skills and academic knowledge and at the same time to prepare competitive professionals for international labor market. Along with an educated student, we have to get the health population with good oral hygiene. first of all, the doctor and future doctors should be the examples of themselves and then let them call on others.

#### **Conclusions:**

The objective of our study is to evaluate oral cavity health, determine periodontal status and oral hygiene among students from different countries, compare cluster results with native students, also, revealing a difference between the dentistry and other faculty students. Materials and Methods Cross - sectional study, questionnaire regarding the oral-health, attitudes, habits and behaviors. Under

supervision, dental students evaluate each other's oral health, at the same time students from another faculty.

---

**Theme:** Other

**ID:** GPP OTH 15

## **An Increase In Dentists Per Population Leads To An Advanced and Healthy Society**

**Submitter:** Ms Kadeen K. Steen

**Institution:** None Provided

**Authors:** \*Steen KS

### **Authors Affiliations:**

None Provided

### **Abstract:**

#### **Background:**

Dental education is widely taught and still requires improvement for future advancement within dental school.

#### **Aims & Objectives:**

To increase awareness of dental education and dental services to the general population. To revolutionize dental services to underserved populations.

#### **Materials and Methods:**

Material to be used is a case study over the duration of a dental program.

#### **Results:**

For prospective research to be done, it is anticipated that forty (40) dental students will participate in this study.

#### **Conclusions:**

In concluding, the ratio of dentist to population is minimal and must be increased to provide innovative dental services and dental education for present and future populations.

---

**Theme:** Other

**ID:** GPP OTH 16

## **Use Of Human Amniotic Membrane In Surgical Treatment Of TMJ**

**Submitter:** Mr Zaid J A Abudaqqa



**Institution:** University of Georgia

**Authors:**

\*Abudaqqa Z, Aldurgham K

**Authors Affiliations:**

Dentistry, University of Georgia, Tbilisi, Georgia

**Abstract:**

Surgery to correct disorders of the temporomandibular joint (TMJ) has been performed and documented since the mid-nineteenth century. Facts shows that reversible non-surgical treatment can improve the situation of patients with internal pathological conditions of the joint, but still some patients require surgical intervention. We have several techniques to treat TMJ derangements of which is TMJ arthroplasty with the interposition of autograft (e.g. dermis, temporal fascia, or cartilage). Recently, with the inception of the 21st century, Human Amniotic Membrane is observed to be a promising material used in treatment of different surgical fields. The Human Amniotic Membrane (HAM) is the inner layer of the placenta which surrounds the baby during pregnancy. The HAM has been shown to have anti-fibrotic, anti-inflammatory, anti-angiogenic and anti-microbial properties. Also, it is considered encouraging because of its transplant structure and the ability to provide an excellent substrate for growth, migration, and adhesion of cells. This project was triggered by a study to demonstrate whether the HAM could prevent TMJ reankylosis in randomized rabbit models (2010). Case Report: A severe TMJ degeneration was diagnosed with a 48-years old woman and surgical treatment was necessary. Cryopreserved HAM patch was applicated within the joint space as a disc-replacing film. The patient reported an overall improvement in chewing as well as the absence of pain. The aim of this article is to be regarded as initial spadework and should motivate other institutions to intensify their clinical research in this field. As to prevent recurrence of TMJ disorders.

---

## Student Selection

**Theme:** Student selection

**ID:** GPP STS 01

### **A Qualitative Exploration of Selection Practices in UK Dental Schools**

**Submitter:** Dr Claudia Cunningham

**Institution:** University of Aberdeen Dental School

**Authors:**

\*Cunningham C

**Authors Affiliations:**

Dental Institute, Aberdeen University, Aberdeen, United Kingdom

**Abstract:**

**Background:**

There is a wealth of research into selection methods in medical and tertiary education. However, relatively speaking, there is a paucity of research into dental school admissions. This is a major issue given admissions is the gateway to the profession. Further understanding of the dental admissions process is required as the basis for guidance for those working in dental admissions.

**Aims & Objectives:**

Drawing on recent pleas for more focus on the translation of evidence into practice in health professions education, our aim was to explore what evidence Dental Admissions Deans draw on in their planning and decision-making.

**Materials and Methods:**

This is a qualitative interview study underpinned by social constructionism. Participants were UK dental admissions Deans representing graduate entry and undergraduate dental schools. Data collection was via a semi-structured interview, drawing on the wider admissions literature for questions. Participants also completed a short, sociodemographic questionnaire. Interviews were carried out by CC in 2018, recorded with permission and transcribed for analysis. Data analysis was thematic and data-driven.

**Results:**

Fifteen admissions leads took part in the study. Three main themes were identified; 'Push and Pull factors for selection tool use', 'Applicant Hurdles and Gateways' and 'The role of the Admission Lead'. Admission leads mainly described the job as an administrative task that lacked status and accountability. The main role of the job appeared to

be a game of numbers rather than selecting for excellence, with most current practices used due to faith or face validity.

**Conclusions:**

Admission leads have a crucial role in recruiting the future dental workforce. The study data indicates that "professionalising" dental admissions requires not only an increase in robust studies to gather appropriate evidence, but also clearer national and local level admissions policies, and more awareness of the criticality of this first stage of dental education.

## Teaching Methods

**Theme:** Teaching Methods      **ID:** GPP TM 01

**Mentoring Final Year Dental Students 'That extra bit of support at a crucial time, goes a long way'.**

**Submitter:** Dr Sinclair Butcher

**Institution:** Queen Mary University, London, United Kingdom

**Authors:**

\*Butcher SCR, Niggli J

**Authors Affiliations:**

Adult Restorative, Queen Mary University, London, United Kingdom

**Abstract:**

**Background:**

Final Year Dental Student feedback from 2017-18 showed that there was a gap between student experience and expectation. As a result of this, a new scheme was piloted involving regular mentoring sessions with students. This would open up better and more frequent lines of communication. It would provide support to discuss clinical cases and treatment plans, as well as an opportunity to reinforce and build on their knowledge and understanding of adult dentistry.

**Aims & Objectives:**

To assess the impact of the pilot mentoring programme on final year dental students learning experience at QMUL.

To improve channels of communication with students and to support them and reduce their anxiety.

To reinforce and improve student knowledge, clinical competence and confidence when examining, diagnosing and treatment planning.

**Materials and Methods:**

2 Clinical Lecturers were chosen as mentors, each supervising 4 groups throughout Terms 13 & 14. Mentoring sessions were timetabled before each groups morning clinical session and lasted 30 minutes.

The student's completed a questionnaire at the start of Term 13 and then re-evaluated themselves and the mentoring programme at the end of Term 14. Mentoring sessions included:

- Student problems, and queries.
- Discussion of patient's diagnoses and treatment planning.

- Small group teaching seminars for Adult Restorative Dentistry.

**Results:**

There was an 81% completion rate (44 students). The programme did not alter student motivation, 96% reported adequate support, 95% reported reduced anxiety & stress. Knowledge, competence & confidence improved in all sub-categories. 98% recommended the mentoring programme be continued next year.

**Conclusions:**

The mentorship provided extremely positive results, improving students learning and experience. It created a regular source of communication for every student with a consistent tutor, which in turn, improved student support. It achieved what it set out to do and reduced the gap between student expectation and experience. The students were overall better as a result.

---

**Theme:** Teaching Methods      **ID:** GPP TM 02

**A novel approach to undergraduate dental student early rotary skills development.**

**Submitter:** Dr Clement Seeballuck

**Institution:** University of Dundee

**Authors:**

\*Seeballuck C<sup>1</sup>, Milne R<sup>2</sup>, Richardson K<sup>3</sup>, Innes N<sup>4</sup>

**Authors Affiliations:**

<sup>1,2&4</sup> Paediatric Dentistry, University of Dundee Dental School, Dundee, United Kingdom

<sup>3</sup> Restorative Dentistry, Periodontology, University of Dundee Dental School, Dundee, United Kingdom

**Abstract:**

**Background:**

Dundee Dental School implemented a new curriculum in 2018. One of the core tenets of this is early hands-on simulated and clinical activity, presenting us an opportunity to create a bespoke course, facilitating development of rotary instrument handling skills.

**Aims & Objectives:**

To design and deliver a course for the initial development of skills applicable to rotary instruments, drawing on modern androgical concepts.

**Materials and Methods:**

The principles of the course were safety, incremental skills development, peer appraisal and personal reflection. Skills development, initially disconnected from the simulated oral environment, progressed to this. We created hand-piece analogues, introducing positioning, ergonomics and indirect vision prior to working with rotary instruments.

Rotary instrument exercises were created with increasing complexity. Root surfaces of previously cut teeth were used for early exercises.

Students then engaged in peer appraisal, giving and receiving feedback on the cavities prepared.

Students consolidated their learning with the aid of an online personal reflection.

A student feedback questionnaire was issued following completion of course.

**Results:**

Overall, 74% response rate (N=42) to the questionnaire. Generally;

- 100% found the course relevant and saw improvement in their skills.
- Practical found relevant by 97.6%, beneficial by 100%.
- Home reflection found relevant by 85.7%, beneficial by 54.8%.
- Peer appraisal found relevant by 71.5%, beneficial by 59.6%.

**Conclusions:**

Overall, the course was well received. Reusing teeth reduced environmental impact and kept costs minimal. By engaging the students in peer appraisal, and small group discussions we established a learning community. This approach taught students the value of reflection and appraisal as well as early practical skills. We can respond feedback to improve the course for future iterations. A limitation is having no previous course to compare with. However, there is potential to explore the efficacy of the course in future iterations.

---

**Theme:** Teaching Methods      **ID:** GPP TM 03

**Attitudes and reactions among dental students when faced with practice of anatomical dissection.**

**Submitter:** Assoc Prof Guillermo Rocafort

**Institution:** Universidad Internacional de Cataluña

**Authors:**

\*Rocafort Sánchez G<sup>1</sup>, Parellada Insa H<sup>2</sup>, Arregui Gambús M<sup>3</sup>, Navalón Codina F<sup>4</sup>, Giner Tarrida L<sup>5</sup>, Paez Jurado S<sup>6</sup>, García Sala I<sup>7</sup>

**Authors Affiliations:**

<sup>1,2,6&7</sup> Basic Science, International University of Catalonia. UIC-BARCELONA, Sant Cugat del Vallés-Barcelona, Spain

<sup>3,4&5</sup> Dentistry, International University of Catalonia. UIC-BARCELONA, Sant Cugat del Vallés-Barcelona, Spain

**Abstract:****Background:**

Dissection of human cadaver is a fundamental and traditional component of human anatomy education in dental schools. However, this practice can be stressful, in that they require seeing, touching and sensorial awareness of the cadaver. They can also bring up moral, religious and philosophical issues.

**Aims & Objectives:**

Explore the attitudes and reactions of first year dental students, before and after being working in the dissection laboratory, over a period of one year.

**Materials and Methods:**

A short questionnaire was distributed among the students, before and after their dissection practice. The "Before questionnaire" was performed just a few minutes of the beginning of the first day at the dissection laboratory. The "after questionnaire" was done 1 year after finishing their practical training. The questionnaires were the same, only changing the verbs tenses. A total of 160 questionnaires were answered (80 before and 80 after).

**Results:**

Significant changes were detected when facing the student perceptions one year after. All of them referred a better memory when they were in their first day in the dissection laboratory. As well, all the few cases about the ethical acceptance of cadaver dissection seemed to fade away. Finally, one year after, there were no cases doubting with the possibility of a replacement of cadaveric dissection with plastic models, computer assisted, etc.

**Conclusions:**

Dissection of cadavers has remained the gold standard for learning head and neck anatomy. Despite that, it is also possible that the experience could have a negative impact on some students. However, once the course was finished 100% declared they would go through it again. On the

other hand, it is important to prepare students with coping mechanism to help reduce their anxiety before they are introduced to cadaver dissection. Virtual Reality could become an useful tool for that purpose, as a way to approach the student to the anatomical preparation.

**Theme:** Teaching Methods      **ID:** GPP TM 04

**Withdrawn by submitted**

---

**Theme:** Teaching Methods      **ID:** GPP TM 05

**Promoting reflection in pre-clinical dental students using Design Based Research**

**Submitter:** Ms Daniela Pino

**Institution:** University of Bristol, Universidad de Concepción

**Authors:**

\*Pino Valenzuela DA<sup>1</sup>, Torres Hidalgo PM<sup>2</sup>, Perez Cabezas PA<sup>3</sup>

**Authors Affiliations:**

<sup>1</sup> University of Bristol, Universidad de Concepcion, Bristol, United Kingdom

<sup>2&3</sup> Universidad de Concepcion, Concepcion, Chile

**Abstract:**

**Background:**

There are many practical problems in dental education, however, educators might not find the appropriate way to tackle them. One possible solution could be to employ Design-Based Research (DBR) as an attempt to value all the practical knowledge that emanates from our practices with all the theory behind.

In this sense, an intervention was incorporated into third-year students. It promoted reflection using mobile technologies. Students were asked to shared images of their work at the clinical skills lab. They used OneNote application to share the images, comments and reflections of their work. Additionally, they completed a questionnaire to determine their level of engagement with reflection, and a rubric was used to determine the reflective level they achieved in a final task that was given to them.

**Aims & Objectives:**

1. Describe how DBR could be employed to design an intervention with third-year students and their tutors.

2. Consider reflection as a fundamental skill that students should acquire and develop during their training.
3. Promote reflection using mobile technologies.

**Materials and Methods:**

DBR was followed, using Mixed methods to achieve the aims of this study. It includes a questionnaire, observation, focus groups, interviews, rubrics.

**Results:**

An intervention was designed. Including elements that came from researchers practice and from the literature review. A preliminary phase (pilot study) was conducted with 12 students. After revised the framework, 57 students and their tutors (7) acceded to participate in the second part of the study.

**Conclusions:**

Preliminary conclusions showed the feasibility to use DBR to incorporate an intervention into dental education. Students showed high levels of engagement with reflection, however, our role as tutors is huge in promoting some activities that give them the opportunity to develop their potential, there is where technologies could help us a lot.

---

**Theme:** Teaching Methods      **ID:** GPP TM 06

**Typical errors with intraoral spectrophotometer - A study with preclinical students**

**Submitter:** Dr Constanze Olms

**Institution:** Universität Leipzig - Zentrum für Zahn

**Authors:**

\*Olms C<sup>1</sup>, Blum SL<sup>2</sup>, Horn M<sup>3</sup>

**Authors Affiliations:**

<sup>1&2</sup> Department of Dental Prosthodontics and Materials Science, University of Leipzig, Leipzig, Germany

<sup>3</sup> Institute for Medical Informatics, Statistics, and Epidemiology (IMISE), University of Leipzig, Leipzig, Germany

**Abstract:**

**Background:**

Currently there are no training methods or studies that examine the learning success rate for digital shade measuring devices.

**Aims & Objectives:**

The objective of this study was to compare the Vita Easyshade 5 (VE5) with the Vita Easyshade 4 (VE4), with respect to typical application errors (VITA Zahnfabrik, Bad Säckingen, Germany).

**Materials and Methods:**

Dental students (n=50) in their third year determined the tooth shade of an extracted human anterior tooth using VE 4 and VE 5. The students received personal instruction/a demonstration from an expert (dentist, male, 25 years old) regarding the function of the VE 4 and VE 5. After both measurements, the handling of the students was evaluated using a "feedback questionnaire" for the VE 4 and the VE 5, based on objective, standardized questions. Afterwards, the students assessed both digital devices based on a subjective "feedback questionnaire." A statistical evaluation was performed using the program SPSS® (p<0.05).

**Results:**

There was a highly significant difference (p=0.001) between both devices, with regard to the number of mistakes that were made. Students made fewer mistakes with the VE 5 than with the VE 4, with regard to the handling of the devices.

**Conclusions:**

Students prefer using the VE 5 for shade determination and make fewer application-related errors than when using the VE 4. Training on digital tooth color determination, in combination with structured feedback, should be included in dental education programs.

---

**Theme:** Teaching Methods      **ID:** GPP TM 07

**Core Clinical Scenarios used in interactive classes embedded into a curriculum for early clinical development of undergraduate dental students**

**Submitter:** Dr Roderick A. Milne

**Institution:** University of Dundee

**Authors:**

\*Milne RA, Seeballuck C, Bearn DR, Innes NP

**Authors Affiliations:**

Dundee Dental School, University of Dundee, Dundee, United Kingdom

**Abstract:**

**Background:**

The University of Dundee dental school introduced a revised curriculum [The 4D curriculum] for the 2018-2019 academic year. The previous curriculum was heavily loaded with the base science in the early years prior to the introduction of clinical activity. This created a disconnect between the relevance of the science to practical clinical activity.

**Aims & Objectives:**

One of the aims of this new curriculum was to develop early clinical activity and link the base sciences to the clinical situation. Thereby, emphasising the relevance of the base science and other skills that are necessary for a well-rounded clinician.

**Materials and Methods:**

Clinicians/academics were assigned to write each scenario. For module 1 six clinical scenarios were written. The teaching was broken down into two-week blocks each with three interactive classes [iclasses] to facilitate the learning. Each scenario was introduced to the student cohort on the first iclass. The students initially worked in groups of ten to formulate and explore relevant questions related to the scenario, with a view to presenting the results to the cohort on the last Friday of the two-week block. An intermediate iclass was held on the first Friday to facilitate the teaching and ensure that the students were keeping on track. The students were encouraged to keep a reflective log of the activities.

**Results:**

The students and staff completed a post evaluation survey to find out their views on this form of teaching. Focus groups gave feedback during the semester and adjustments were made to the style of teaching [i.e. change of group size and group members]

**Conclusions:**

The students gave feedback during the first module which generally showed an appreciation and engagement with this type of teaching. As this is the first iteration of this type of teaching, further reviews will be done in the future to continue to develop the curriculum.

---

**Theme:** Teaching Methods      **ID:** GPP TM 08

**The Use of 3D Printed Models in Dental Education: A Scoping Review**

**Submitter:** Mr Hathal Albagami

**Institution:** University of Sheffield

**Authors:**

\*Albagami H<sup>1</sup>, Ortega-Asencio I<sup>2</sup>, Zijlstra-Shaw S<sup>3</sup>, Field J<sup>4</sup>, Stokes CW<sup>5</sup>

**Authors Affiliations:**

<sup>1,2&5</sup> Unit of Dental Materials and Manufacturing Technologies, School of Clinical Dentistry - University of Sheffield, Sheffield, United Kingdom  
<sup>3</sup> Senior Clinical Teacher, School of Clinical Dentistry - University of Sheffield, Sheffield, United Kingdom  
<sup>4</sup> Senior Clinical Teacher in Restorative Dentistry, School of Clinical Dentistry - University of Sheffield, Sheffield, United Kingdom

**Abstract:**

**Background:**

Recent advances in additive manufacturing technology, and the subsequent cost reduction of the equipment has enabled the wider use of 3D printing. This technology has introduced an accurate and cost-effective method to produce three dimensional models that can be used as educational tools. The benefit of using 3D printed models in medical education is well documented. In dentistry, 3D printing is mainly used in clinical and experimental applications, with very limited application in dental education.

**Aims & Objectives:**

To investigate the application of 3D printed models in dental education; where and how they are used.

**Materials and Methods:**

This scoping review follows the structure introduced by Arksey and O'Malley in 2005. Several databases were searched including Web of Science, PubMed, Medline Ovid, and Education Resources Information Center (ERIC). The terms used for literature search were Dent\* AND (3D Print\* OR additive manufacturing OR rapid prototyping) AND (education OR teaching OR learning OR instruction).

**Results:**

The number of studies found has significantly increased in recent years, with more than 73% of the studies published since 2015. No quantitative evidence exists on the improvement in learning when 3D printed models are introduced. However, the review revealed two main themes of introducing 3D printing in dental education. The first being the development and manufacturing of 3D printed models for potential pedagogical use. Secondly, the introduction of 3D printed models to students to evaluate the level of perception and

acceptance. The review also revealed varying pedagogical rationale for introducing 3D printed models in dental education, with most authors positing that the more true-to-life a teaching model is, the more pedagogical value it holds.

**Conclusions:**

Several gaps in the literature were identified. More studies need to be conducted as the application of 3D printing in dental education is still in its infancy. Pedagogical theories should be considered when applying 3D printing to education

---

**Theme:** Teaching Methods

**ID:** GPP TM 09

**Game based learning versus Demonstration for teaching of cavity preparation skill in restorative dentistry**

**Submitter:** Dr Mahdi Vatanpour

**Institution:** Faculty of Dentistry, Islamic Azad University Tehran

**Authors:**

\*Vatanpour M<sup>1</sup>, Khadem P<sup>2</sup>, Kazemi H<sup>3</sup>, Haji-Niaraki M<sup>4</sup>

**Authors Affiliations:**

<sup>1</sup> Department Of Endodontics, Faculty Of Dentistry, Islamic Azad University Tehran, TEHRAN, Iran, Islamic Rep. Of

<sup>2&3</sup> Department Of Restorative Dentistry, Faculty Of Dentistry, Islamic Azad University Tehran, TEHRAN, Iran, Islamic Rep. Of

<sup>4</sup> Faculty Of Dentistry, Islamic Azad University Tehran, TEHRAN, Iran, Islamic Rep. Of

**Abstract:**

**Background:**

According to the researches in recent years, educational changes in dentistry occurs lower than other fields. The new teaching methods are interesting for students. Game-based learning is an attractive method which can apply in different frame work. Making puzzle has a unique attraction that its integration in teaching methods can increase level of learning in dental students. Teaching of cavity preparation is one of the most important goal in restorative dentistry. Increasing the level of teaching/learning process in this field have an important role in the education of dental students.

**Aims & Objectives:**

The aim of this research was to compare the effect of three dimensional puzzle with demonstration as teaching methods in the learning of cavity preparation for amalgam restoration dental students.

**Materials and Methods:**

A total of 100 students who had no previous education about cavity preparation were participated in two groups. Block randomization carried out based on the VARK's learning style and average score of students. Three dimensional puzzle prepared for class II amalgam restoration cavity, 20 times larger than actual size in 10 pieces and 5 pieces were considered as false options. Discussion and questioning methods were used before making the puzzle by students in group 1. Group 2 was taught by demonstration. All students were assessed by preparing cavity on tooth model immediately. T-test was used to analyzed.

**Results:**

53 and 47 students were participated in group 1 and 2 respectively. There were no significant differences between two groups. (case group:13.74±2.31, control group:13.19±3.21, P>0.05)

**Conclusions:**

According to comparable results, game-based learning (3D-puzzle) can use as an attractive teaching method.

---

**Theme:** Teaching Methods      **ID:** GPP TM 10

**'Don't just think about the mouth, think about the patients'**

**Submitter:** Dr Richeal Ni Riordain

**Institution:** Cork University Dental School

**Authors:**

\*Ni Riordain R<sup>1</sup>, Supple B<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Oral Medicine, Cork University Dental School and Hospital, Cork, Ireland

<sup>2</sup> Centre for the Integration of Research, Teaching and Learning, University College Cork, Cork, Ireland

**Abstract:**

**Background:**

With an ageing population it is anticipated that a greater number of patients attending for dental

treatment with multi-morbidity and polypharmacy. The preparation of dental students for independent practice managing these medically complex patients is key to the safe provision of dental care.

**Aims & Objectives:**

We sought to determine students' perceptions of combined Medical and Dental collaborative teaching in Clinical Medical Sciences in Dentistry (CMSD), a module tasked with providing an overview of the impact of general ill health on the dental patient population.

**Materials and Methods:**

Modular changes consisted of a number of Review Sessions (RSs) based on case based learning (CBL) delivered by Dental Surgeons to re-examine the disease areas addressed in the preceding lectures delivered by Physicians and Surgeons. Students' perception of these modular changes were determined using a Minute Paper distributed at the end of each RS, a student-led focus group at the end of the module and a suggestion box for student comment after the module examination.

**Results:**

Early responses in the Minute Papers indicated that students began to develop a more holistic view of patient care. Focus group themes included integrated learning from other modules and the importance of the learning environment. Terminal comments from the student revealed a desire for more RS to allow exploration of medically complex cases in a safe environment.

**Conclusions:**

It would appear that the integration Medical and Dental clinical teaching into CMSD is well received by students. The use of CBL encourages a more holistic view patient care thereby encouraging students to better evaluation impact of general ill health on the dental patient population.

---

**Theme:** Teaching Methods      **ID:** GPP TM 11

**Clinical Reasoning Test of Team-Based Learning and Dental Students' Performance in Esthetic Dentistry**

**Submitter:** Prof Dr Jungjoon Ihm

**Institution:** Seoul Natioanl University School of Dentistry

**Authors:**



**Authors Affiliations:**

Office of Dental Education, Seoul National University School of Dentistry, SEOUL, Korea, Rep. of

**Abstract:**

**Background:**

Team-based learning (TBL) in medical and dental education has been introduced over the past few years as it promotes active learning, critical thinking, and teamwork. TBL is a learner-centered instructional strategy that allows one instructor to facilitate a large class.

**Aims & Objectives:**

The objective of the study was to examine how clinical reasoning questions in Esthetic Dentistry would enhance dental students' competency for critical reasoning and solving problems by implementing Team-Based Learning (TBL) methodology.

**Materials and Methods:**

A total of 97 third-year dental students who registered for Esthetic Dentistry course in a dental school in the Republic of Korea in 2018 were assigned to 16 teams consisting of five to six students each. A four-phase TBL setting (pre-study, readiness assurance test, appeal/feedback, and summative test) was designed to examine how question types such as clinical reasoning and factual knowledge would enhance the performance of both academically high and low achieving students. A 2X3 repeated measures ANOVA was calculated to examine the effects of each question type on individual and team performance.

**Results:**

Overall, TBL proved to be an effective method for small group learning in Esthetic Dentistry. Team performance in the TBL was consistently better than individual performance. Majority of the students have actively engaged in TBL sessions and demonstrating critical thinking skills as well as knowledge acquisition. In particular, clinical reasoning questions may provide the most benefits to academically low-achieving students as well as high-achieving students in a four-phase TBL setting.

**Conclusions:**

TBL facilitated a deeper understanding of Esthetic Dentistry through contributing to developing critical thinking and cooperative learning in preparation for patient care.

---

**Theme:** Teaching Methods

**ID:** GPP TM 12

**Dentistry student as teacher assistant for dentistry terminology credit**

**Submitter:** Dr Arghavan Tonkaboni

**Institution:** Tehran University of Medical Sciences

**Authors:**

\*Tonkaboni DR

**Authors Affiliations:**

Oral and Maxillofacial Medicine, Tehran University of Medical Sciences, Tehran, Iran, Islamic Rep. of

**Abstract:**

**Background:**

All the students should be familiar with dentistry terminology. It can be a challenge for none native students specially at the entrance to schools of dentistry. On the other hand, teacher assistance in dental education is less common. We try to make learning easier for junior students with help of senior students who speak English fluently.

**Aims & Objectives:**

Evaluate using senior students as teacher assistant and facilitator in order to make learning as an easy task for junior students and entertain them in class as an active participant.

**Materials and Methods:**

We planned some minilectures, video clips and theater about dentistry disciplines and our senior students presented them. After each presentation in each part we had some discussions in small groups and at the end we had a quiz for student evaluation. we performed some meetings for senior students to make the similar and suitable for education methods.

**Results:**

All the student evaluate their class more useful and happy. the liked this method and ask for the same class in other issues

**Conclusions:**

Transforming old methods to modern ones makes students as active learner and the are so enthusiastic for team works in educations

---

**Theme:** Teaching Methods

**ID:** GPP TM 13

**Are 3-Dimensional Printed Teeth with Simulated Carious Lesions Beneficial in the Pre-Clinical Training of Dental Students? A Quantitative Cross-Sectional Pilot Study.**

**Submitter:** Ms Roma A McNeil

**Institution:** University of Leeds

**Authors:**

\*McNeil RA, Sinha A, Keeling A, Osnes C

**Authors Affiliations:**

Leeds Dental Institute, University of Leeds, Leeds, United Kingdom

**Abstract:**

**Background:**

The use of Frasco typodonts is common in undergraduate education (Gottlieb et al., 2013), however they are not a useful simulation of caries excavation (Fugill, 2012). 3D printed teeth with simulated caries are an innovative pedagogical tool for teaching essential cognitive skills and potentially minimising clinical transition stress.

This pilot study aims to provide preliminary results regarding student perception of 3D printed carious teeth produced by Osnes et al. (2018), determine large-scale project feasibility, and assess a novel method of evaluating cavity preparations.

**Aims & Objectives:**

**Aim:** To provide preliminary findings regarding student perception of 3D printed resin tooth models with simulated carious lesions and determine whether future larger scale projects are feasible in terms of recruitment, data collection and analysis.

**Objectives:** To provide 3rd and 4th year dental students with the opportunity to practice caries removal using a 3D printed upper molar model with simulated occlusal caries, and gather their opinions regarding this.

To examine the variability between the prepared cavities to determine the consistency of the printing process, as well as the usefulness of an innovative method of evaluation.

**Materials and Methods:**

Fourteen University of Leeds dental surgery students participated in the study. They removed the simulated caries from the models, then completed a questionnaire that examined their opinions on the simulation's realism and usefulness.

**Results:**

Most students felt prepared to treat caries clinically, however reported elevated stress when transitioning into this environment. Students generally agreed that the models provide realistic carious tactile sensation, and that they would be beneficial in pre-clinical training.

The preparations demonstrated a likely normal distribution in terms of perimeter and area. A heatmap considered inter-student variation.

**Conclusions:**

The initial results demonstrate that a large-scale study is worth pursuing, however would require methodological adaptations to minimise limitations. Additional research projects could focus on objectively assessing the benefits on student clinical ability.

---

**Theme:** Teaching Methods

**ID:** GPP TM 14

**Integration of innovation & entrepreneurship spirit and humanistic quality in dental education, West China School of Stomatology Model**

**Submitter:** Prof Dr Ling Ye

**Institution:** West China School of Stomatology, Sichuan University

**Authors:**

\*Ye L<sup>1</sup>, Zhang LL<sup>2</sup>, Wang L<sup>3</sup>, Zheng QH<sup>4</sup>, Wang SD<sup>5</sup>

**Authors Affiliations:**

<sup>1</sup> Department of Endodontics; Dean's Office, West China School of Stomatology, Sichuan University, Chengdu, China

<sup>2</sup> Education Administration Office; Department of Endodontics, West China School of Stomatology, Sichuan University, Chengdu, China

<sup>3</sup> Education Administration Office; Department of Maxillofacial Surgery, West China School of Stomatology, Sichuan University, Chengdu, China

<sup>4&5</sup> Education Administration Office; Department of General Dentistry, West China School of Stomatology, Sichuan University, Chengdu, China

**Abstract:**

**Background:**

With the increased economic growth and development of stomatological science, the current oral health inequity in China is not only due to the shortage of dentists but also to the poorly trained oral health professionals. Besides, the lack of

awareness for the professionals to turn creative ideas for improving health into reality is outstanding.

#### **Aims & Objectives:**

As the major mission to enhance public oral health, West China School of Stomatology (WCSS) has always been committed to optimize the teaching model to cultivate dental students with high morality, social responsibility, professional competence, and wide international perspective, as well as to foster a spirit of entrepreneurship and innovation (E&I).

#### **Materials and Methods:**

A "1+3+N" teaching model, which represents 1 group of national teaching platforms, 3 core carriers of quality education and N E&I-centred signature events, had been employed. This teaching model integrates E&I spirit and humanistic quality into school's core activities of teaching, research, and patient care. It also emphasizes equal importance of professional knowledge and hands-on experience. The alternate use of traditional and virtual-reality teaching facilities helps to fulfill the student-centered teaching concept, encouraging students self-learning, getting more engaged in hand-skill and communication-skill training.

#### **Results:**

By using the optimized teaching model, students' professional competency enhanced significantly. First time pass rate of National Dental Licensing Examination of our students was 92.55%, which was much higher than the national average (73.64%). From 2011 to 2018, 377 paper (114 SCI journal paper) had been published by B.D.S students. From 2015 to 2018 many national and international prizes on innovation and entrepreneurship competition had been awarded each year.

#### **Conclusions:**

After many years of hard work, WCSS has optimized a teaching model to cultivate dental students who meet people's aspiration for better quality of oral medical and health services. The capability for students to turn creative ideas into reality is improving steadily.

---

**Theme:** Teaching Methods      **ID:** GPP TM 15

**Learning Dental Morphology Using Different Methods**

**Submitter:** Prof Dr Dr Meda-Lavinia Negrutiu

**Institution:** Victor Babes University of Medicine & Pharmacy, Timisoara

#### **Authors:**

Negrutiu, ML<sup>1</sup>, Stoia, AE<sup>2</sup>, Cojocariu, CA<sup>3</sup>, Rominu, M<sup>4</sup>, Sinescu, C<sup>5</sup>

#### **Authors Affiliations:**

<sup>1,3,5&6</sup> Prosthesis Technology And Dental Materials,

Faculty Of Dentistry, Victor Babes University Of Medicine And Pharmacy, Timisoara, Romania

<sup>2</sup> Student 1st year, Faculty of Dentistry, "Victor Babes" University of Medicine and Pharmacy from Timisoara

<sup>4</sup> PhD student, Faculty of Dentistry, "Victor Babes" University of Medicine and Pharmacy from Timisoara

#### **Abstract:**

##### **Background:**

Most morphological learning techniques are theoretically based. The 3D perspective of the tooth structure and the spatial projection of the teeth components are hard to observe and learn for some students.

##### **Aims & Objectives:**

This study is about various techniques for deepening dental morphology. The learning methods imply knowledge assessment from books along with 2D picture evaluation. Based on those, the students are required to carve the forms of the considered teeth.

##### **Materials and Methods:**

Two groups of students were considered (5 students per group).

The first group of students started the learning procedures in the conventional way: theoretical approach, different 2D design of the tooth from the books and then they were asked to carve the 3D replica of the chosen tooth based on specific geometrical considerations.

The second group started also with the theoretical approach, followed by a design session. They were asked to draw in 2D each face of the considered tooth. Next step was carving from a block of soap. Finally, the students were blindfolded and they were asked to shape the tooth using dough while they are invited to feel the shapes of the tooth model.

##### **Results:**

The students who used conventional learning have finished earlier the 3D carving. They claim that they encountered some problems in understanding the geometrical suggestions for carving. The resemblance of the 3D models produced by the first group was moderate.

The students from the second group have spent much more time for the new improved learning procedure.

The shaping part made them add dough materials in a consciously way considering the 3D perspective of the incisor's morphological components.

**Conclusions:**

The resemblance of the 3D models produced by the second group was better. They also claim to understand more morphological details from the drawing and shaping part in compare with the theoretical and carving approach.

---

**Theme:** Teaching Methods      **ID:** GPP TM 16

**TEACHING DENTAL TECHNOLOGY BY USING THE EDMODO PLATFORM**

**Submitter:** Prof Dr Dr Meda-Lavinia Negrutiu

**Institution:** Victor Babes University of Medicine & Pharmacy, Timisoara

**Authors:**

Negrutiu, ML<sup>1</sup>, Coste CM<sup>2</sup>, Bodnar AM<sup>3</sup>, Pop DM<sup>4</sup>, Rominu, M<sup>5</sup>, Sinescu, C<sup>5</sup>

**Authors Affiliations:**

<sup>1,4,5&6</sup> Prosthesis Technology And Dental Materials, Faculty Of Dentistry, Victor Babes University Of Medicine And Pharmacy, Timisoara, Romania  
<sup>2&3</sup> Student 2<sup>nd</sup> year, Faculty of Dentistry, "Victor Babes" University of Medicine and Pharmacy from Timisoara

**Abstract:**

**Background:**

Edmodo is the centralized classroom, a ready-to-use platform for teachers, students and parents too. It has the ability to communicate faster and to improve teaching and learning skills. This app is up to date with the current status of medical technology.

**Aims & Objectives:**

Using the Edmodo app brings the student into a virtual classroom that makes the knowledge unchallenged for the student.

The profile can be set, the personal information can be managed and also have a virtual backpack that contains all courses and notes.

**Materials and Methods:**

The app opens with the home page that includes „Latest Activity” and „My Classes”. It can be also find sections like „Planner”, „Messages” and „Notifications”. With over 650 million resources shared on Edmodo already, on can find the next lesson plan in minutes. Or, connect with educators and curriculum writers to build the professional learning community.

The main advantage of this platform consists in changing the old ways of education and bringing technology in. Edmodo can be used either on smartphones, tablets and computers. Students and teachers are excited to try out the new app! Edmodo lets give a voice to shy or anxious students who would go unheard in traditional classrooms.

**Results:**

Assignments can be easily done just by one click. Teachers can effortlessly upload new courses and weekly quizzes.

Edmodo is a must nowadays for every student in searching for facile ways of studying.

Edmodo consists in a reachable educational method that can be easily developed.

**Conclusions:**

This platform claims the possibility of evaluating the student and his knowledge.

The app also offers the opportunity to asses the teaching process.

---

**Theme:** Teaching Methods      **ID:** GPP TM 17

**Undergraduate Dental Students Reflections on Peer Assisted Teaching**

**Submitter:** Dr Barry Quinn

**Institution:** King's College London Dental Institute

**Authors:**

Wyatt P, \*Dagher A, Quinn B

**Authors Affiliations:**

Dental Faculty, Kings College London, London, United Kingdom

**Abstract:**

**Background:**

Peer Assisted Learning (PAL) at Kings College London (KCL) involves years 3, 4, & 5 dental

students along with qualified dental staff co-teaching year 2 dental students in a pre-clinical simulation laboratory. PAL teaching involved clinical skills for cavity preparation and restoration along with creating online educational resources and participating talks and workshops.

**Aims & Objectives:**

- To evaluate year 2 dental student perception of PAL
- To determine whether there are any barriers to student engagement with PAL

**Materials and Methods:**

In February 2019, 2nd year dental students (n=154) completed an online survey after pre-clinical skills teaching sessions. The survey comprised of 16 Likert scale questions and 2 free-text questions. 70 responses were received collated together and analysed.

**Results:**

- 92.9% agreed or strongly agreed that PAL mentors had a positive impact on learning
- 90.0% would like additional online resources
- 20% of respondents agreed or strongly agreed that they had to wait a long time to see a PAL mentor.
- 92.8% of respondents agreed or strongly agreed that PAL mentors had a beneficial effect on teaching. Comments included “helpful”, “approachable”, “good at explaining”, “friendly”
- 32.9% students felt more comfortable talking to a PAL mentor than their clinical tutor, with the remaining 67.1% feeling they can ask either.
- 64.2% of respondents agreed or strongly agreed that having experienced PAL, they would be interested in becoming a PAL mentor.

**Conclusions:**

PAL was perceived as a positive addition to preclinical teaching and learning. PAL is a useful tool to increase student engagement, with almost one in three students feeling more comfortable asking questions to a peer mentor rather than a clinical tutor. One of the limitations for PAL is the ability to provide regular cover to pre-clinical sessions, due to availability and number of PAL mentors.

---

# Technology Enhanced Learning

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 01

**Evaluation of the usefulness of SDEO online resources to Undergraduate Dental Students at Glasgow Dental School**

**Submitter:** Dr Ziad AL-ANI

**Institution:** University of Glasgow

**Authors:**

\*AL-ANI Z, McAllan W, Dewhurst D

**Authors Affiliations:**

Glasgow Dental School, University of Glasgow, University of Glasgow, Glasgow, United Kingdom

## Abstract:

**Background:**

The collaborative Scottish Dental Education Online (SDEO) project, funded by NHS Education for Scotland, involves the Universities of Glasgow, Dundee, Edinburgh, Aberdeen and UHI ([www.SDEO.ac.uk](http://www.SDEO.ac.uk)).

It aims to develop a repository of free, high quality, interactive online learning resources for use in dental education worldwide.

To date the Project has developed 48 resources, each designed to occupy students for 2-4h of self supported study, and covering a range of dental topics.

There are also a significant number of high-quality 3-D animations (70+), images (1600+), videos (140+) and Virtual microscopy slides (40+) to support dental teachers.

**Aims & Objectives:**

To evaluate the use of the e-Learning resources with final year undergraduate dental students at Glasgow Dental School.

**Materials and Methods:**

The survey tool comprised 11 questions (3 factual, 6 perspectives (5-point (SA to SD) Likert Scale) and 2 free-text.

Coded data was entered into SPSS and analysed.

**Results:**

Access

- 83.1% accessed from university VLE
- 10.2 % accessed from NES portal
- 42.4 % accessed directly from SDEO site
- 86.4 % used personal computer
- 54.2 % used university computer

- 35.6 % used tablet or smartphone
- 0% used NES computer

Ease of Access

- 83% found resources easy to access; 3.39% did not
- 50.9% stated they were encouraged to use resources by their tutors; 17% were not

Resources

- 79.6% found content difficulty just right; 20.3% neutral
- 69.4% felt resources enhanced their knowledge beyond that of other resources; 5.1% did not

Most helpful elements of resources

- 3-D Animations 61.1%
- images 61%
- videos 66.1%
- self-assessments 55.9%
- voice-over 54.2%
- case-based scenarios 59.4%

**Conclusions:**

SDEO resources are important in supporting the student learning experience at Glasgow Dental School. Students were generally positive about the ease of access, usefulness and appropriateness of content of the resources.

---

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 02

**Learning through Technology: Utility of TELT to support learning of the Technology involved in the Digital Workflow within Dentistry**

**Submitter:** Mr Stephen Dunn

**Institution:** University of Glasgow

**Authors:**

\*Dunn S<sup>1</sup>, Kennedy C<sup>2</sup>, McKerlie R<sup>3</sup>

**Authors Affiliations:**

<sup>1&3</sup> Lecturer in Dental Technology, University of Glasgow, Glasgow, United Kingdom

<sup>2</sup> Educational Resources Technician, University of Glasgow, Glasgow, United Kingdom

**Abstract:**

**Background:**

With sight firmly focused on the future we explore how technologies that enhance learning, could be successfully integrated into a traditional laboratory-based subject. As a higher education institution, we are asked to respond to the demands of

globalisation and the knowledge economy, to prepare students with 21st century skills and competencies (Abadzi, 2016). Dental school curricula must keep pace with this if our undergraduate students are to be able to make informed clinical judgements.

**Aims & Objectives:**

To discuss the development of a novel component exploring the digital workflow within one aspect of dentistry and support this innovation with adopting the flipped classroom modality.

**Materials and Methods:**

Our students have grown up in a world of digital innovation and technology and will expect innovative cutting-edge technology to be evident in their curriculum today. We seek to empower students with innovative and emerging technologies within the dental sphere that ensure a high-quality learning experience.

**Results:**

As a newly-empowered dental student, it is a hugely exciting time in dentistry with the development of the digital workflow. We propose to develop a component within the curriculum that introduces the digital workflow to our students and offer an opportunity for all to experience it first-hand. As well as utilising technology to deliver the digital workflow, we propose supporting this innovation by adopting the flipped classroom modality already embedded with pre-clinical skills (Crothers et al, 2017).

**Conclusions:**

We cannot predict the future, but a futurist mind-set and a willingness to embrace the digital revolution is of significant importance. In this presentation digital workflow within dentistry and possible flipped learning resources to support the innovation will be explored.

---

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 03

**Evaluation of a Novel 3D-printed Typodont in the Teaching of Caries Removal**

**Submitter:** Dr Jane Collingwood

**Institution:** Peninsula Dental School

**Authors:**

Collingwood J1, Zahra D2,

**Authors Affiliations:**

<sup>1</sup> Peninsula Dental School, Plymouth, United Kingdom

<sup>2</sup> Department of Psychology, Peninsula Dental School, Plymouth, United Kingdom

**Abstract:**

**Background:**

Reproducible, 3D-printed, multi-material typodonts, each containing simulated enamel, dentine and pulp layers, and a carious occlusal lesion were produced to teach caries removal in a simulation environment and compared to the standard teaching resource (Kavo™ typodont with wood filler caries).

**Aims & Objectives:**

This evaluation compares student and staff opinions of both typodonts with respect to their anatomical realism, educational efficacy communicating caries removal concepts, and willingness to adopt the new typodonts in teaching, learning, and assessment.

**Materials and Methods:**

Twenty first-year dental/dental hygiene therapy students completed a caries removal exercise on the 3D-printed typodonts, supervised by experienced clinical tutors. Following this students and tutors provided feedback on anatomical features and realism compared to a natural tooth and standard typodont. Data was collected using ten-point categorical rating scales and open-ended questions.

**Results:**

Tutors rated the novel typodonts more highly than the standard teeth with respect to their look (M=7.60 vs 4.80), feel (M=7.80 vs 4.40), use in explaining concepts (M=7.40 vs 5.40), and their overall use in teaching (M= 8.20 vs 5.60). All comparisons were statistically significant (at p<0.05). Tutors rated the novel teeth more highly, though not significantly so, than the standard teeth on their acceptability for use in assessments (M=7.20 vs 5.40).

Students rated the novel teeth more highly overall than the standard teeth (M= 7.16 vs 6.32); whilst this was a large effect size (r=0.30), it was not statistically significant. Furthermore, students are equally happy to be taught and assessed on either tooth type. Thematic analysis of responses to open-ended questions indicated preference for the novel teeth was due to the improved visual and tactile realism of the simulated caries.

**Conclusions:**

In conclusion, the novel 3D-printed typodonts provide a superior teaching resource for explaining and practicing the concepts and skills involved in caries removal and are widely accepted by staff and students

---

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 04

**Quality Assurance in Dental Radiography Resource Evaluation**

**Submitter:** Mrs Wendy McAllan

**Institution:** University of Glasgow

**Authors:**

\*McAllan WP, Brocklebank LM

**Authors Affiliations:**

Dental School, University of Glasgow, Glasgow, United Kingdom

**Abstract:****Background:**

All third year dental students (BDS3) and second year dental therapy students are currently taught Fault analysis and quality assurance (in dental radiology) as a lecture. An online learning package has been developed using some of the material from the lecture as well as further cases. This is a blended learning approach to teaching this subject.

**Aims & Objectives:**

To evaluate if students receiving the online learning package have a better knowledge and comprehension of fault analysis and quality assurance after viewing the package before the lecture.

**Materials and Methods:**

BDS3 students (n= 37) and Dental Therapy students (n=8) gave consent to be part of the study. The teaching was given by lecture with students using an electronic classroom voting system to capture their anonymous responses. 20 had seen the package previously and 25 had not seen the package. Six questions were also in the package, referred to as recall, and six not in the package and dependent on previous teaching, referred to as understanding.

**Results:**

An 8% overall increase in correct answers for the group who had seen the package. The average correct answers to the recall questions of the students who had seen the package was 77% compared with 65% for those who had not. The average correct answers to the understanding questions of the students who had seen the package was 74% compared with 58% for those who had not.

**Conclusions:**

There was an increase in correct answers in the student group that has previously gone through the package across all the questions. There was a small increase (6%) in the students' comprehension of the topic in the group that had seen the package, indicating that this package is a good addition to the blended learning approach that the students receive.

---

**Theme:** Technology Enhanced Learning **ID:** GPP TEL 05

**Patients' specific virtual simulation in the clinical training for prosthetic dentistry**

**Submitter:** Dr Karlis Ozolins

**Institution:** Riga Stradins University

**Authors:**

\*Ozolins K<sup>1</sup>, Slaidina A<sup>2</sup>, Abeltins A<sup>3</sup>, Springe B<sup>4</sup>, Berzina S<sup>5</sup>

**Authors Affiliations:**

<sup>1,2&4</sup> Department of Prosthetic Dentistry, Riga Stradins University, Riga, Latvia

<sup>3</sup> Department of Orthodontics, Riga Stradins University, Riga, Latvia

<sup>5</sup> Department of Conservative Dentistry and Oral Health, Riga Stradins University, Riga, Latvia

**Abstract:****Background:**

When entering clinical training each patients' case for student is very different and there is no time to prepare for the specific situation. With intraoral scanner and SIMODONT dental trainer we can give an opportunity for students to train on actual patients' case in virtual environment before real preparation of teeth in the clinic.

**Aims & Objectives:**



To develop, implement and test patient specific virtual simulation training in curriculum of prosthetic dentistry clinical training.

**Materials and Methods:**

In the clinic of prosthetic dentistry before real preparation the fragment of the jaw from students' patient was scanned (3-5 teeth). Then the .stl file was uploaded into SIMODONT system where the scanned fragment was prepared virtually. After that the "prepared".stl file was downloaded and was submitted to the teacher.

Instruction manuals about intraoral scanning, exporting of scanned case (.stl file), importing the file into SIMODONT dental trainer system and exporting of the prepared file were made. Lecture about digital technology in dentistry and seminar about intraoral scanning with demonstration and practical work were delivered.

Before the beginning of improved study course teachers and staff involved were instructed and trained. After study course students were asked to voluntarily complete study course evaluation survey.

**Results:**

48 (male 11, female 37) 4th year students for Faculty of Dentistry performed patient specific virtual simulation training task within 2 semesters. Created materials served as guidelines for students to do all the steps on their own without teacher assistance, except final step where teacher evaluated the digital preparation. Difficulties arise when new methodology must be implemented, the main in this case is staff training and acceptance.

**Conclusions:**

Patient specific virtual simulation is well accepted by students for training before actual teeth preparation in the clinic. This training allows student to feel more confident in tooth preparation improving patient and teacher safety.

---

**Theme:** Technology Enhanced Learning      **ID:**  
GPP TEL 06

**How do dental students use recorded lectures as a learning tool.**

**Submitter:** Dr Marco Antonio Dias da Silva

**Institution:** Birmingham Dental Hospital

**Authors:**

Dias da Silva MA, Patel U, Pereira AC, Walmsley AD

**Authors Affiliations:**

Dental School, University of Birmingham, Birmingham, United Kingdom

**Abstract:**

**Background:**

Video recordings are an important learning tool in higher education. As part of a general university policy based on student feedback, lecture recording during the dental course is offered to all students. The institutional policy is that all lectures should be recorded for student access. There is limited information on how students use recorded lectures.

**Aims & Objectives:**

The aim of this study was to evaluate the usage of recorded lectures by students from a UK undergraduate dental course.

**Materials and Methods:**

The lectures were mandatory recorded and made immediately available for student use. Data; from the lectures offered to 3rd- and 4th-year dental students; was evaluated and the following information was obtained to include the number of views, user retention, the time/day of the week that the content was viewed, and which content was viewed the most.

**Results:**

There were 192 lectures on the system and the 46 that presented over 60% of retention index also showed a higher number of views, higher average minutes delivered, higher viewing rate and were shorter than the other lectures ( $p < 0.05$ ). Lectures are watched more in the afternoon and at night ( $p < 0.05$ ); and no preference for week and weekends was perceived. Year 4 students are more active in accessing and viewing the content compared to Year 3 students ( $p < 0.05$ ). Year 4 students spend more time watching Year 3 content than Year 4 material ( $p < 0.05$ ). Lectures shorter than 30 min received more views and had better user retention ( $p < 0.05$ ).

**Conclusions:**

In conclusion, the use of recorded lectures by dental students increase as the student progress over the course and old lectures are likely to be used to double check content before clinical sessions or assessment tests.

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 07

**In what ways might a pre-lab study package help students re-contextualise their learning of dental skills in the lab?**

**Submitter:** Dr Shabana Younas

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

**Authors:**  
\*Younas S

**Authors Affiliations:**  
Paediatric Dentistry, QMUL, London, United Kingdom

**Abstract:**

**Background:**

Much of medical and dental education is predicated on conceptions of transfer, with students expected to apply theory to practice with little consideration of the teaching and learning strategies we might adopt to enable them to do this. In dentistry, students are initially trained to complete practical procedures on plastic teeth in the lab. Lab time, supervision and resources are limited, hence maximising skills learning in this time, is essential. Pressure to perform a procedure and be assessed on this, in a relatively short amount of time, with none or very little opportunity to repeat the procedure; is stressful for both students and teachers.

This study explores a novel approach to helping students make connections between what is learnt in lectures and what they are required to do in the skills lab in order to maximise the learning potential of skills lab time.

**Aims & Objectives:**

A pre-lab multimedia e-learning package has been created with the aim of increasing time students have to rehearse rather than observe practical skills (during clinical lab sessions) The research study explores HOW or WHAT helps students to make connections between theory and practice, drawing on pedagogic re-contextualisation as a sensitising concept (after Evans, Guile and Harris 2011).

**Materials and Methods:**

The study is qualitative in design, using 4 post-lab focus group discussions (22 participants) to explore student experiences of using the e-learning study package and how/what about it affected their

learning experience in the practical lab session. Template analysis is the method of data analysis.

**Results:**  
Data analysis in progress.

**Conclusions:**  
The discussion will focus on the pedagogic strategies that help students make connections between learning gained in different environments and contexts. Assumptions of learning transfer are under-explored in dental education. The use of bespoke multi-media learning packages have the potential to help students make connections between classroom and clinical skills lab.

---

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 08

**Why are games not used if they can motivate and increase confidence in our dental students?**

**Submitter:** Mrs Andresa Costa Pereira

**Institution:** Birmingham Dental Hospital

**Authors:**  
\*Pereira AC, Dias da Silva MA, Patel US, Tanday AK, Hill KB, Walmsley AD

**Authors Affiliations:**  
School of Dentistry, Birmingham Dental Hospital, Birmingham, United Kingdom

**Abstract:**

**Background:**

The use of digital games in dental education is an innovative but unusual approach.

**Aims & Objectives:**

The aim of this study was to evaluate dental students' perception and knowledge retention after using games.

**Materials and Methods:**

Thirty-three students from a Dental School in the United Kingdom took part in the research. Seventeen received the learning material in a quiz game format, whilst sixteen received it in a pdf file. After one week, the students answered one questionnaire about their opinion of using games and another to assess their knowledge.

**Results:**

Students who used the quiz game reported that they were more motivated (76.5%), enjoyed using it (88.2%) and increased confidence in the subject (70.6%) than those who received the pdf file (56.3%, 37.5% and 56.3% respectively). Most of the students using games (88.2%) would recommend them to other students and 100% would like to have similar learning materials to study other dental subjects. Of the 33 students, 29 believe that digital games are complementary to theoretical classes, 17 to simulation teaching in the laboratory and 16 to clinical practice. They do not believe that games can replace theoretical or clinical practice. Only one student answered that games can be used instead of simulation teaching. Most of the respondents (78.8%) think that the use of digital games is important as a learning tool, however, 57.6% hardly ever use this approach. Most of the students (84.8%) rarely or never searched for digital games about dental subjects and from those aware of the online games available, 66.7% think they are of poor quality or unacceptable for dental education. After receiving the knowledge assessment test, both groups had similar results.

#### **Conclusions:**

Games and pdf files can provide similar teaching experience regarding knowledge retention, however, students see games as an exciting tool that can increase their confidence and motivate their learning.

---

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 09

### **3D-Printing Teeth - How to Achieve a Functional Teaching Aid**

**Submitter:** Mr Alexander J Cresswell-Boyes

**Institution:** Queen Mary University of London

#### **Authors:**

\*Cresswell-Boyes AJ1, Barber AH2, Krishnamoorthy M3, Davis GR4

#### **Authors Affiliations:**

<sup>1</sup> Dental Physical Sciences Unit, Institute of Dentistry, Barts and the London School of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom

<sup>2</sup> School of Engineering, London South Bank University, London, United Kingdom

<sup>3</sup> Oral Health Innovation, GlaxoSmithKline Consumer Healthcare, Weybridge, United Kingdom

<sup>4</sup> Dental Physical Sciences Unit, Institute of Dentistry, Barts and the London School of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom

#### **Abstract:**

##### **Background:**

Studies have shown that students learn anatomy well from using extracted teeth, however, when learning the anatomy of deciduous teeth, students can struggle to identify key structures due to the small nature of these teeth.

##### **Aims & Objectives:**

The aim of this study was to collect data on dental students' perception of 3D-printed models of deciduous teeth. A questionnaire was designed and created to understand student's opinions of the enlarged models.

##### **Materials and Methods:**

A selection of ten deciduous teeth were imaged using a micro-CT scanner at a resolution of 15µm. The data collected was reconstructed and 3D-printed using stereolithography techniques. The reproduced deciduous models were printed to a scale factor of 6x, and at a resolution of 25µm. A ten-question questionnaire was given to students in anatomy classes for first to final year students to evaluate the models using the questionnaires.

##### **Results:**

128 questionnaires were returned. Results showed a definite trend with year of study in relation to a question which asked could they easily identify what the model was with 40% of first years agreeing, compared to final year students where 83% agreed that they could. Moreover, of the 40% of first years said they could identify the model, 82% said it was due to the larger sizes. Overall, 99% of students said they would use the models again. Feedback showed that the students would like to see colouring and shading in the models as well as more information regarding the background of the real tooth.

##### **Conclusions:**

From the questionnaires a high response rate stated the larger sizes made it easier to understand the anatomy of the usually small deciduous teeth, demonstrating the possibility of introducing 3D-printed models into anatomy courses. Critical feedback from the students could be tackled by combining other techniques with the 3D-printed models such as 3D visualisation and augmented/virtual reality.

---

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 10

**The „J.O.K.E.R.“ Project – Just One clicK Educational Repetition**

**Submitter:** Dr Torsten Wassmann

**Institution:** Georg-August University Göttingen, Universitätsmedizin Göttingen, Dept. of Prosthodontics

**Authors:**

\*Wassmann T, Schubert A, Kurbad O, Deseniß M, Bürgers R

**Authors Affiliations:**

Dept. of Prosthodontics, Georg-August University Göttingen, Universitätsmedizin Göttingen, Göttingen, Germany

**Abstract:**

**Background:**

Dental students have to complete various practical courses in prosthodontics, many of which are carried out in a student laboratory. Live demonstrations which are submitted via screens are one essential part of teaching. Our laboratory is equipped with a modern video system. Yet, due to the limitations of the building, view is limited from some seats. Furthermore, different students work on different assignments due to varying work progress. As a result, it is not possible to match up each live demonstration with the individual demands and needs of each student.

**Aims & Objectives:**

We aimed to bring video material to the “place of action”, e.g. right next to the casting device or the polymer press. Therefore, we needed a robust and easy-to-use system withstanding the conditions in the student laboratory.

**Materials and Methods:**

An LCD-monitor and a custom-built, vandalism- and waterproof operation module with eight buttons and a RFID-lock (similar to electronic key cards) constitute each media station. This configuration allows for a simple and intuitive handling: the user is able to play different videos by only clicking a button. By enabling the RFID-lock, it is possible to restrict the access, to serve content user-group specific and to document the accesses individually since each student receives an RFID-pen. The restriction might be necessary if one group works on their assignment while another group performs

a practical exam with no supplemental material allowed.

**Results:**

The students’ acceptance is high and all media stations are highly frequented. As a side effect, the waiting lines at the desk of the supervising assistants have shortened. The correlation of the video consumption with the practical performance of the students will follow shortly.

**Conclusions:**

Robust and easy-to-operate media-stations which provide supplemental video material at the “place of action” seem to be useful and beneficial for preclinical dental education at comparatively low expenses.

---

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 11

**How can Technology Enhanced Learning (TEL) enhance PG dental education?**

**Submitter:** Dr Susan Parekh

**Institution:** UCL Eastman Dental Institute

**Authors:**

\*Parekh S, Ashley P

**Authors Affiliations:**

Paediatric Dentistry, UCL EDI, London, United Kingdom

**Abstract:**

**Background:**

Postgraduate dental education is different from undergraduate, due to following:

- Smaller class sizes
- Higher level / critical thinking
- Complex patients
- Different demands on time (eg family commitments)

**Aims & Objectives:**

To assess ways that TEL can be used to deliver PG dental education, using the distance learning MSC and the full-time Professional Doctorates in Paediatric Dentistry as examples.

**Materials and Methods:** The following fields were assessed for applicability for TEL:

- Knowledge
- Clinical skills

- Treatment planning
- Critical thinking/research
- Assessment
- Feedback

**Results:**

Knowledge can be provided in various ways using TEL, and are popular with students  
Treatment planning and critical thinking can be successfully applied using TEL approaches  
TEL is useful for formative assessment and feedback  
Clinical skills for PG training are not suitable for TEL

**Conclusions:**

Technology Enhanced Learning offers opportunities to rethink delivery of PG dental education

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 12

**Using Video-Facilitated Feedback to Improve Student Performance in Dental Education**

**Submitter:** Dr Igor Blum

**Institution:** King's College London FoDOCS

**Authors:**

\*Blum IR, Chau KK, Saravanamuttu R, Davies BR

**Authors Affiliations:**

Dental Outreach Education & Primary Dental Care, Faculty of Dentistry, Oral & Craniofacial Sciences, King's College London, London, United Kingdom

**Abstract:**

**Background:**

Dental foundation training (DFT) is a mandatory requirement for all dentists who wish to practice within the national primary healthcare service in England. Entry into DFT takes place by competitive and searching interviews of final year dental students as part of a national selection process. The interview comprises communications skills, professionalism, leadership and management skills and a written test.

**Aims & Objectives:**

To evaluate the role of video as part of final year dental student preparation for the DFT Interview process in the UK and to assess its value as a feedback learning tool and a further means to foster post performance reflective practice.

**Materials and Methods:**

Sixty representative final year dental students have volunteered to be video recorded during simulated practice DFT interviews over two consecutive years. The bulk of the filming was carried out by one clinical teacher using standard camera equipment. All 60 videos were subsequently analysed by staff and students and assessed for body language, articulation of speech, correct use of dental terminology, critical thinking and improved confidence in practising thinking aloud. All participants were invited to complete a structured post video experience questionnaire.

**Results:**

Completed responses were received from 43 students providing a response rate of 72%. Thematic analysis of the responses indicated students found video-facilitated feedback useful for reflective practice and for identifying what they perceived as poor performance and gaps in their knowledge.

**Conclusions:**

Over time all participants reported the process to be considerably beneficial in identifying key individual strengths and weaknesses in their non-verbal, verbal and clinical communication skills. The students perceived the use of video as a feedback and reflection tool as a beneficial exercise in their preparation for and performance at the Dental Foundation Interviews. Furthermore, as a learning tool used in a group setting this methodology offers significant potential for developing the reflective, critically thinking dental practitioner.

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 13

**QuizDoc - Evaluation of a serious game for factual knowledge education**

**Submitter:** Dr Anne Barbara Rittich

**Institution:** Uniklinik RWTH Aachen

**Authors:**

\*Rittich AR<sup>1</sup>, Wolfart SW<sup>2</sup>, Renardy CR<sup>3</sup>, Raissi TR<sup>4</sup>, Lemos ML<sup>5</sup>

**Authors Affiliations:**

<sup>1&2</sup> Department of Prosthodontics and Dental Materials, RWTH Aachen University, Germany, Aachen, Germany

<sup>3-5</sup> Audiovisual mediacenter medical faculty, RWTH Aachen University, Germany, Aachen, Germany

**Abstract:****Background:**

Dental students have to learn large amount of theory in form of factual knowledge. Today's students are part of the so-called digital natives who are used to learn with digital devices. Serious games can improve the motivation of these learner's knowledge acquisition. Therefore, a serious game called QuizDoc was created to review learned facts and for self-assessment.

**Aims & Objectives:**

The aim of the present study is a qualitative analysis of students' acceptance of the app and a quantitative analysis of the knowledge gained by students using the QuizDoc app.

**Materials and Methods:**

All students of the 4th semester in 2017 and 2018 (n = 58 / 51) completed a formative pre-test with 20 items. The students were randomized into two groups. Group one received the app to play and train, the second group received the same questions as in the app in paper. During the testing period the app recorded some usage statistics. Both groups participated in a formative post-test with 20 items. After post testing group two also got access to the app for 3 additional weeks. At the end of the course both groups filled a standardized questionnaire for app evaluation.

**Results:**

There was no significant difference between the two groups in pre- and post-testing, but there was a significant difference between both groups regarding knowledge improvement between pre- and post-testing ( $p < 0.05$ ). Each student played an average of approx. 350 questions during the intervention time. Students rated the app with school grade "good". The students stated that they had been motivated by using the app and were able to remember facts faster.

**Conclusions:**

The use of the QuizDoc app had great acceptance among students and teachers. Therefore, technical advancements and an extension to other courses and faculties are intended.

---

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 14

**The use of Google Glass in surgical and non-surgical medical educational settings: a systematic review**

**Submitter:** Mr Nicola Scazzero

**Institution:** University of Brescia

**Authors:**

Scazzero N, Dalessandri D, Tonni I, Massetti F, Fontana P, Bonetti S, Paganelli C.

**Authors Affiliations:**

University of Brescia, Italy

**Abstract:****Background:**

Google Glass is a wearable computer technology, which provides information and allows user interaction via voice command or physical input.

**Aims & Objectives:**

The aim of this study was to systematically review the literature and to evaluate the use of Google Glass in surgical and non-surgical medical educational settings.

**Materials and Methods:**

A computerized database search was conducted in Medline<sup>®</sup> via PubMed<sup>®</sup>, Google Scholar<sup>®</sup>, Embase<sup>®</sup>, Cochrane Library<sup>®</sup>, Scopus<sup>®</sup> using a combination of controlled vocabulary search strategy for each database, doing the last search on 1st May 2019. Inclusion criteria: original research articles conducted in surgical and non-surgical medical settings. Exclusion criteria: use of technology-based interventions other than Google Glass and articles with more technical description of Google Glass but no clinical, usability, feasibility, and/or acceptability outcomes. No language, publication year or publication status restrictions were applied in the screening stage. Title, abstract of all reports identified through the searches were independently analyzed for eligibility by two assessors. A supplemental hand search of references from included articles was also completed.

**Results:**

55 abstracts met the initial inclusion criteria. Following the full articles assessment, only 22 met the final inclusion criteria. Specialties under the surgical stream: six in general surgery, two in urologic surgery and neurosurgery, one in interventional radiology, otolaryngologic surgery, cardiothoracic surgery, plastic surgery and orthopedic surgery. Specialties under the non-surgical stream: two in toxicology and in medical education, one in otolaryngology, radiology and forensic medicine.

**Conclusions:**

In medical education communities, Google Glass has been applied to remote mentoring, distance learning, live streaming of clinical procedures, simulation-based training, virtual student faculty communication and video debriefing sessions. Google Glass may be used also in dental education training consultation, patient monitoring, and audiovisual recording.

---

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 15

**Postgraduate Students' Perception Of A 3d Interactive Anatomy Table: Research Proposal**

**Submitter:** Ms Francesca Massetti

**Institution:** University of Brescia

**Authors:**

Massetti F, Rezzani R, Dalessandri D, Scazzero N, Buffoli B, Visconti L, Rodella LF

**Authors Affiliations:**

University of Brescia, Italy

**Abstract:****Background:**

The general objective of postgraduate orthodontics programme is to educate dentists to become specialists with a broad academic background and an adequate clinical experience in different treatment methods. Though anatomy course students are planned to achieve a level of competency in normal growth and development of the face, teratogenesis, facial malformations and orthognathic surgical correction of dysmorphologies and malocclusions. The Anatomage table (Anatomage Inc., San Jose, CA) is a virtual dissection table that allows users to interactively control a life-sized realistic visualization of a 3D human anatomy, using touch input. Cross-sectional images can be displayed on the screen and investigated by scrolling through the slices using the touch table interface. The system provides preinstalled medical image volumes including CT, MRI, as well as photographic images of cryosections. The impact of Anatomage on students' learning and perception has been largely demonstrated in medical settings like dissection courses, radiology and, recently, for planning maxillofacial surgery

**Aims & Objectives:**

Evaluate students' perception of the use of Anatomage table in postgraduate orthodontics course

**Materials and Methods:**

24 postgraduate students in Orthodontics at the University of Brescia will experience traditional anatomy training on dry skulls and, subsequently, using Anatomage table.

Students' perception will be evaluated anonymously by a ten-point Likert-type questionnaire, investigating different aspects of the role of the Anatomage table in anatomy education. We'll also include a free hand comment section

**Results:**

Early surveys revealed that Anatomage should improve anatomy knowledge, satisfaction and learning outcome. Students desired to spend more time at the table to fully realize the educational potential of this technology.

**Conclusions:**

Nowadays traditional anatomical training is performed on dry skulls; bureaucratic management and ethical problems on anatomical dissertations often leads to a difficult administration. Despite the high initial costs, destined to decrease, Anatomage Table has an easier management and, first of all, it represents a technology accessible 24/7 by students

---

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 16

**A serious game prototype for OSCE training**

**Submitter:** Assoc Prof Claudine Wulfman

**Institution:** Paris Descartes University

**Authors:**

Wulfman C, Gosset M, Valencien C, Germa A, Gaucher C, Boukpepsi T, Moreau N, Radoi L, Colombier ML, \*Vital S

**Authors Affiliations:**

Paris Descartes University, Paris, France

**Abstract:****Background:**

OSCEs are known to be considered as a stressful exam. In Paris Descartes University, a classical OSCE exam preparation was proposed to the students, consisting in an introductory lecture with videos and

a mock exam with a limited number of stations. According to students' feedback, it was considered as insufficient.

The digital games for training medical professionals are on the rise. So-called 'serious games' provide an immersive simulated environment.

**Aims & Objectives:**

In order to improve students' preparation, we created a serious game prototype for OSCE training.

**Materials and Methods:**

The OSCE serious game prototype was developed in collaboration with the Paris Descartes ICTE (Information and Communication Technology for Education) department. The software used was Virtual Training Studio program. Exam setting and surroundings were reproduced with minute attention and time management was emphasized. Specific stations assessing a panel of clinical skills based on previous exam sessions were adapted to the computer program to simulate a live experience.

**Results:**

Two mock OSCE composed of four stations each were developed for pre-final and final-year students. The training program was available online on the Moodle platform. Students were given unlimited access to the program, with three simulation options: (1) full exam with a final score detailed by station but no feedback so that the student can make new attempts, (2) full exam with final score and general feedback, and (3) a shortcut to single stations for specific training.

100% of students in pre-final year and 77% of students in final year used the game. The mean numbers of connection with the first option were respectively 12.12 and 8.31.

**Conclusions:**

Serious games allow training in a readily available environment with a large variety of cases. Realistic virtual surroundings offer a complete experience, providing a useful tool for OSCE preparation.

---

**Theme:** Technology Enhanced Learning

**ID:** GPP TEL 17

**Undergraduate dental students clinical performance in impression taking: comparison between traditional and digital systems**

**Submitter:** Dr Domenico Dalessandri

**Institution:** University of Brescia

**Authors:**

Dalessandri D, Scazzero N, Massetti F, Laffranchi L, Fontana P, Bonetti S, Paganelli C

**Authors Affiliations:**

University of Brescia, Italy

**Abstract:**

**Background:**

One of the most important and pervasive technological advances in dentistry of the last years undoubtedly are digital intra-oral scanning (IOS) systems, that mainly impacted on restorative and orthodontic fields and are supposed to almost completely substitute conventional impression (CI) materials during the next decade, thanks to several advantages like less patient discomfort, instantaneously laboratory delivery and easiness of manipulation and storage.

**Aims & Objectives:**

The primary aim of this study was to test the impact of IOS introduction on undergraduate dental students clinical performance in obtaining accurate impressions of different types of fixed prosthetic dental crowns and bridges. The secondary aim was to investigate student's perceptions with these two different impression techniques.

**Materials and Methods:** Twenty fourth year undergraduate dental students with no previous experience of prosthetic impression taking (SG) and two expert tutors (TG) were asked to take IOS and CI of a group of twenty patients with different type of treatment plans, ranging from single crowns to six abutments bridges. CIs were taken in a full-arch closed metallic tray using one-step, two-viscosity technique with a polyvinyl siloxane silicone (Aquasil Ultra; Dentsply Sirona) and digitized with a laboratory scanner, while a CS3600 Carestream scanner was used as IOS. Geomagic Control software (3D Systems) was used to superimpose the digital models obtained by SG and TG to determine the mean deviations in precision between the impressions. Student's opinion regarding these two techniques was investigated through written questionnaires and one-to-one conversations.

**Results:**

SG showed statistically significantly improved mean precision ( $P < .01$ ) compared to TG when using IOS instead of CI procedures, especially with longer prosthetic bridges.

**Conclusions:**



The educational quality and clinical experience analysis revealed that student appreciated more the IOS technique, that considered easily to self-evaluate and less stressful, even if they underestimated the learning curve needed to correctly use an IOS device.

---

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 18

**Computer-assisted learning applications in the modern dental medicine teaching**

**Submitter:** Prof Dr Dr Forna Norina Consuela

**Institution:** UMF "GR.T.POPA" IASI, DENTAL MEDICINE FACULTY

**Authors:**

\*Forna N

**Authors Affiliations:**

Universitatea de Medicina si Farmacie "Grigore T. Popa", Iasi, Romania

**Abstract:**

**Background:**

New models of dental educations are examined now by teachers and students to optimize and facilitate the adsorption the increasing body of knowledge in the field of dentistry.

**Aims & Objectives:**

The aim was to analyze the advantages and benefits as well as the challenges of the computer-assisted learning applications for dental medicine students in comparison to conventional learning.

**Materials and Methods:**

It were analyzed the speed and the effectiveness of learning by using two computer-assisted learning applications in Faculty of Dental Medicine from Iasi (Romania):

-Prodent, a computer-assisted application that allow the data recording and processing, the planning of various dental treatments, the choice of the therapeutic solutions as well as the prognostic calculation of the selected treatment technique; -e-learning platform, including courses and practical training support, customized training sessions, the possibility to access a virtual library with additional resources.

**Results:**

The use of an expert system (Prodent) improves the planning and the effectiveness of the pre prosthetic procedures and implant-prosthetic therapy.

The use of e-learning platform increased both the speed and effectiveness of learning in various fields of dentistry as well as the access to theoretical and practical resources.

**Conclusions:**

Our experience in the use of computer-assisted learning application and e-learning platform showed that these are beneficial methods that can complement and enhance the conventional learning tools and can provides interactive modulation with the students accordingly to their learning abilities. Challenges of these new tools must be examined considering high costs, technical flaws, easy-to-use degree, and accommodation to change.

---

**Theme:** Technology Enhanced Learning  
**ID:** GPP TEL 19

**It's time to integrate! Whole Person Care and Case-mix tool in CAFS**

**Submitter:** Mrs AKHILA MUTHUKRISHNAN

**Institution:** University of Bristol

**Authors:**

\*Muthukrishnan A<sup>1</sup>, Mills C<sup>2</sup>

**Authors Affiliations:**

<sup>1</sup> Restorative Dentistry, Bristol Dental School, Bristol, United Kingdom

<sup>2</sup> Technology Enhanced Learning, Bristol Dental School, Bristol, United Kingdom

**Abstract:**

**Background:**

The ADEE is committed to the advancement of the highest level of health care for all people of Europe, as evidenced by its mission statement. 'All people' must really mean this. The population of the UK is changing. Over 11 million people live with a long-term impairment or disability, and 18% are aged 65 or over. The prevalence of ill health and disability in the UK rises to 45% of adults, over state pension age. This is reflected in the rest of Europe and indeed, globally. The 'average' patient in any clinic may now have a chronic medical condition, impairment or disability. Therefore, patients may have increasingly complex management needs. Dental education must respond to these needs.

**Aims & Objectives:**

Case-mix tool is a system used to identify and quantify issues relating to the impairment and/or disability of the patient.

**Materials and Methods:**

The tool considers complexity in six different domains- communication, co-operation, medical status, oral risk, access to care, and legal and ethical barriers to care. It can reflect the complexity of management from a Whole Person Care perspective.

**Results:**

CAFS is an interactive online e-portfolio electronic Clinical Assessment and Feedback System, used by students and teaching staff on clinics. Bristol Dental school will pilot the integration of case-mix tool into CAFS in the undergraduate dental clinics in 2019-20. This integration will highlight the unique management of each patient based on the above six domains. This will guide teaching in relation to treatment planning and reasonable adjustments to be responsive to individual needs.

**Conclusions:**

Opinion is invited on similar initiatives across the dental education sector, and lessons learnt from them. Learning from this pilot will be transferable to any other dental education setting.