



## WORKING AND WRITING IN GROUPS, ROB BROOKS School of Biological, Earth and Environmental Sciences

### KEY ISSUES

Learning facilitated by  
relevance

Loss of tutorials  
potentially meant loss  
of opportunity for peer  
learning

Many attributes  
associated with “being  
a scientist” were not  
explicitly being  
developed

Students experience  
choice as giving them  
independence and as  
challenging and  
interesting

The use of ‘real world’  
contemporary issues  
creates an ‘authentic’  
task for students

### WHAT’S IN THIS CASE STUDY FOR YOU?

This case study will be of interest to you if you would like to develop group work exercises that encourage students to see the relevance of their course, in this case, the social relevance of evolutionary ecology. This case study provides some valuable strategies for supporting the development of students’ group work and group writing skills.

### ISSUES IN STUDENT LEARNING

- Previously, a proportion of the students have seen evolutionary ecology as neither interesting nor relevant to their area of study: particularly biotechnology students
- Formal learning experiences were limited to lectures and labs
- Due to funding cuts, the original system of tutorials had been denuded to a set of 4 reading assignments that were neither assessed nor discussed in class. Consequently, more in depth exploration of the areas covered, their relevance and interest, did not occur
- Integration and linkage between learning outcomes from lectures and labs was often not clear
- Students demonstrated inadequate scientific literacy and had difficulty in communicating the findings of their research

### STRATEGY

#### 1. A BRIEF INTRODUCTORY BACKGROUND

The course ‘Evolutionary and Physiological Ecology’ is taught to 2<sup>nd</sup> year science students with about 140 students. It is a core subject for Environmental Science students, a broadening course for Biotechnology students, and an area of interest for other students.

#### 2. THE COURSE WAS REDESIGNED TO ADDRESS THESE ISSUES IN THE FOLLOWING WAYS:

- In order to encourage students to see the relevance of the course, they were given the freedom to choose topic areas for 2 group exercises. The first exercise was non-assessed and required students to submit a case study of the application of ecological and/or evolutionary principles to a practical problem. These submissions were combined to form a class website on the application of ecology and evolution.
- The second assessable exercise required students in the same groups to choose a controversial current issue, research the science relevant to that issue and write a report including an introduction, discussion and set of recommendations in relation to this issue (in a consulting role), and a press release to communicate their findings. Both group exercises required students to explore an area in depth.

### QUOTES

*Rob Brooks’ quotes marked with initials (RB). All other quotes below are from students who took the course.*

*“Non-assessed group work is excellent – gets us used to working in groups”*

*“The way Rob allocated us to groups saved lots of anxiety”*

*“High quality work was encouraged by making the work visible to students’ colleagues” (RB)*

- In order to support the development of skills in working collaboratively in groups, students were randomly allocated to groups of 6 (replicating the workplace experience) and were required, before each exercise, to submit a formal contract documenting how they would work together and their expectations of each other.
- Guidelines on group work and group writing were provided and in week 5 (and whenever there were subsequent difficulties) each group used a checklist to evaluate their areas of strength and areas where they could work more effectively together. The tasks set for the groups (described above) were sufficiently complex and open ended to enable each group to draw upon the diverse interests and skills that members brought to the group.
- In order to support the development of scientific writing skills, a detailed guide to scientific writing and a handout on writing collaboratively was provided. Importantly, the steps in successfully completing the report were identified with each step either being peer reviewed or given feedback by the demonstrator/lecturer.
- Students were introduced to WebCT as a tool to support and enhance their face-to-face learning experiences. They were encouraged to work on their group projects online should they find this helpful. Compulsory online quizzes were also provided to enable students to assess their understanding of each topic covered in the lecture course.

## DISCUSSION

### A. BENEFITS

- Increased students' appreciation of the social relevance of science and of ecology and evolution, in particular, an appreciation of its relevance to their program of study (especially non-Bioscience majors)
- Checklist allows groups to evaluate and review their progress
- Group work allowed a more in depth exploration of the areas covered in the course.
- Group work provided an alternative delivery method of course material to lectures and labs.
- Students developed skills in scientific literacy and interpretation.
- Students developed a variety of different communication skills (e.g. media release, consultant report, scientific paper, website report).
- Students had the opportunity to develop group work (interpersonal and process-based) skills including:
  - ❑ building positive working relationships
  - ❑ working with a diverse group
  - ❑ identifying group goals and action to be taken
  - ❑ time management skills
  - ❑ planning group meetings and deadlines
  - ❑ face to face and online communication skills
  - ❑ monitoring group progress
  - ❑ negotiation and conflict resolution skills
  - ❑ writing collaboratively

For students to work collaboratively, explicit support needs to be provided

Scaffolding:  
Breaking a more complex writing task into stages so that students can progressively acquire feedback on the requisite skills

Using technology to enhance learning within on-campus course

*"good to have combination of face to face and online"*

*"[online] quizzes useful to get feedback and keep on track"*

*"[online discussion groups] are really good – we set it in our contract to check twice a week"*

*"some students have difficulty with WebCT"*

*"quizzes on the internet good – can do in own time"*

*"...clearly see the relevance to my career"*

*"good to stop at week 5 and review"*

*"developing contract a useful process"*

*"surprised by the WebCT – will make us more independent"*

*"having the first one [assignment] not assessable is good – will know what to do next time..."*

## B. PROBLEMS ENCOUNTERED

- Some students feel that other members of their group are not pulling their weight, and found personality conflicts difficult
- Not all students respond well to the WebCT component e.g. the online discussions, while others saw it as a positive way to combat timetabling issues
- In the first project the range of subjects chosen was narrower than what was hoped for
- There were isolated instances of group polarisation where a subgroup strode ahead leaving other members behind (e.g. in one group, two subgroups of 3 formed).

## STUDENT FEEDBACK (EVALUATION) AND IMPROVEMENTS

Three different types of feedback were collected from students to evaluate the course: the standard course questionnaire; open-ended written responses; and focus group data. The focus groups were run during, and at the end of Session 1, 2002. As participation in focus groups, and the submission of open-ended comments, was not compulsory, it was acknowledged that student feedback may not be entirely representative.

Based on observation and student feedback, next year there will be three to four quizzes throughout the semester rather than weekly quizzes due to problems with WebCT. In addition, scientific writing skills will be taught explicitly in the course, and students will be provided with additional written feedback on their progress.

## MORE INFORMATION

For more information on any aspect of this case study, please contact [Rob Brooks](#) from the School of [Biological, Earth and Environmental Sciences](#).

## ACKNOWLEDGEMENTS

Rob Brooks would like to acknowledge Dr Alistair Poore who has also been involved in teaching this course .

*“Some students have difficulty with WebCT”*

*“Necessary to confront dysfunctional teams.” (RB)*

*“Students would like to be able to revisit quizzes for revision”*

*“week by week task on one page summary would be helpful in the outline”*

*“we would like feedback on the first assignment”*

*“students don’t read handouts”... “you have to teach students new skills explicitly” (RB)*

*“The range of topics chosen (by the students) was narrower than I would have hoped” as most groups chose “conservation topics” which, “reflects their interests rather than the interests that I would have thought that they have”. (RB)*