

“Enabling Effective Practical Teaching in Microbiology”

Project Leader: Professor AN Rycroft

The need for microbiology teaching:

Infections caused by bacteria and fungi continue to be a very common reason for initial veterinary consultation. Understanding the diagnostic methods and basic laboratory handling techniques in microbiology is crucial in interpretation of diagnostic reports. This is gradually slipping from the curricula of veterinary education from pressure of time and student numbers. However, it was felt if we could redistribute staff-student contact time, so that it moved from imparting information to a focus on practical skills and reasoning, that this could be more effective in supporting meaningful learning in this area.

What we sought to achieve:

The intention was to get the student to think rather than memorise. In doing so, the student is forced to use the information and language to gain understanding rather than facts. Students still need to have an understanding of the vocabulary for them to be involved in discussion and participate as young professionals. To enable this we wanted students to learn the basic ideas before coming into the practical classroom. In so doing they would be prepared for carrying out small experiments themselves with much more “hands-on” activity. They would do this by watching (and re-watching) short video films and answering key questions associated with the films. They could then do more interesting and thought-provoking exercises in the practical classroom.

The Films:

With the RVC’s e-media Unit we have made a series of 8 digitised live illustrations (videos), with full commentary, to substitute for much of the practical microbiology previously taught as demonstrations at the bench. These were filmed in the practical classroom. They are collectively known as “Bacteriology Techniques for Veterinary students and Veterinary surgeons”. Close-ups at the bench show cultures and materials in excellent detail. Each film is accessible to students through the Blackboard Virtual Learning Environment, together with an associated short, Wimba-based, formative test with immediate feedback of the answers. Each student is allocated time in their schedule to view each video and answer the questions, but the videos can be viewed through Blackboard at any time, and at home. The first 5 videos are watched before coming to the practical classes; the 3 remaining are back-to-back with the practical classes.

The advantages of these videos are:

1. They will remain a lasting record of standard technique compiled by an experienced microbiologist.

2. They can be viewed on more than one occasion and re-wound (unlike tutorials).
3. They allow students more hands-on and interesting exercises in practical classes.
4. They take the time-pressure away from the tutors allowing a more relaxed teaching approach.
5. They overcome the problem of too many students in introductory groups.
6. They could form the basis for OSCE questions in the future.

Outcome

The practical science videos have been used live for the first time with clinical veterinary students (RVC BVetMed Year 2, Term 1) in 2011. With full commentary and appropriate formative questions, they appear to be of high quality, relevant and successful according to initial student feedback. Overall, they appear to have fulfilled or exceeded the original expectations of the project. Students were clearly adequately primed or prepared in many of the basic techniques needed for their exercises in clinical microbiology.

Students still have practical class experience aimed at helping them understand microbiology, but the time-consuming and repetitive (for staff) demonstrations have been moved to video so that staff time is fully utilised in developing student practical skills and understanding.

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