

STUDENT PERCEPTIONS OF COMPUTER-BASED FORMATIVE ASSESSMENTS IN A SEMI- DISTANCE MODULE

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Student perceptions of computer-based formative assessments in a semi-distance module

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The evaluation of student views of computer-based assessment is usually based on questionnaires that solicit opinions about this form of assessment in isolation, and often in a context where the computer-based assessment is a novel resource. Being concerned to avoid any possible 'novelty' effect on students' views on the utility of computer-based assessment as a learning resource, we designed our evaluation to concentrate on the assessment experience as a whole.

We used computer-based formative assessments on CD to promote student engagement in a 'semi-distance' taught module entitled Field Biology. This module is undertaken by adult students studying part-time in the evening at the end of their first year of university-level study. The major objectives of this module are to introduce students to biological diversity and to apply a basic knowledge of ecology to field investigations. This module also provides students with their first exposure to a project requiring substantive independent data collection. The module consists of a block of five evening sessions (lectures and practicals) followed by a six-day field trip one month later. A summative examination is given two months later; this consists of a computer-based examination (unseen questions in a time-limited invigilated session) and the submission of five written reports. Our strategy was to combine traditional assessment of learning – e.g. written reports on field investigations and problem-solving in a project setting – with computer-based formative and summative assessments.

Formative assessments were constructed to address the common student question - *how have I gone wrong – and how can I improve?* We used the excellent error-diagnosis functionality of TRIADS and its customisable feedback to author 'e-tutorials'. To promote student understanding of the topic, we employed a variety of feedback strategies, ranging from partial to total disclosure of question solutions with additional tutorial material always available. These 'e-tutorials' were provided in two batches. The first were provided at the start of the module and contained 5 different assessments of 10 questions each; they focussed on the basics of ecology and were structured to address essentially matters of recall and comprehension. In

addition, they provided essential information for small group oral presentations at the end of the lecture block. The second CD was distributed on the field trip. It contained 5 new assessments of 10 questions each, but these now focussed on material directly related to the field activities. This second batch of 'e-tutorials' was structured to include more items testing higher cognitive levels, mainly comprehension and application. The mix of items within an assessment, and the feedback strategies employed, were intended to promote self-improvement. Both summative assessments (the computer-based summative assessment and the written reports) addressed all course materials (lectures, practicals and field investigations) and detailed feedback was provided on both.

We evaluated student opinion of all teaching resources at three points during the module:

- one week after the delivery of the first CD 'e-tutorials' and after their use for the oral presentations
- after the computer-based summative assessment, and
- after the return of the feedback about the written assessments.

We constructed evaluations to canvas opinion on all forms of assessment in an attempt to avoid biased responses towards the novel form of the learning materials. In the second and third evaluations we used reliable questions from the Assessment Experience Questionnaire (Gibbs, G. & Simpson, C., 2003). In addition to a section in which to supply free-form comments, the questionnaire consisted of:

- four items asking whether the assessment promoted learning
- five items soliciting views on the nature, utility and quality of feedback provided
- three items asking about the usefulness of all learning resources as preparation for the summative assessments.

In these evaluations exactly the same questions were used; only the nature of the summative assessment evaluated differed (computer-based examination or written field reports).

For both evaluations, student opinion divided almost equally into two categories. One view was that the formative assessments helped to develop understanding of the topic, doing so by: providing an opportunity to repeatedly practice application of knowledge, reinforcing key concepts, providing a structure for organising information and understanding, and by prompting further learning. For this group the focus was not grades, but learning, and so could be categorised as 'conscientious consumers' (Higgins *et al.*, 2002). The opposing viewpoint was that the formative assessments were exclusively useful in assisting the student to pass the summative computer-based assessment, doing so by: providing practice questions for test revision, providing the correct answers for memorising, and by helping the student to predict the content of the computer-based examination. This group was

focused on grades and evidently examination 'cue-seekers' (Miller *et al.*, 1998). From the free-form comments there was no evidence that students appreciated the 'e-tutorials' solely because of their novelty.

We conclude that the evaluation approach described here apparently circumvented a possible distortion of student's perceptions. It did this by shifting the focus of the evaluation away from the novelty of the 'e-tutorials' by evaluating the overall assessment experience. Interestingly, the evaluation revealed that students' perceptions fell into two clear categories. One group of students felt that the computer-based formative assessments were useful only as training for the computer-based summative assessment; the other felt that 'e-tutorials' were truly formative, assisting their understanding of the topic and promoting self-improvement. It is apparent that different groups of students had constructed two different meanings for their learning activities (Biggs, 1999); further work should concentrate on assessing whether this is related to students' learning approaches and their performance in different forms of assessed work.

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