Examples of Major Curricular Changes in U.S. and EU Dental Schools:

Technology in Dental Education
eLearning @ Birmingham

Open Patel
BDS AHEA MFDS RCSEd MJDF RCSEng

Clinical Lecturer in Restorative Dentistry
School of Dentistry, University of Birmingham, UK
eLearning

TEACHER
Aids the process of delivering education
Better efficiency

STUDENT
Enhances understanding
Student centred learning
eLearning @ Birmingham

- Audience Response System
- Camera’s & Video Technology
- Loupe-Mounted Camera
- Digital Pen
- Virtual Learning Environment
- Online Clinical Assessment & Feedback System
- Distance Learning
Audience Response System
Audience Response System

- Anonymous
- Engagement for all
- Peer Learning
- Learning Communities
- Formative Feedback
- Educator Feedback
What is the main reason why dental wax is used to form the occlusal rims?

1. Ease of adjusting
2. No taste
3. Pleasant colour
Audience Response System

- Wear and tear
- Battery replacement
- Forgetting to bring to the learning activity
- Time to distribute and collect in large groups
Audience Response System

ResponseWare™

What is the main reason why dental wax is used to form the occlusal rims?

- 50% Your Responses
- 33% Other Responses
- 17% (Tap chart to switch between counts and percentages)
Student Ownership and Usage of Mobile Computing Devices in Dental Education

Mr. Upan Patel & Prof. Giles Penny

Implementation of eLearning technologies to enhance learning and teaching can be a difficult and complex task, and requires careful consideration of many factors to ensure its successful integration into everyday learning and teaching practices. One of the key factors to consider is to ensure that academic staff are competent and integrate the technology with their teaching. This involves reducing the time needed to setup and use this technology during their learning sessions. Audience response technology requires the student to use a piece of hardware, a keypad, on which their responses are recorded. Distribution of keypads to the student body has been a major concern due to the cost of each device, maintenance and time taken for supplying and collecting the keypads at each learning session. A possible solution to this concern was to consider utilizing student-owned mobile computing devices as the keypad. It is dangerous to assume that all students would own such a device so all dental students at the University of Birmingham were asked to complete a survey to identify device ownership. It was also important to identify how the student used their device for eLearning, so questions were asked to identify how often their online-learning environment, the eCourse, was accessed and utilised.

The results of the survey indicate that the large majority of dental students at the University of Birmingham own mobile computing devices, and that almost all students own a smart-phone. Bringing this device to learning sessions is important to note that in each year group of students, there are no more than eight students that do not have a smart-phone. When implementing new technologies it is important to account for the minority, and in this case, supply these students with an equivalent device to ensure the delivery of teaching is fair to all students.

E-course use was reported highly, and it was found that 75% (208 students) were accessing the ecourse on a daily basis from their mobile computing device. The free text component section of the survey was used to ask us what problems students faced accessing the ecourse from a tablet computing device or laptop computer compared to a smart-phone. It is due to screen size, however accessing the ecourse on a smart-phone is useful when you are looking for a specific piece of information and there were multiple comments asking for an app to be made available based on the ecourse.

99% of dental students across all five years responded
99% of students surveyed own a mobile computing device
99% of students surveyed own a mobile computing device (smart-phone, tablet computer, or laptop computer)
100% of students who own a smart-phone bring it to teaching sessions
56% of smart-phones and 83% of tablet computing devices, that students own, are manufactured by Apple
98% of students use their mobile computing devices to access the eLearning environment - eCourse

A Global Perspective on Leading Change and Innovation In Dental Education

September 14, 2014 Barcelona, Spain

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Clinical Skills Suite
Clinical Skills Suite

- Ceiling Camera
- Light Mounted Camera
- Microscope Camera
Loupe-Mounted Camera
Digital Pen

- Engaging rather than writing
- All students get the same information
- Notes can be checked
- Small group
- Brainstorming
Digital Pen

- Papershow
  - Anoto image capture technology
  - Camera
  - Bluetooth
FULL VESSEL CROWN

**Advantages of FVC**
- Can be burnished to ensure the marginal fit.
- In upper 6:
  - Use depth grooves to correct surface parallel.
  - Preserve enamel.
- Occlusal surface flat (can keep original surface form).
- Create enough space for metal.
- Functional anti-cusp level (end).
- Go to wax up waxing first.
- Choma margin:
  - Tapered, tapered diamond.
  - Taper needs to be learned to create the taper.

**FVC Prep**
- Similar to usual prep except MORE tissue is removed.
- Use 601 bur (round-ended taper) to create a shoulder, occlusal section.
- 2mm reduction near the incisal edge.
- Enamel is thicker.
- Use No. 3 or No. 4 conical bur.

**Retention of Patient Restoration**
- Top of the preparation:
  - 1/3 area to which enamel was or remains.
  - 2/3 area to which new crown.
  - UNDERMOUNDS.
  - UNDERMOUNT.

**CROWN FABRICATION**
- Crown prepares.
- Leak deviation -> knit edge.
- Sharp margin.
- Circular.
- Bevelled shoulder.
- Gold used as strong in thin sections.
- Gold can be used.
- FGM & PMMA.

**FRC vs PMMA**
- PMMA (metal is present) due to bad part of crown.
- Part cannot be modelled.
- Need to know resin thickness of material required:
  - Gold = 0.65mm (usually 1.5mm thick).
  - Metal + Porcelain = 1.5mm.
  - 0.25mm of metal + 1mm porcelain.

**To check in-office after crown is ready:**
- Very important to check patient's bite (if possible) on crown.
- Occlusal finish margin of crown.
- Metal:
  - 1/2-2/3 ( recessed edge).
  - Upon emergence:
  - Need to have enough space to be esthetically pleasing.
  - Not enough space can cause bagging.

**CUBITALE**
- 1/2
day
- Remove 0.7-1.0mm.
- Apply 35-5001.
- Retain the tooth.
- Remove additional burs.
- Occlusion:
  - In the upper functional cusp = buccal.
  - In the lower functional cusp = lingual.
  - Undercut.
  - Undercut.
  - Undercut.
  - Undercut.
  - Undercut.
Virtual Learning Environment

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ADEA | THE VOICE OF DENTAL EDUCATION

UNIVERSITY OF BIRMINGHAM
Welcome to the ecourse - the e-learning portal run by the School of Dentistry at the University of Birmingham. The ecourse is restricted to students at this University, but shortly you will be able to see a selection of demo pages without signing in.

Are you thinking of studying here? See what some of our recent BDS graduates said in the National Student Survey

E-learning has been outstanding throughout the 5 years and continues to improve.

2012 NSS overall satisfaction rating for BDS - 98%
Discuss this page.

Discussion area - ask questions or chip in your comments.

from bds: 30/03/11
when relieving the palate for an acrylic denture, is it still favourable to do it after the master cast has been poured?

from Mr U Patel: 30/03/11
If you're talking about providing relief channels/chambers then yes after the master cast has been poured and before jaw reg.

from bds: 30/03/11
ye i did mean palatal relief chambers sorry. but when you make a rim for acrylic dentures don't you just place a rigid material onto the cast and then cover it with wax so if the foil was placed under the rigid material would it really create a chamber?

from Mr U Patel: 30/03/11
The space the foil takes up would be the chamber - remember that foil isn't there the mouth. Wax over the foil relief = space over area requiring relief in the mouth.

reply to this topic (thread #7840)

from BDS: 06/03/11
Hi,
Charting Instructions

Scroll the page so you can see the chart and the whole magscope.

Then select (click) a tooth box in the chart above. Start with an "8".

Exam help

Please select a tooth by clicking the main chart. Start with an "8".

Treat help
Guiding Principles

1. Student Centric Approach
2. Anonymity
3. Open Learning Philosophy
Online Clinical Assessment & Feedback System

- Clinical Assessment & Feedback System (CAFS)
  - Records clinical dental procedures
  - Teacher feedback
  - Assessment grading
  - Student reflections
Clinical Learning Episode with CAFS

1. **Student creates a CAFS session**
2. Patient welcomed on to clinic & initial patient history
3. Student discusses patient case with teacher
4. **Student updates CAFS session**
5. Further discussion with teacher
6. **Teacher updates CAFS session with feedback**
7. Patient provides feedback
8. **Student selects procedures & records reflections**
9. Teacher & student discuss learning episode
10. **Teacher, with student, records grades and feedback**
Transparent recording of feedback & grades
360° feedback; teacher, patient & student
Facilitates teacher calibration
Electronic storage allows for ease of audit
Significantly enhances clinical dental education
Weak students are identified easily
Distance Learning

- Advanced General Dental Practice
  - Module based
  - Recorded lectures
  - Discussion forums

- ‘The key to successful distance learning is not to feel the distance...’ Professor Giles Perryer
eLearning @ Birmingham

- Audience Response System
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Take Home Messages

- Facilitates & enhances the quality of learning
- Reaches all types of learners
- Efficient teaching (make our job easier)
- Pilot studies – should eLearning be used?
- Infrastructure (reliability)
- Teacher Training
Future...

- Paperless classrooms
- Cloud technologies
  - Plan for the future – wireless connectivity
- BYOD – Bring Your Own Device
  - Cloud connection
- Distance learning – MOOCs
  - Brings together learners separated by geography
Thank you for listening

Questions?

Upen Patel
Clinical Lecturer in Restorative Dentistry
University of Birmingham
u.s.patel@bham.ac.uk