



REAP Completion Report First Year Biology Pilot Institute of Biomedical and Life Sciences University of Glasgow

Project Sign-off

1. Project achievements

*Have all **project activities or deliverables** been completed? What, if any, work remains outstanding from your plans for this academic year?*

The timetable for the project was:

Execution of project with student groups	February-March 2007
Lifestyle & Moodle questionnaires	March 2007
Student focus group	April 2007
Analysis of Moodle forum activity	April-May 2007
Correlation of Moodle activity with marks	May 2007
Analysis of questionnaire responses	May-June 2007
Correlation with final grades and progression	June 2007 – ongoing

The final part of the project awaits confirmation of the students' progress into Level-2 Biology.

At the end of the project, do you feel you achieved the aims and objectives identified at the start? What is missing? What have you done that wasn't in your original plans?

Virtually all aims and objectives were achieved. There was a high level of group interaction (as indicated by the usage of the Moodle forums), the students generated their own peer-assessment criteria and there was cyclical development and progression in carrying out the group tasks. The Moodle sites provided a permanent record of the group interactions for both staff and students. The questionnaire responses indicate that students were very aware that they were actively engaged in their own learning, and that tutor interaction and feedback were available. The students found the peer assessment procedures fair, and saw a benefit in using them.

The only objective not achieved relates to the final reflection/iteration that asked students to revise their peer marking criteria in the light of the peer-assessment process. Group coherence was interrupted by the Easter vacation, before this information could be collected.

Staff involved with the project were interviewed in May 2007. The short time scale of the project (4-5 months) did not permit other additional work to be performed.

2. Impact on students

What has the impact of the project been on students? Have marks, attendance, retention, progression or other key indicators changed or improved (please give details)? Do students demonstrate differences in their satisfaction with the class or course? What evidence can you draw on (please give details)?

When evaluated in relation to the drivers for change, the outcomes of the pilot project demonstrate an improvement in student motivation and an enrichment of their learning experience. The students reflected on their own and on their group members' contributions to the group tasks. There was increased engagement with the course, and they took greater control over their own learning. Students also reported positively on the effect of the group activities on the development of their skills in organisation, time management, interpersonal communication and individual study. The on-line Moodle forums provided convenient and effective on-line social spaces which increased student interaction and peer support. Overall, the students appeared to have enjoyed a positive learning experience enhanced by the strong social cohesion enabled by the redesign. This increased their



motivation across the whole course, as evidenced by the responses to the two questionnaires, and from the focus group.

Compared to the previous year, no measurable changes in the marks were obtained for the group exercises; the overall mean percentage for the group tasks was 62.8% in session 2005-2006 and 59.5% in session 2006-2007. It is premature to make inferences from this, as the marking scheme used in the debates was altered in session 2006-2007. The impact of the group interactions on grades for the whole module is difficult to assess. The impact of the group interactions on student retention, both at the university and course level, was negligible; in session 2005-2006, 3 students withdrew from the University after the group exercises started in Module 1Y (reasons cited included "no reason" and "transfer to other university") and in session 2006-2007, 4 students withdrew from the course/University after the group exercises started in Module 1Y (reasons cited included "concentrating on Level-3 subjects", "academic failure", "course change" and "health reasons"). The majority of students withdrawing from the L1 Biology course normally do so before the start of Module 1Y; thus 32 students out of 699 officially withdrew from the course/University during or at the end of Module 1X in session 2006-2007 whilst 22 students out of 644 officially withdrew from the course/University during or at the end of Module 1X in session 2005-2006. Data on the progression of students into L2 Biology will be available after the resit examinations in August.

3. Impact on staff

What impact has the project had on staff? Has workload changed significantly? Do staff members involved in the project feel differently about the class or course now that changes have been made? How?

The pilot project has had a strong impact on staff by causing them to reflect on the structure, timing and workload of the group exercises. It has also made them realise the extent to which students are willing to interact using the on-line forums. The workloads of some staff performing certain assessment tasks have changed following the redesign, since there have been savings in the time needed to resolve a number of assessment issues. The record of Moodle traffic and postings has also provided useful information relating to the peer marking of problem groups, to cases of plagiarism in the group poster exercise and also to the determination of the final grade given in one case.

The fact that, in effect, a 'learning community' was generated by the redesigned group exercises, and that this continued to operate in other areas of their learning has convinced staff that group activities can provide an effective priming intervention to promote the active involvement of students in their own learning. Staff have therefore agreed to extend the group exercises involving on-line group forums throughout the whole first year course. This has the aims of further empowering students in their own learning, of creating an active learning community which promotes the social cohesion and morale of the whole class, and of enhancing the overall student learning experience of the L1 Biology course. Staff also feel that such a learning environment is more conducive to their teaching as well as to the students' learning, so that the time given by staff to teaching will become a more enriching and satisfying experience.

Group activities will be introduced into the L1 Biology curriculum at the start of the academic session 2007-2008. The project groups will form a social and academic support network for the L1 students from the start of the academic year (refer to the student responses in the questionnaires and in the focus group) and it is believed that this support may reduce the number of students withdrawing from both the University and the course at an early stage. Two project groups will combine to form one tutorial group which staff hope will improve student involvement and the overall learning experience in this type of small group activity.



4. Impact on costs

How do you think that the changes you have made will affect the efficiency of class or course delivery in the future? Have costs been reduced? Or has quality improved significantly with no additional long-term costs?

The pilot incurred a cost in both staff time to design the intervention, and in bought-in assistance to construct the on-line forums, to monitor student use of them, and to analyse the traffic and postings for the purposes of project evaluation. Once the redesign is established many of these costs will not apply, although the need to monitor the activity of the on-line forums and to post instructions will continue, and represents an ongoing cost. Set against this, there will be savings in the staff time required to deal with the administrative problems related to the peer-marking process and to dysfunctional groups (2 in session 2005-2006 and none in session 2006-2007).

More generally, the increased student motivation engendered by the redesign represents an improvement in their learning experience. In the coming years this is expected to lead to gains in student retention and progression, especially when the group activities are rolled out across the whole first year Biology course. This will sustain or increase the FTEs gained by the Faculty, which will in turn translate into a higher funding level for our teaching.

Moreover, retention and progression are currently very important “Knowledge Performance Indicators” for the university, and thus the project is well aligned with a priority aim of its teaching mission.

3. Sustainability

Explain how current project activities will continue in the department. What measures are in place to ensure that activities are embedded? Who is responsible for ensuring sustainability?

The L1 Biology Teaching Team is committed to enhancing the students’ experience in their first year at University. The success of this project will result in the use of secure Moodle sites in the L1 Biology curriculum on a permanent basis. The student groups that are formed at the beginning of the academic year will remain in place and other group activities will be rolled out across the whole first year Biology course. Peer marking for the group activities will be extended to include all assessed group tasks. Whilst the debate format and topic is popular with the students, staff have decided to alter the poster topic to increase its direct relevance to course material.

The L1 Biology Teaching Team and budget holders will ensure sustainability insofar as a post-graduate student will be employed, on an hourly basis, to set up the Moodle sites. This expense will be covered by the L1 Biology Teaching budget. The Moodle sites will be overseen by the L1 Biology Teaching Team.

5. Plans for further development

Are other courses or classes in the department planning to change their assessment practices as a result of your work (please give details)? What do you think would need to change in your department if your REAP-supported ideas were fully adopted across all courses and years?

Too early to tell, but mechanisms exist within IBLS for ideas piloted at first year to be taken up in second year and in subsequent Honours courses. Teaching across the whole Biology Faculty is co-ordinated by a centralised Undergraduate School, which promotes such dissemination of good practice across its courses. Examples of this already spawned from pilots at L1 include a study skills programme, an awareness of plagiarism, and the use of standard protocols for referencing & citing published articles in written work.

As Moodle is campus wide, online discussion forum it could be used by all members of staff. Some honours courses within IBLS have large numbers of students and many courses involve group work. Thus, it is feasible that some courses may find the use of online forum helpful for their group activities.

6. Lessons learned

What changes contributed most to improving the quality of student learning?

The changes implemented in the redesign that contributed most to improving the quality of student learning were:

1. The on-line Moodle forums, which were extensively used and provided a convenient on-line social space for group interaction and peer support. They also overcame the difficulties of setting up only face-to-face meetings in situations where students have different timetables and extra-curricular commitments or reside at a distance from the campus.
2. An improved structure of the project, with regular posting of information by staff and the requirement for student groups to make regular postings to the Moodle forum. The cyclical nature of this activity, and its progression towards the final events (debate and poster) allowed more extensive self-reflection and peer interaction.

What changes contributed most to reducing costs?

The on-line Moodle forums provided permanent records of group interactions. These records allowed staff to identify dysfunctional groups at an early stage in the project and to solve problems arising from irregular patterns of peer marking, thus avoiding the time-consuming and often unsatisfactory practice of contacting group leaders and deputy leaders by e-mail for an explanation. In several cases the number of Moodle hits made by a student helped staff to decide on the appropriate peer mark from the array of marks awarded by other group members. Other unexpected benefits emerged, such as (i) the identification of students responsible for plagiarised text on posters, and (ii) the usage of the Moodle sites to help the exam board assign appropriate grades (1 case).

What implementation issues were most important?

The most important implementation issue faced in the pilot was the technological challenge of setting up a large number of forums within the L1 Biology Moodle site. On first use its built-in forum facility failed to operate satisfactorily (it deleted registered members from groups in a random fashion). This was the first time that such a large system was established within this VLE since its adoption by the University of Glasgow, and being open-source software it was difficult to obtain the necessary expert technical advice. With a very short lead-in time to the execution of the project this problem could not be solved at that time, but was circumvented by setting up each group area as a separate 'course' within Moodle. A proper resolution to this problem is being sought before the project is implemented next session.

If you could start again, what would you have done differently? What lessons would you pass on to other departments undertaking similar projects?

This project built upon an existing exercise that, although quite complicated (involving group interaction, live events - debate and poster presentation - and a peer marking process) had been proofed over several years of use with large student classes. The fact that the pilot was a redesign of such an existing exercise was very beneficial, as it allowed us to be confident that the core learning experience was sound. Moreover, we were able to compare the execution of the exercise before and after the additional intervention, and so make meaningful comparisons. Other departments considering an introduction of new technology to their teaching may be advised to follow a similar strategy of adapting an existing exercise, rather than compiling one from scratch.

7. Future Research

Have any issues emerged from the project which merit further investigation or future development work by your department, by CAPLE or by other organisations?

Further studies might include looking into whether either (i) starting group work early in the academic session or (ii) extending the group activities across the whole first year Biology course affects student retention and satisfaction with the course.



8. Dissemination

List the dissemination that has been done (or is being done) since January 2007 about project findings and outcomes, e.g. journal articles, conference presentations. Please give details.

List any additional publicity your part of the project has received, e.g. press coverage, awards.

The project has been discussed verbally with a member of the TLS at the University of Glasgow whose remit is to look into case studies where courses are developing methods of improving inclusive practice in the context of students with disabilities. This case study will be published "locally" in due course.

The project will also be presented as part of a talk on "Teaching and Administration of Large Groups" given at the HEA Representatives' Conference in Reading in September 2007.

There has been insufficient time to disseminate the main project findings and outcomes via journal articles and conference presentations by the project end date in June 2007, but this is intended in the near future.