

## The role of online diaries in creating a reflective learning environment

**Award Nominee:** Anne Tierney, University of Glasgow

**Centre Contact:** Julian Park

**Subject Area:** Business and the Biosciences

This case study has been developed from data gathered through observations of the teaching component, interviews with the tutor, and a student focus group.

### Background

This case study reports on the use of reflective diaries as a powerful learning tool for final year students studying a business in the biosciences module. Engaging science students with the power of reflection (Moon, 2003) helps them better understand their own learning and prepares them for problem solving and on-going personal development once in employment. Despite the wide use of reflective practice in medical and nurse practice (Saylor 1990) and evidence of benefits in secondary science teaching (Parkinson, 2002, Desouza and Czerniak, 2003), the use of reflection in Science Higher Education appears limited.

At Glasgow University online reflective diaries have been used as an integral part of learning in Business & the Biosciences since 2007. The course employs student-centred activities (i.e seminars, carrying out research on specific topics, role playing and daily student presentations), with groups of science students working together to explore areas of business practice. These activities build toward the main summative group assessment, a business plan presentation and an event proposal. The diaries serve to complement and build on the daily activities. Students reflect on what they have learned each day, and how it fits into their overall vision of the course. During the development of their reflective skills, students begin to draw on experience outside of the course, and reflect on their understanding of learning, in the wider context.

The course is a two-week intensive final year option, which takes place at the start of the academic year, as it is also a prerequisite for those students wishing to complete a commercial project (Tatner & Tierney, 2008). A wide range of bachelors science students may take the course, as well as students completing a Masters with Work Placement. On average 15 students opt to study the course, and they are often looking for an alternative career path and have gone on to further study in Marketing and Business or have started their own companies; in 2009, one student successfully negotiated with Smith & Nephew for exclusive distribution rights for hydrogels as drug delivery systems within the Iberian peninsula, which resulted in an invitation to bid for European Union Entrepreneurial funding.

Mahara, the University of Glasgow's online personal development planning [PDP] tool is an integral part of the module. Students are asked to write a reflective diary entry every day for the duration of the two week course. At the end of Day 1, the students and tutor debrief on the events of the day, which forms the basis of the first diary entry and there are also preliminary questions on Mahara which support the students. The tutor also commits to daily formative feedback on the diaries and a daily companion diary for the students to read. Many students are not used to the concept of reflection and therefore the tutor provides guidance via the feedback, giving specific advice on individual diary entries and global advice in the companion diary.

### Reasons for introducing this teaching method

Science students are notoriously focused on facts and are rarely encouraged to reflect on the learning process or the wider implications of what they are learning. The tutor's staff development experiences of reflective practice proved to be a rewarding learning experience that formed the basis for its transfer into an undergraduate programme. Additionally the tutor had a pedagogic project in which student interns developed their own learning materials (Pritchard et al, 2008). One student intern kept a reflective record of both his learning experiences and his confidence levels and used this as part of the evidence for his dissertation. This particular student was motivated to learn about learning and the tutor wanted to offer this opportunity to students who were perhaps not aware of the power of reflection, but given support, could be. Therefore the tutor implemented the diaries to encourage students to document their own learning progress and also to think about how their own experience influenced them in a subject outside their usual academic sphere. The reflective process may help in the career development of science students and give an insight to staff into how they make decisions that influence their career choices.

## Lecturer perspective

This is the third year in which the reflective diaries have been utilised. In the first iterations of the diaries, the tutor believed (perhaps optimistically) that students would be capable of producing reflective writing with minimal guidance. It is now obvious that this ability differs greatly with each individual student. This has meant that the tutor has formalised the support given, and also keeps a parallel diary. The process is time intensive over the period that diaries are being written and the tutor estimates that each day during the fortnight she spends three hours per day on the diaries. The tutor recognises that this is a considerable contribution in time, but evaluation of the reflective diaries by students illustrates the power of reflection in learning. Anecdotally, staff and student facilitators (who participated on this course in 2008) have all reported improvements in the students' abilities to perform at a high level during the course.

## Student perspective

Discussions with students about the use of reflective diaries were very positive *"Very useful, allowing me to track my progress and actually remember what I'd covered throughout the whole course."* They reported in the diaries that the process would help them in other areas of study beyond the course and staff and student facilitators reported an improvement in student commitment to the coursework tasks. *"I have just started an internship and I have started to keep a reflective diary to maximise my learning experience."* In 2009, the students have been particularly eloquent in terms of how the diaries and the course have improved their confidence which they can apply to other areas of their study, career aspirations and their lives. *"It helped me understand better how I learn and this will have lasting benefit."*

## Issues

This teaching method may be difficult with classes larger than 40 or with 'long & thin' courses, however, both of these issues may be addressed; large classes can utilise peer feedback to supplement tutor feedback; in the case of Business & Bioscience, postgraduate mentors have not yet been employed in diary support. It is possible that postgraduates involved in the course could be used to support the diaries in future years, should numbers become unmanageable for one tutor. Longer courses could be supported with a weekly feedback format. Business & Biosciences students themselves have already thought about the implications of different course set ups and the advantages of being able to share diaries, although they were not enthusiastic about peer feedback.

## Benefits

This module provides an intensive, stimulating and relevant learning experience, which is evidenced by discussions with students and the end-of-course evaluations. Reflection is a powerful learning tool and this was recognised by students who had completed the diaries. The skill is transferable and will clearly be used by some students in other courses and indeed as they move beyond University. However, the benefits are much wider reaching than only the enrichment of the student experience. The diaries form the centre of a web of feedback which informs students, tutors and the development of future iterations of the course, as the diaries provide richer, more sophisticated feedback than the usual student end-of-course questionnaire.

## Reflections

This is a methodology that could easily be adopted in other modules and institutions providing class sizes are reasonable and there is willingness by tutors to try new ideas and put time into changing the method used for delivering curricula. It could be interesting to test the approach earlier in the curriculum.

## References

- Desouza, S.J.M. and Czerniak, C.M. (2003) Study of Science Teachers' Attitudes Toward and Beliefs about Collaborative Reflective Practice. *Journal of Science Teacher Education*, **14**, 75-96.
- Moon, J. (2003) Learning Journals and Logs, Reflective Diaries, Centre for Teaching & Learning, Good Practice in Teaching & Learning, University College Dublin.
- Parkinson, J. (2002) *Reflective Teaching of Science*. Continuum Books. London.
- Pritchard, J. et al (2008) Developing the Enquiring Student and Enhancing the Research-Teaching Interface: Student-led Pedagogical Research and Educational Initiatives in Enquiry-Based Learning. *Practice and Evidence of the Scholarship of Teaching and Learning in Higher Education*, **3**(1), 6-19.
- Saylor, S.R. (1990) Reflection and Professional Education: Art, Science, and Competency. *Nurse Educator*, **15**, 8-11.
- Tatner, M.F. & Tierney, A.M. (2008) Commercial Projects for Final Year Students. In *Student Research Projects: Guidance on Practice in the Biosciences*, Ed. Luck, M. pp. 51-53. Leeds, UK: UK Centre for Bioscience.