Formative Assessment via the Web using ELEN

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Abstract

A TLTP funded project called ELEN (Extended Learning Environment Network) seeks to provide both skills and subject based material on-line to supplement traditional teaching methods. This platform has been used to provide a short (5 question) multiple choice test that covers the material from each lecture in a series. The tests provide two levels of feedback and are not used in summative assessment in any way. In the first year some technical problems were encountered which reduced the number of students using the system. However, comments from those who did use the system have indicated that this method of providing formative assessment is useful and the method is currently being extended to other groups of students.

Introduction

There has been considerable pressure in recent years to both increase student numbers and reduce the assessment load on both students and staff. These drivers may have good aims in themselves, but the combined effect has been to take the learning experience further away from Kolb's learning cycle. In particular, the opportunity to try out frameworks of understanding in a "safe" environment (i.e. one that does not contain an element of summative assessment) has been diminished, together with feedback. Our BSc in Environmental Science attracts large numbers of students (80-160) making individual monitoring and feedback difficult. In the first year, I teach solution chemistry and thermodynamics, with the summative assessment of this material being a 45-minute, 30 question, multiple choice test. Whilst there are two sessions embedded within the teaching programme that are devoted to problem solving, I felt that students had little chance to practice their own skills and understanding of the material. In addition, I was not convinced that the assessment method was entirely familiar to all of the students, as many of them are mature students. This could result in some students having anomalously low scores.

Method

It was decided to offer students the chance to take short multiple choice tests during the semester. To allow easy access to the tests, the choice was made to provide them on-line. Plymouth is part of a consortium of universities that cooperate on a TLTP project called ELEN (Extended Learning Environment Network) based at the University of Lincolnshire and Humberside. This provides a "learning platform" via the Web that allows access to both skills and subject-based material. The system also records the results of tests to allow students to monitor their own progress and allows tutors to access information on the number of times a test has been run, etc. The ELEN platform was used to supply the tests.

Each lecture was supported by a short multiple choice test comprising of five questions. Each question had four possible answers. The screen presented to the students during a test is shown in Figure 1. Paging back and forth between the questions was allowed so that students could review and refine answers before finally committing themselves. At the end of the test, the score was displayed along with suitable overall feedback (see Figure 2). At this stage, individual questions could be revisited and along-side the question a piece of text explained why the selected answer was incorrect. However, this individual piece of feedback was carefully checked to ensure that it did not give away the correct answer (see Figure 3). After further study, the student could revisit the test to assess their improvement. Both the order of the questions and the possible answers were randomised to prevent students remembering answers by their position.
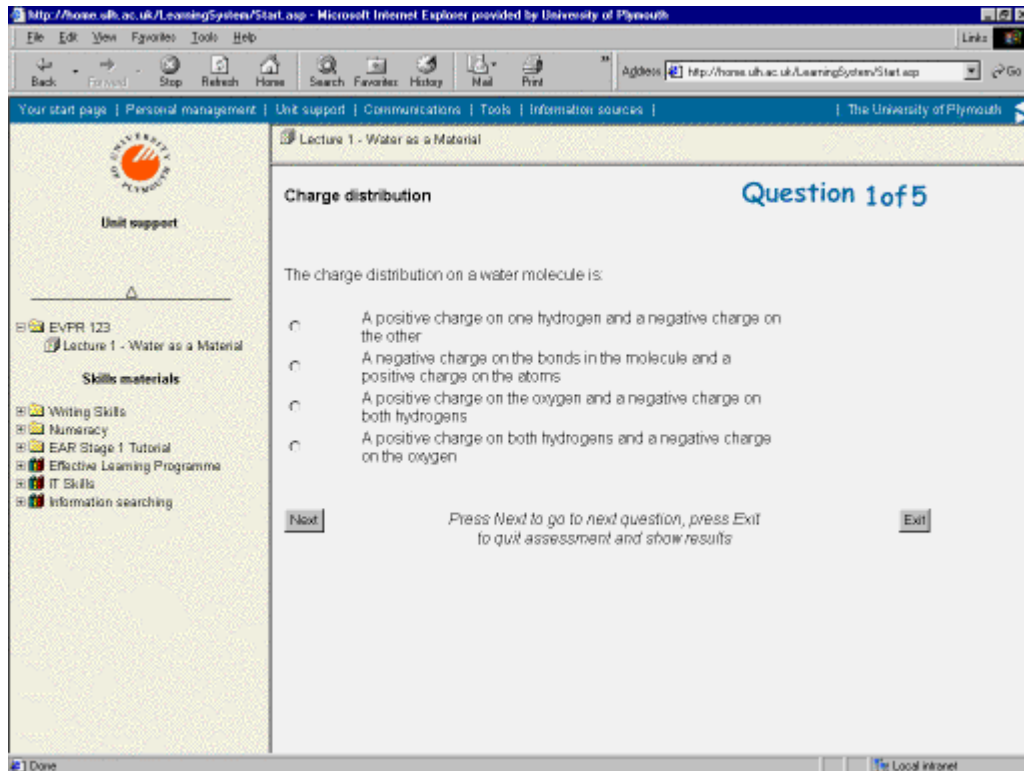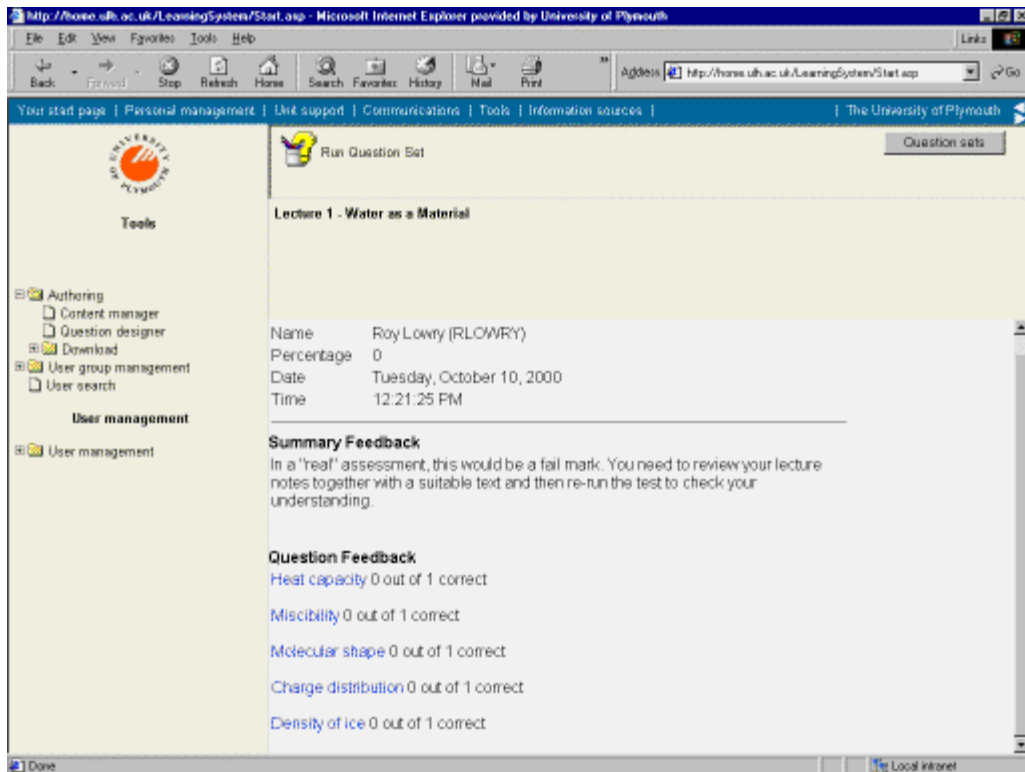

Figure 1. Question screen
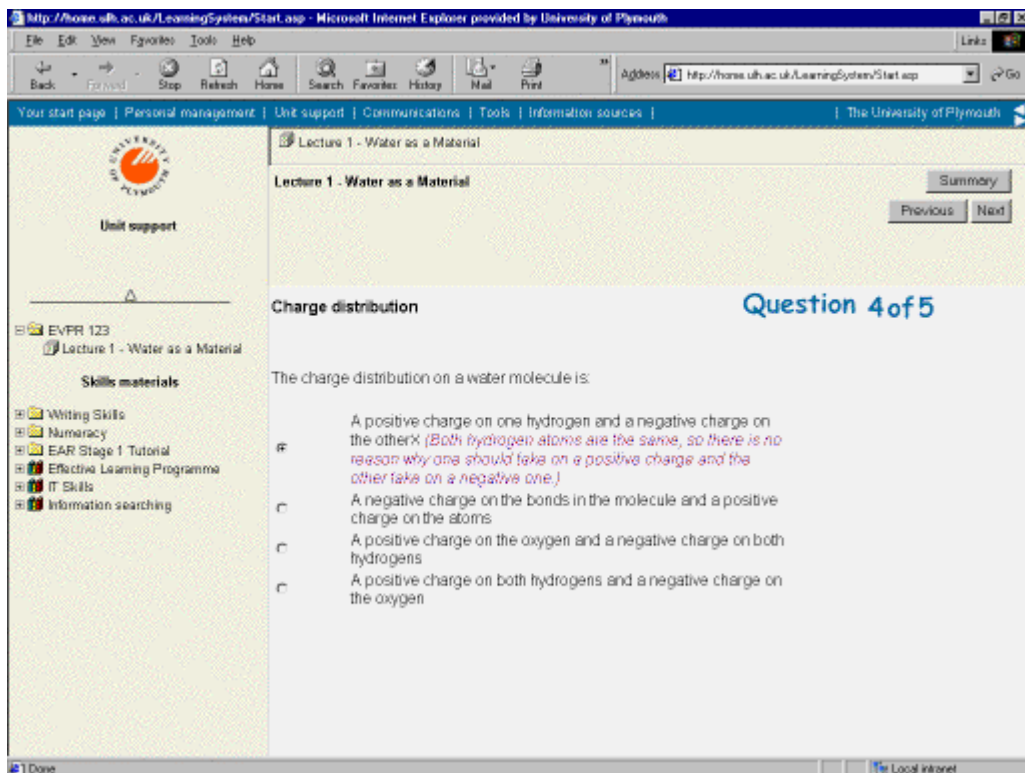
Figure 2. Overall feedback screen

Figure 3. Individual question feedback

Results

Unfortunately, the students did not use the system in large numbers. This was mainly due to problems registering students onto ELEN and it was therefore several weeks after the beginning of the lecture series before they could access the tests. This meant that:

- the link between lecture and test had been broken;
- the "habit" of checking understanding had not been established;
- formative assessments from other modules had begun and thus less urgent tasks were avoided by the students; and
- problems with the ELEN server and heavy web traffic occasionally restricted access or made the performance very slow.

It should be noted that all of these points are derived from the mechanism of delivering the tests rather than being due to the fundamental methodology.

However, the students who **did** use the system reported that the ELEN system:

1. was a very useful learning aid;
2. enabled students to more effectively target their study time to those areas that needed attention; and
3. boosted confidence.

On the basis of this feedback from the students, the project is to continue and expand in this coming academic year (2000-2001).

The future

It would appear that this method of allowing students to test their understanding is valuable and suitable for material where the summative assessment method is very similar. In the coming year, the system will again be available and we hope that the problems with students registering with ELEN have been solved.

In addition, funding for a similar project has been secured that will be used to create a bank of tests for our foundation year students based on a local (intranet) server using *Q-Mark Perception*. The two systems will be compared and evaluated.

Further information on ELEN

Information on ELEN is available to non-consortium members via http://www.ulh.ac.uk/elen/

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