Lab report writing in Biology - a student perspective

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Background

The Level 1 Biology class has an annual intake of 600-750 students. A lab report forms an assessment worth 15% of the final grade, which includes practical work, research, critical analysis, data manipulation and scientific writing. Staff expectations about student report writing skills increases as they progress through their degree, so getting this right in first year will benefit the students at all levels of their studies (Nicol, 2010).

Support resources include specific guidelines, lectures on report writing and graph drawing, IT tutorials on word and excel and peer review of a section of their report via Aropä (Hamer et al, 2007). Despite the resources this assessment still causes a great deal of stress for students – So why is this?

This project involved student interns at all levels of their Life Science degree.

Aims

- Discuss current provision and identify any gaps or areas of confusion in the support materials.
- Analyse the student comments and queries on the Level 1 Biology VLE specifically related to the HEM lab report.
- Produce guidelines for inclusion within the course literature and VLE.
- Create video resources
- Evaluate student perceptions of lab report assessments before and after completing the assessment

Resources created & initial evaluation

- **Frequently asked Question glossary on the class Moodle site - over 10,000 hits over the semester.**

  This was a significant time saver – used by both staff and students to direct others to this resource. Similar resources have now been requested by students for other assessments.

- **Student queries contained a large number of questions relating to excel. Screencast recordings of how to produce graphs in excel were produced**

  40% of the class used these – others asked for inclusion of more e.g. how to draw a graph with a log scale.

- **Weekly pre-lab exercises included in the lab book, completed by students in advance of each lab and checked by GTAs during the lab sessions.**

  Figure 2 shows that these are completed by the majority of the class – initial feedback from students indicates that students want more variation in graphs to be drawn and practice data analysis from large electronically available data sets.

- **Guidelines for appropriate use of the class moodle forum.**

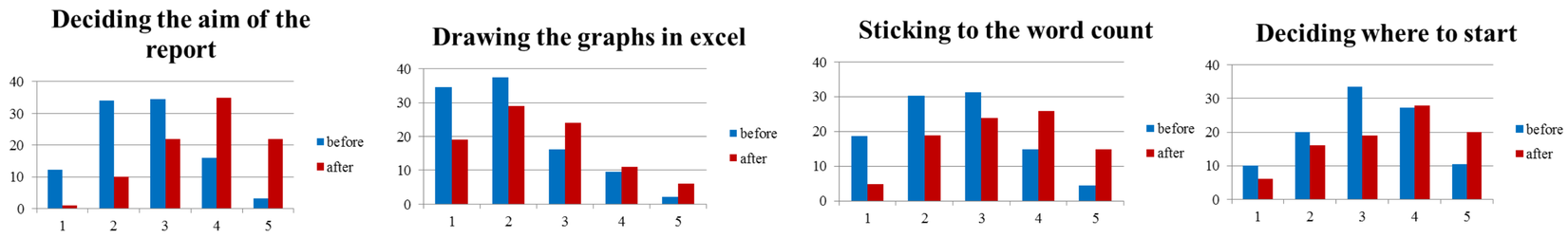
  A reduction in the following type of posts on the class forum is evident - repeat questions and those entitled 'help'.

- **Guidelines on how to use endnoteweb**

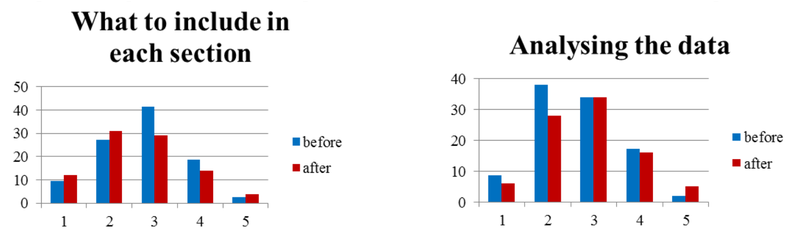
Available via the moodle assessment book

Results

Student perceptions – aspects that were perceived to be more difficult than originally thought



Student perceptions – aspects that did not alter in perceived difficulty



Student perceptions – aspects that were perceived to be easier than originally thought

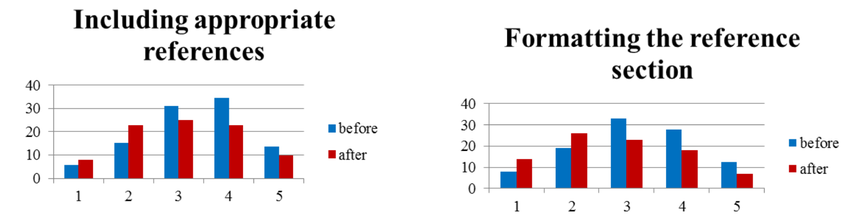


Figure 1. Student rating of aspects of the lab report before and after the assignment where 1 is not at all difficult and 5 is very difficult.

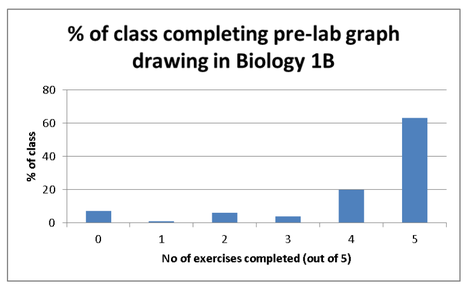


Figure 2 The majority of the class have completed these voluntary exercises in the 1B course.

A full understanding of the purpose of assessment has been shown to improve student engagement (Gibbs and Simpson, 2005)

- **68%** of the class thought that skills developed in writing the lab report would be useful for other assessments in the course and **79%** thought they would be useful throughout their degree.
- **90%** of students used the available resources to help with their lab report.

What student interns gained from the experience*

Student led development has been shown to improve confidence and motivation (Bovill et al, 2011) and the experience of the interns was mostly a positive one. Student autonomy and construction of learning were points students voiced in the focus group:

- The best and the worst thing about this project was having to use excel and by contributing students 'learned tips and tricks I didn't know before'.
- Student autonomy for the project and being added as staff to the project moodle site 'felt weird'. Students learned that they were 'quite hard working' and one of the best things about participating was that 'we were not told what to do, I quite enjoyed that, I enjoyed the freedom'.
- 'Interesting in terms of adding to the curriculum, you don't usually think about the structure of what you are learning'
- 'Working with others in different years was interesting, hearing their experience'.

References Bovill, C., Cook-Sather, A., Felten, P. (2011) *Students as co-creators of teaching approaches, course design and curricula: implications for academic developers.* International Journal for Academic Development, 16 (2). pp.133-145 Gibbs and Simpson (2005) 'Conditions Under Which Assessment Supports Students' Learning' Learning and Teaching in Higher Education, Issue 1, 2004-05, Hamer, J., Kell, C and Spence, F. (2007) *Peer Assessment Using Aropä*. Australasian Computing Education Conference (ACE 07), Nicol, D. (2010). *The foundation for graduate attributes: developing self-regulation through self and peer-assessment* Quality Assurance Agency for Higher Education report..

*Many thanks go to Angela Watt for conducting the student intern focus group.