

## Using Reflective Video Sharing in Year One Chemistry Laboratory Sessions

**Award Nominee:** Stephen McClean, University of Ulster

**Centre Contact:** Sheryl Meskin

**Subject Area:** Biomedical Science: chemistry

This case study has been developed from data gathered through teaching component observations (lecture/practical); tutor interview and questionnaire; and student survey (121 students) and focus group (6 students) outcomes.

---

### Background

Transition to university can be difficult for any year one (NI Level 4) student who might feel alienated, insecure, or at a loss upon starting a higher education degree. University of Ulster students enrolled on biology, biomedical science, dietetics, human nutrition, food and nutrition, or pharmacology degrees since 2005 have undergone a different experience thanks to their lecturer redesigning an introductory chemistry module. In previous years the lecturer was challenged when teaching the introductory chemistry module in meeting the educational needs of first year students who arrived with varied abilities and understandings of chemistry; many lacking A-level chemistry experience. To further assist these students with the module content he developed an extensive student support system to include compulsory tutorials, a dedicated website (PlanetChemistry.com with an online survey to gauge previous experience of chemistry and identify at-risk students), online assessment, and a web-based message forum and text messaging communication system with students (STAR programme case study, McClean, 2006). Students appreciated the module improvements as indicated by increased satisfaction on surveys and were found to be more engaged with the subject material.

### Reasons for introducing this teaching method

First year students across the UK have rated practical experience as poor and lacking relevance and identified both the best and worst aspects of these experiences (Wilson, 2008). This case study describes one lecturer's attempts to deal with these issues in order to promote reflective practices in a laboratory practical setting while providing a social avenue to increase facilitation of inclusivity amongst and for first year students.

The lecturer observed a lack of student engagement with their preparation for and in the practical sessions due to their not reading the practical manual. To help students better prepare for practicals, a 'Lab Practical' section was added to the PlanetChemistry.com site to include: downloadable handouts (shortened practical information/protocol), a short introductory video (for some labs), and online-quizzes (turned in upon entry to a lab). Additionally in 2008, Reflective Videos (YouTestTube.com), a social networking website hosted on University of Ulster servers, were included to further improve student experience with the practicals. Each lab group was required to record one video during a semester using a reflective prompt sheet (requirements needed for the video to capture the practical/outcomes). Module participants viewed, rated and commented on any of the semester's videos on their own time to model the social commentary of such sites as YouTube. All of these changes were carefully brought together to improve student engagement prior to and during lab practicals, to increase understanding of chemistry and its relevance, and, most importantly, to provide an avenue for further reflection.

### Lecturer perspective

The lecturer found the process to be relatively straightforward to administer yet provided a further channel by which his year one students could network within a relatively large group. He discovered additional pedagogic potential of the user-generated video as a teaching tool but also as an interactive means of engaging students and an aid towards reflection.

### Student perspective

Six student panel members and the majority of student survey responses greatly valued the lecturer's style, lecture delivery, and the overall programme of activities. Students ranked lectures and tutorials as their best information source while textbooks were identified as a poor source of information.

Students greatly appreciated the videos' reflective nature, learnt practical skills from the videos, and used the videos to revise. For example, over half of the students surveyed agreed or strongly agreed that the YouTestTube videos helped to clarify what was to be learnt, while just under half of the students surveyed found the experiences led to greater depth of understanding and motivation to learn. Some students (panel group and surveyed) would have liked to view the previous year's videos. They realised the disadvantage of potential influence on their own experiment or video production, but they did see benefit in watching previous videos even if after completing their practical. Surveyed students listed the top four skills learnt as: lab skills, knowledge of chemistry to include improved understanding of its relevance and importance, study skills, and teamwork skills.

### Issues

A prolonged practical experience was the intention behind the inclusion of student comments on the YouTestTube site. Yet most, if not all, student comments were social in nature and do not evidence reflection. Student panel members said they were hesitant to provide critical comments in a public forum but said if they privately viewed a video they would. Students wanted to protect the 'fun' aspect of the exercise since an assessed video would become more of an exercise about 'getting it right'. Interestingly only a few of the surveyed students listed reflective skills as an identified skill learnt. Perhaps students unwilling to reflect publicly on a practical or articulate it as a learned skill were instead able to participate reflectively in a less obvious, private manner where they did critically engage with the videos. The practical experience was therefore extended for these first year students.

A small group of the students (19/121) surveyed disliked the amount and scope of the chemistry learnt. For some students the amount of chemistry was difficult suggesting difficulty in subject transition and perhaps pace of material learnt. A small minority of students (panel and survey) did not like being recorded on camera. A few more students felt it should not be mandatory even with guidelines suggesting to record only the practical components.

### Benefits

Students on the course benefitted overall from the experience by participating in reflective videos in conjunction with the practical experience. Students were able to state many positives from the experience whereas others were harder for them to articulate, e.g. reflection. The YouTestTube reflective videos successfully served many purposes: social function, engaged learning, and use of reflective practice to both inform current understanding and future work.

### Reflections

The teaching practices described in this case study would be of benefit to lecturers of any discipline with a practical element. In fact University of Ulster has some science and non-science disciplines interested in implementing a similar approach as a public forum for student projects and presentations. The requirement to design a self-contained social web space as was done here though is not necessary as public systems have the option of a closed group.

### References

Stephen McClean, Paul Hagan, J. David Ruddick and Keith R. Adams. (2006) Supporting First-year Chemistry for Students of Bioscience, in *Supporting Students Through Course Design*, Edited by B.S. Rushton, A. Cook and K.A. Macintosh, The STAR (Student Transition and Retention) Project.

Wilson et al. (2008) Report: 1st Year Practicals — Their Role in Developing Future Bioscientists. Centre for Bioscience, available at [www.bioscience.heacademy.ac.uk/ftp/reports/pracworkshopreport.pdf](http://www.bioscience.heacademy.ac.uk/ftp/reports/pracworkshopreport.pdf) (accessed 7 June 2010).