ASSOCIATION OF SCIENCE EDUCATORS IN DENTISTRY

e-Learning & Assessment in Dental Education

Summer Meeting - 6th & 7th July 2022

Peninsula Dental School, University of Plymouth, UK

UNIVERSITY OF PLYMOUTH
Peninsula Dental School

ASEiD

12.30 – 13.50	**Arrival, Registration & Lunch**
13.50 – 14.00	**Welcome from Head of School**
14.00 – 14.45	**Keynote Lecture – Dr Daniel Zahra (Univ of Plymouth)**

Diversity in Assessment

14.45 – 16.00	**Oral presentations**
14.45 – 15.00	**Vehid Salih, University of Plymouth**

QuizOne - Experience of an online proctoring software for assessment

15.00 – 15.15	**Eiman Abdel Meguid, Queens University Belfast**

Transition to Effective Online Anatomical Sciences Teaching in the Pandemic Era of COVID-19

15.15 – 15.30	**David Bell, Queens University Belfast**

Impact of the COVID-19 pandemic on reliability and validity of methods to assess undergraduate dental student performance in pharmacology

15.30 – 15.45	**Elpida Samara, University of Birmingham**

Factors - enablers and barriers - affecting e-learning in dentistry: a systematic review

15.45 – 16.00	**Ana Angelova Volponi, Kings College London (Online, via MPEG)**

Assessment for Learning Sciences in a Dental Curriculum

16.00 – 16.30	**Tea/Coffee**
16.30 – 17.30	**ASEiD Management Committee Meeting (Members only)**
19.00 – Late!	**Dinner - Positano Restaurant http://positanorestaurant.co.uk/**

Thursday 7ᵗʰ July

09.30 - 11.00 **Oral presentations**

09.30 – 09.45 **Paul Anderson, Queen Mary, London**

e-learning and Assessment for Dental PGT Students

09.45 – 10.00 **Andreea Didilescu, Carol Davila University of Medicine and Pharmacy, Romania**

Effects of e-learning on dental education during covid-19 pandemic period in Romania

10.00 – 10.15 **Melissa Grant, University of Birmingham**

An alternative assessment to traditional exams for oral biology, microbiology and immunology teaching for non-clinical dental students

11.00 - 11.30 **Tea/Coffee**

11.30 - 12.30 **Open Discussions**

12.30 - 13.00 **Closing Remarks**

POSTERS

Jonathan James, University of Birmingham

Reflections on eLearning provision during COVID "Lockdown"

Diversity in Assessment

Daniel Zahra and Louise Belfield, University of Plymouth

With increasing focus on widening access, interprofessional education, and wider use and reliance on technology enhanced learning, it is important to reflect on whether the methods we employ in our teaching and assessment are still constructively aligned, and whether or not they are the most suitable for, and fairest to, our increasingly diverse cohorts.

Drawing on a range of experience and research in assessment across a healthcare programmes, we consider the impact of our choices of assessments on students – 'how to ensure assessment drives learning'; some of the benefits and challenges of cohorts comprising a mix of professions – 'challenges of interprofessional education'; and how assessment modalities can help or hinder different student groups, and what it is they might be capturing – 'allowing students to excel'.

These are vast and complex areas, and the thoughts presented are in no way meant to represent a gold-standard, but rather, they are presented as areas we've worked in, developed, had student input towards, and ultimately as starting points for further discussions over the course of the next few days.

An introduction to QuizOne

Vehid Salih, Peninsula Dental School, University of Plymouth, UK

Nuno Santos, School of Medicine, University of Minho, Braga, Portugal; Incognitus

Jose M. Pego, School of Medicine, University of Minho, Braga, Portugal; Incognitus

The outbreak of Covid19 in early 2020 meant that many dental and medical schools had to make very positive and brave assessment decisions which met the robust assessment needs for both staff and the student population. So called 'Openbook' examinations were not favoured and questioned whether real learning and knowledge testing was evident. In-person examination was out of the question. Here at University of Plymouth, we took on an online assessment platform (QuizOne) to run our science knowledge tests remotely. We needed a system that was intuitive, user friendly and provided essential real-time and post exam data relevant to the assessment strategies of the Medical & Dental Schools of Plymouth.

Using our previous experience of online delivery in Face-to-Face exams, we had the opportunity to proctor (real-time vigilance) students in remote locations. After two years of using this system and working with the developers to utilise an appropriate package for our assessment needs, we now have sufficient experience to report our experience of online proctored single best answer assessments to the student cohorts. Real-time vigilance and real-time secure chat offers safe communication between proctors and examinees. Data acquisition is live, secure and stored, from single click examinee use, to validation of the quality of items used. These data can then inform valuable feedback to help improve quality of assessments, align to blueprints and help decision making for which items may be reused or may be ambiguous/misleading.

Transition to Effective Online Anatomical Sciences Teaching in the Pandemic Era of COVID-19

Priti Mishall, Lisa Lee, Mohamed Khalil and Eiman Abdel Meguid

Queen's University, Belfast.

COVID-19 pandemic has transformed societies across the globe in a short time, restricting mobility by government-imposed lockdowns. Almost all institutions have been affected by this, and rapidly converted to online delivery. While such rapid conversion has challenged educators and students, it also has revealed several strengths, weaknesses, and threats to our educational programs. Among the strengths, current technologies can support large-scale online education. Most educators and students were adaptable and resilient in their pursuit of teaching and learning. As the world strives to re-establish normally, it will be under the influence of the long-lasting impact of the pandemic. This project provides recommendations for the online conversion of anatomical sciences curricula in health sciences programs. It recommended that the design and implementation of online anatomical sciences curricula start with the selection of an effective curriculum design and be guided by learning theories, and successful past experiences in digital anatomy curricula. Although faculty could decide whether the online experience should be asynchronous, synchronous, or hybrid, an online hybrid anatomy curriculum was viewed as the most effective method because it incorporates the synchronous and asynchronous components of the course. Faculty need to construct a continuous feedback loop by creating an online learning environment. For anatomical sciences, a complete digital conversion poses an added challenge due to the visual nature of the subject and a significant reliance on hands-on laboratory activities that ensure complete visuospatial understanding of the body. This guideline provides evidence-based pedagogical strategies for designing online anatomical sciences curricula for maximum engagement.

Impact of the COVID-19 pandemic on reliability and validity of methods to assess undergraduate dental student performance in pharmacology.

D Bell, V O'Neill, V Crawford, Centre for Medical Education, Queen's University Belfast, Northern Ireland

Background: Strategies to assess student performance include traditional closed-book, time-limited written examinations comprising single best answer (SBA), (very) short answer and longer essay and case-based questions. During the COVID-19 pandemic, many assessments adapted to open-book, extended duration format. We compared the impact of the pandemic on reliability and validity of assessment of pharmacology learning outcomes within the second year dental course at QUB. Our assessment strategies map to professional learning outcomes, ensuring construct validity.

Results: Our second year dental cohort comprises 58+5.6 students annually (mean+SD, n=7) who undertake two written assessments: class test (30 open-ended very short answer questions) and end of year paper (short answers x4, essay x1 and case study x1). During 2014-2019, marks were 20.4+1.2 /30 (class test) and 51.5+2.8/80 (paper), mean+SD n=6. 25% scripts are double-marked: inter-marker variability <5%. Both assessments were reliable: Cronbach's alpha was 0.82+0.06 and 0.74+0.09 (n=6) for class test and paper, respectively. The class test is taken mid-year whereas the paper focuses on the entire year's content, increasing content validity. Correlation between closed-book class test and paper scores was 0.63+0.05 (n=6, p<0.001), inferring predictive validity. Correlation between sections of the paper was >0.42 (n=6, p<0.001), indicating factorial validity. During COVID-19 restrictions, mean mark increased (p<0.05) when the assessments were delivered using an extended duration open-book format: 25.7+5.3/30 (class test), 60.5+7.1/80 (paper). Reliability decreased: Cronbach's alpha was 0.63 and 0.68, respectively. Predictive and factorial validity was 0.33 and 0.38, respectively, p<0.05.

Conclusion: Overall, our experience indicates that free response written assessments are reliable and valid for closed-book time-limited assessments. Dependence on open-book extended duration assessments during the COVID-19 restrictions resulted in modest reduction in reliability and validity.

Factors - enablers and barriers - affecting e-learning in dentistry: a systematic review

Elpida Samara

Clinical Tutor in Oral Surgery, University of Birmingham

A lot of attention has been given to e-learning in higher education as it provides better access to learning resources online, utilizing technology to enhance learning. It has now become part of the mainstream in education including dentistry. Despite growing evidence that e-learning is effective as traditional means of learning, there is very limited evidence about what works, when and how e-learning enhances teaching and learning. This systematic review identifies and synthetizes the factors - enablers and barriers - affecting e-learning in dentistry as reported in the medical literature. A systemic review of articles published on e-learning in dentistry was performed in MEDLINE and EMBASE using as keywords "e-learning", "dentistry", "enablers" and "barriers". Following the PRISMA guidelines relevant published papers were searched. Data were extracted and quality appraised. Among the factors that impact on e-learning were interaction and collaboration between learners and facilitators, learners' motivation and expectations, user-friendly technology. There is significant scope for better understanding of the issues related to the effective delivery of e-learning, and developing appropriate methods in order to create a broader framework for making e-learning effective means in dental education.

Assessment for Learning Sciences in a Dental Curriculum

Ana Angelova Volponi *&* Adam Hasan

Centre for Dental Education, Faculty of Dentistry, Oral & Craniofacial Sciences

King's College, University of London

Assessment for learning (AFL) is an approach to teaching and learning that creates feedback which is then used to improve students' performance.

At the Faculty of Dentistry, Oral Craniofacial Sciences Kings' College London, we have online assessments and cohorts of 180 students, undergoing transition from school to university in the first year of their dental education. The first year of the dental curriculum comprises two big modules focused on biomedical sciences in relation to dentistry, pointed out by the students as some of the most "challenging" content to learn. In response to this challenge, we have designed, delivered, and evaluated a new approach of tailoring learning through formative assessment and feedback. Students become actively involved in the learning process, gain confidence, and engage in self-assessment and management, fostering reflection and self-evaluation.

ana.angelova@kcl.ac.uk

Adam.hasan@kcl.ac.uk

e-learning and Assessment for Dental PGT Students

Paul Anderson

Dental Physical Sciences Unit, Centre for Oral Bioengineering, Institute of Dentistry, Queen Mary University of London

The numbers of dental PostGraduate Taught(PGT) students in UK Dental Schools is growing.

These students undertake level 7 (MScs), and level 8 (DClinDent) PGT programmes. Level 7 programmes are delivered both in-person, but increasingly, as Distance Learning (DL) programmes. Often, PGT students are overseas, which can exasperate issues such as attendance, engagement, and well as assessment, especially if they attend only on-line. The recent pandemic has highlighted the need to understand this complex multi-challenging group of students, who are postgraduate professionals, often paying high fees, who find themselves in a new cultural and educational environment.

At QM, we have had to adapt to respond to the complex variety of needs these student cohorts, including their learning and assessment. There have been students who are wholly, partly, and sometimes never in the UK, some despite not being on DL courses. Assessment issues such as plagiarism, and ghost-writing become evident, as sometimes these concepts are not understood in new jurisdiction.

PGT Dental educators have had to balance University policies, as well as the complex needs of an already highly trained, high-level specialist group of students. Clinical level 8 students have required patient-facing sessions during COViD when the hospital is closed, as well as research time during the closure of clinical and scientific laboratories. Monitoring attendance, engagement as well as assessment at level 7 and level 8 is a challenging. PGT clinical skills education and assessment has had to be modified in this new paradigm.

In conclusion, PGT including Distance Learning international students provides new e-learning and assessment challenges.

Effects of e-learning on dental education during covid-19 pandemic period in romania

Andreea Cristiana Didilescu1*, Ana Maria Cristina Țâncu2, Laura Iosif2, Marina Imre2

1 Department of Embryology, Faculty of Dental Medicine, Carol Davila University of Medicine and Pharmacy; andreea.didilescu@umfcd.ro

2 Department of Complete Denture, Faculty of Dental Medicine, Carol Davila University of Medicine and Pharmacy

The COVID - 19 pandemic forced introduction of digitalization in the dental educational process, with important consequences in academic life. The main educational impact of the digitalization among the dental students of Carol Davila University of Medicine and Pharmacy, Bucharest, was further assessed. An anonymous survey consisting of socio-demographic items and questions regarding perceptions of psychological and educational impact, was completed by 878 students. There was a severe psychological impact among the respondents, the levels of stress being perceived as high and very high (33.83%, and 28.59%, respectively), as well as high and very high anxiety feelings (26.54%, and 24.26%, respectively). The level of acquiring the academic information through the online teaching system was regarded low by more than 1/3 of the respondents, whilst gain of practical skills was considered to be major affected by almost 50%. Overall, there were important effects on the educational aspects for our students. Students' perceptions may contribute to further improvement of e-teaching skills and strategies among university lecturers.

An alternative assessment to traditional exams for oral biology, microbiology and immunology teaching for non-clinical dental students

Melissa Grant, Sarah Kuehne, Gosia Wiench, Ben Scheven

School of Dentistry, Institute of Clinical Sciences, University of Birmingham, 5 Mill Pool Way, Edgbaston, Birmingham, B5 7EG, UK

During the 2020-21 and 2021-22 academic periods the delivery and assessment of the year 2 Oral Biology, Microbiology and Immunology module in the Bachelor of Dental Sciences course at the University of Birmingham was disrupted due to the COVID-19 pandemic. To overcome the difficulties of not being able to deliver sessions face to face we developed online delivered teaching via recordings and video conferencing as was common practice. For the end of module summative assessment, we developed a novel method of assessment that required the students to explore a predetermined list of peer-reviewed published articles in dentally relevant topics that involved understanding the concepts of the module and how they were used by dental researchers. The students produced short critical reviews and needed to demonstrate their understanding of the links between the research, teaching and becoming a reflective and research aware dentist in the future. Informal feedback was sought from students and the grades achieved were explored in comparison to previous more traditional examinations incorporating multiple choice and short answer question style assessments.

Reflections on eLearning provision during COVID "Lockdown", 2020/21 Academic Yr., Biomaterials Course (UG), UoB

J. D. James, University of Birmingham, UK

During Autumn 2020 it became necessary to put all learning online as in-person teaching was hastily replaced with "online-only" tuition. The COVID-19 pandemic (and the associated social curbs to reduce infection rates) effectively stopped all 'face-to-face' University teaching in a way not previously experienced. This poster reflects on how the UoB Biomaterials course delivered their Laboratory practical sessions during this period and what might be learned.

The views of lectures and students were considered here. Having taken a survey of opinions of those involved the overwhelming feedback was that online practicals were in no-way a full substitute for the usual sessions. The prevailing view was that, whilst online demonstrations were adequate for 'the time', they were not something that could ever replace the hands-on laboratory exercises.

Now that the desire / need for online teaching appears to have completely dissipated is that the end for using eLearning to deliver practical sessions? It has been suggested these online materials generated in the 2020/21 academic year could be re-used and turned into a 'bank' of resources / supplementary material. In our institution this idea has yet to be fully explored.