



Flexible delivery of communication skills to science students: a faculty-wide project

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Abstract: Science graduates need to be effective communicators. Improvement in communication skills may also improve general learning outcomes by enhancing critical thinking ability and understanding of the subject material. It is generally acknowledged that students acquire communication skills most effectively when they are explicitly taught and embedded within the science curriculum. Our faculty-wide project has developed a program that provides all science, engineering and technology students with appropriate instruction in discipline specific tertiary literacy skills. At the core of the project is a web-based resource that is accessible by all students and all academics of the faculty. This interactive instructional resource supports the development of academic writing skills, essay and report writing, and oral communication skills. The resource contains discipline-specific material that may be used by students individually or incorporated into classroom activities. The resource also contains teaching and assessment tools to help staff integrate communication skills into their own curriculum. The impact of the project upon learning outcomes for students across the faculty is being assessed throughout 2003. This paper describes the development of the resource, and illustrates ways in which it is being incorporated into teaching.

The influence of multimedia resources in and out of biomedical studies

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Abstract: With respect to the provision of learning support materials, it is generally accepted that enriched learning environments are better than simple didactic sessions and consequently improved resources ultimately lead to better learning, which in turn leads to improved grades. The use of a dedicated multimedia teaching room specifically set up to create a learning environment for biomedical science within a nursing program has been documented and correlated with the student's final mark and course retention. The significance of this study is that the results and retention for biomedical science studies are further compared to studies in which the resource room would have been of no benefit. Failure rates and course retention rates were not significantly different between students who did not use the facility (n=237) and those who used it only once (n=47), however there were demonstrable differences between the first group and students who accessed the resource on multiple occasions (n=203). However the results of those students using the resource, show that they were significantly disadvantaged in non-biomedical studies where the availability of the resource did not assist them. Within the limitations of the study, the data does support the premise that access to dedicated teaching materials improves learning, which translates to better grades.

Designing an assessment task for scientific report writing using a mastery goal approach to ensure self-evaluation and application of feedback

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Abstract: By identifying the report writing skill deficits of students drawn from a cohort of mixed abilities, an assessment task for scientific report writing was developed. After first submission of a report based on a laboratory exercise, a cohort-specific marking scheme was developed by the academic based on the skill deficiencies of the student group. After the return of ungraded reports together with the marking scheme, self-evaluation and/or peer review was possible. The opportunity to amend the report allowed for direct application of feedback. Using this methodology, improvement of the skills of the entire student population was possible, regardless of the abilities of the student prior to the assessment task. The resubmitted report resulted in elevated marks compared with those that would have been obtained after first submission; rewarding the student for the application of feedback. Positive outcomes arising from this task were that students of varying aptitudes were able to measure their own skill improvement against tangible criteria, and were also able to enjoy a degree of learning success independent of the ranking within the group.

Independent field-based projects in behavioural ecology for 'deep learning'

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Abstract: A project is currently being conducted which aims to assess student's learning experiences of an independent field-based activity in a third year course offering in *Ecology* at the University of Newcastle. Students as part of the course are required to carry