Taking the tablets: mobile support for learning, teaching and assessment in Medical Sciences

PULSE: Pop-Up Learning Space Experiment

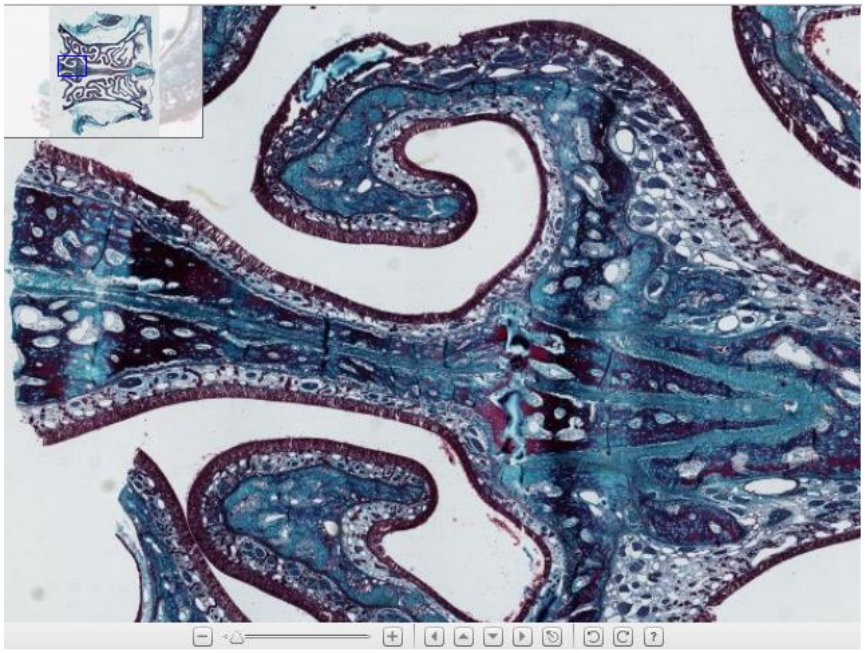

Figure 1 The tablets were used to display items from the division's slide repository

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Following the recent explosion of mobile devices, there has been a growing interest in the use of mobile technologies to support teaching and learning. Such technologies also challenge traditional notions and boundaries of what we know as a classroom. The Medical Sciences Division Learning Technologies Group (MSDLT) embarked on a multifaceted project, 'PULSE', which explored how tablet technology could be harnessed to engage and support students and teachers in teaching and assessment. The division bought a set of 35 Asus T100 tablets and used them in a number of ways.

The multiple strands of the project

Online assessment

With an intensive exam schedule to deliver online and requirement to negotiate multiple assessment sites, the Medical Sciences Division was looking for a creative way to reduce growing pressure on existing IT suites. The PULSE team began the project by running a pilot in which 27 fifth-year medical students were set a formative, open book assessment on the tablets. In a follow-up questionnaire, many of the students expressed a preference for the tablets as it meant that they did not have to travel across the city to one of the assessment sites equipped with desktop computers. Since then, three summative exams have been run successfully for groups of around 30 students.

Virtual microscopy

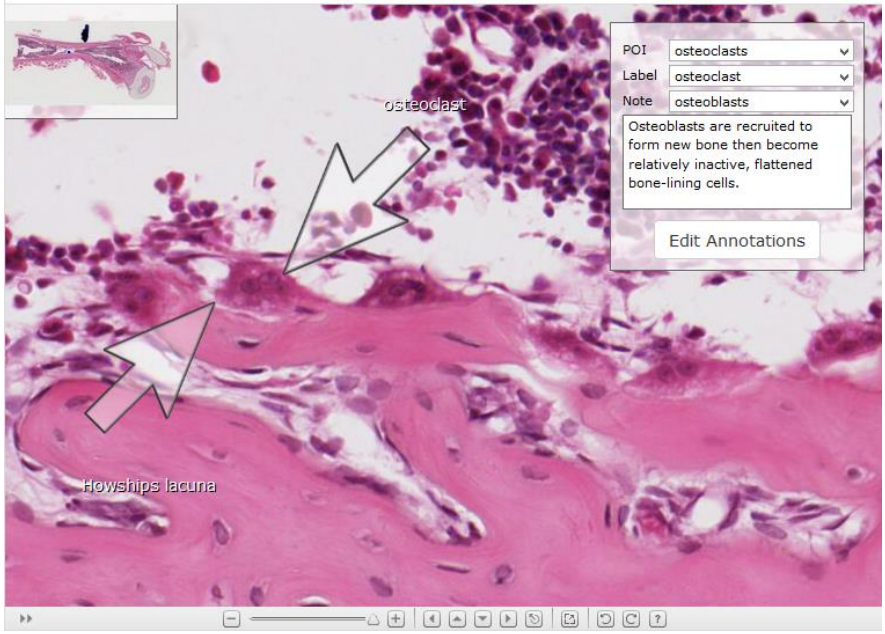


Figure 2 An annotated slide displaying the cells in the femur of a rabbit

The MSDLT has developed CSlide, an extensive online resource which makes slides for histology, neuroanatomy and pathology available for use in practicals and lectures. As part of PULSE, staff were able to harness this resource in teaching sessions. Demonstrators could talk to students without having to play 'musical chairs' with the microscopes, and students were able to zoom in on particular slides if they were struggling to find objects of interest on their own slides. One member of staff commented:
'Using the tablets as a virtual microscope alongside conventional microscopes in undergraduate medicine classes has significantly increased student engagement with a traditionally unpopular part of the course.'

Practical class companion in Biomedical Sciences

Practical sessions in renal physiology require students to work through an online practical companion which both gives instructions and records results. In the past, students used a laptop computer. However, the keyboard had to be protected from spillages, and some steps of the experiment had to be completed at a distance from the computer. As a result, students had to keep shuffling between computer and experiment. Tablets, with their comparatively wipe-clean surfaces and easy portability, represented an ideal solution to these two problems.

Audience response (polling)

The tablets were trialled with two audience response scenarios. Previously, a lack of mobile devices and problems connecting to a wireless network had hampered success. Access to the tablets made it possible for everyone to participate.
The tablets were also used as audience response systems in seminars run as part of the UNIQ summer schools. Working in groups of three with a tablet between them, students were observed discussing their answers to a greater extent than in previous sessions, when students had responded to questions individually on their mobile phones.

Objective Structured Clinical Examinations

Objective Structured Clinical Examinations (OSCEs) are a crucial component of assessment in clinical medicine. A typical OSCE 'station' consists of an actor who responds to the student's questions and examination as though (s)he is suffering from a given problem. With dermatology, this is more difficult as much of the diagnosis relies on the appearance of the condition – not something that can easily be faked in a convincing manner. The tablets allowed staff to present such conditions as online questions at an 'actor-less' OSCE station. It had been thought that tablets might also help reduce the amount of paper used in marking OSCEs, but the PULSE team reports that general marking on tablets is still some way off.

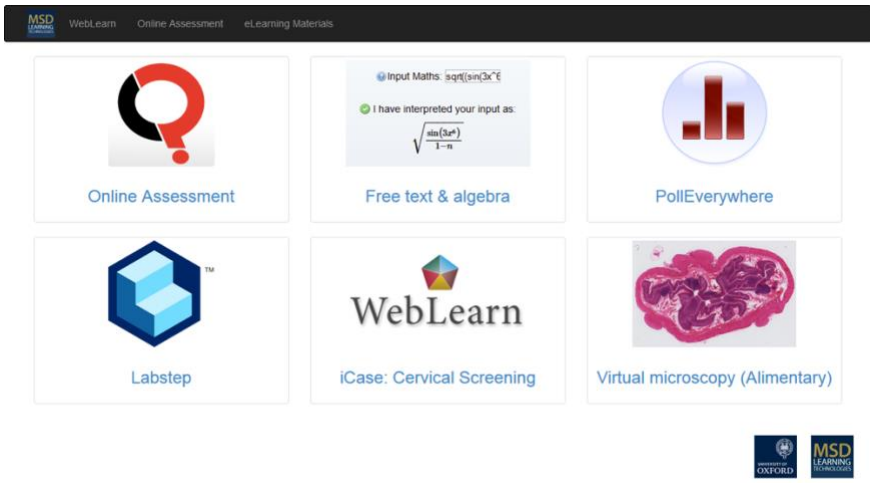
Other uses of the tablets

The tablets have also supported online problem-based learning in the OxSTAR simulation centre and in a research project at the Women's Centre in the John Radcliffe Hospital involving iCases.

Tried and tested: key lessons learnt

A key aim of the PULSE project was to discover, work through and solve some of the issues with infrastructure and software that MSD will face with the increased use of mobile devices for teaching, learning and assessment. Dr Damion Young, Senior Educational Technologist in MSDLT, shares some of the lessons learned so far:

- Don't underestimate the time taken to test out devices. Unanticipated problems can crop up but are often resolved with patience.
- Arrange IT support for new devices. Managing your kit can be complex and may not suit your team's existing skill set so it is wise to seek help.
- Check wireless connections to the University network in advance.



Further Information

- Find out more about the MSDLT.
- The Centre for Teaching and Learning offers a number of courses on integrating technology into the classroom.

Runner-up, OxTALENT 2015 award for innovative teaching with technology. The text in this case study has been adapted from Damion Young's entry for the OxTALENT competition.