

Question Tools



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Creating on-line materials teachers want to use

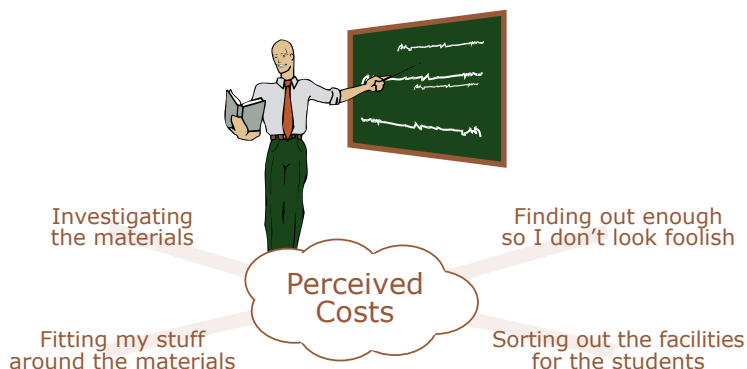
The problem: on-line resources are being neglected

The UK Government has invested millions of pounds into developing free on-line educational materials. The government's own information suggests that take-up is low. This is despite the fact that the teachers, tutors and lecturers who could adopt these materials are under a great deal of work pressure. The obvious question is 'why'? The answer may lie in research work dating back to the 1970s. Research demonstrates two key factors determining the use of technology.

1. Potential users of technology use whatever information is immediately available to perform an implicit cost-benefit analysis with respect to the benefits to themselves, and the costs in time and effort.
2. Successful technology is almost always adapted to the needs of the users. Users look to change and use the technology in ways different to that intended, and by enabling this adaptation the provider can increase acceptance and use (Eason, 1976; 1983; Booth, 1989, Faulkner, 2000).

Cost-benefit. It appears as though these teachers, tutors and lecturers are performing an implicit cost-benefit analysis, and then deciding that the rewards they will derive are probably not justified given the effort they have to invest. We can crudely break down what a teacher does into preparation, presentation, assessment and feedback. Some teachers may feel that on-line learning materials only help to remove some preparation and some presentation, while less popular and yet more intensive activities, such as assessment and feedback, are largely untouched.

Adaption. During preparation teachers often select and adapt materials. Yet, on-line learning materials can be difficult to select in anything other than large chunks, and impossible to adapt without the help of a programmer. The teacher cannot select, amend and add to the materials in order to quickly produce the basis of a lesson, unless the students' needs and the course happen to match the one-size-fits-all on-line material. A further consequence of this is that on-line materials cannot be easily updated to reflect changes in the syllabus without returning to the company that developed the materials. There is a danger that the present model of e-learning development is producing materials that will stagnate as soon as the resources to fund updates dries up.



Creating teacher-centred materials

To develop useful on-line materials, we need to explicitly address these two factors.

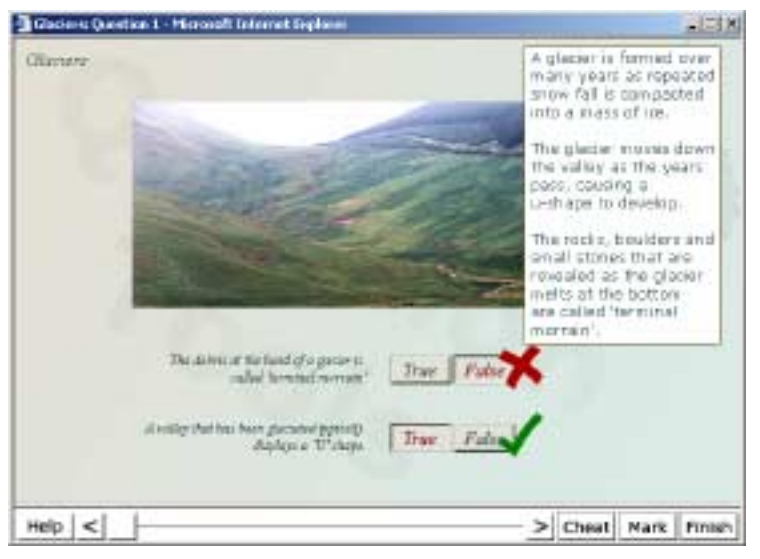
- **Cost/benefit.** We need to address an area that teachers see as having a high cost to themselves—setting and selecting questions, assessing student responses and providing feedback.
- **Adaption.** The resources we provide should allow the teachers to select, adapt and add materials (i.e. no need for programmer involvement). We need to return control to the teacher.

Three steps

1. The first step is to create resources that principally address assessment and feedback—in particular questions, informal tests with feedback, diagnostic tests and formal examinations. In this way teachers can quickly reap the benefits of using the resource.
2. The second step is to provide teachers with easy-to-use tools that allow them to alter the settings in a test, drop questions from a test and select others, and even amend questions and add new ones.
3. The third step is to provide a way for teachers to add their own questions, tests and other materials to the resource as a whole. In this way teachers can contribute to a growing and sustainable resource. A successful model for this approach already exists, with freeware and shareware sites on the internet allowing anyone to make files and programs available to others.

Imagine...

Teacher A has been asked to take an AS Geography class at short notice. He starts his web browser, finds the resource and downloads an assessment on glacial features. He turns on the 'feedback' feature and works through the assessment with the class, using the questions to prompt discussion and then looking at the feedback for consolidation.



Imagine...

A student in Psychology works through a series of questions on child development. She is presented with multiple choice, true/false and text entry style questions. One or two questions ask her to drag labels onto a diagram to describe key stages of early development. She can press a Mark button at any point and the current question is marked and feedback presented. The feedback includes recommendations for further reading in some cases. In others it suggests revision of core learning points. The feedback is given in various forms including video clips, speech, photographs, animated diagrams and text. If the student feels stuck then she can press the Cheat button to see the answer. She may have seen some of the questions before in a formal test, although now they have been reused as part of this highly-interactive formative exercise.

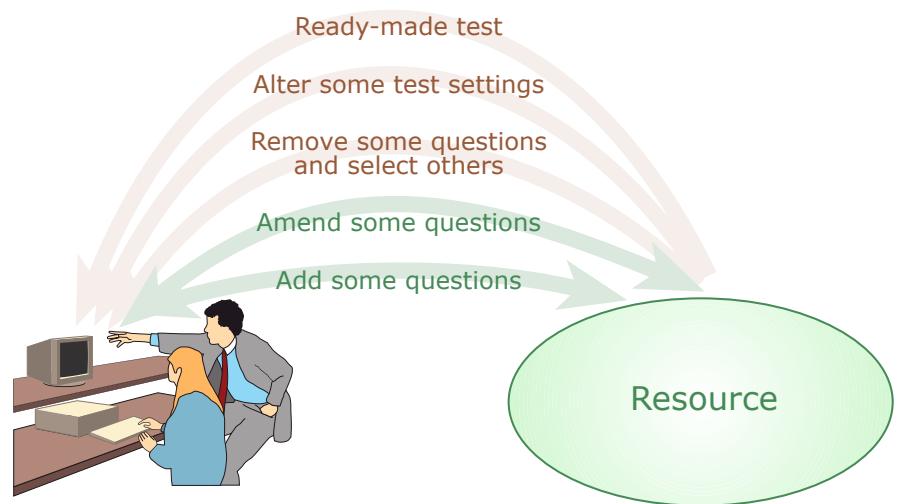


Sustainable on-line resources

This is a recipe for a growing, sustainable on-line teaching resource that can change and adapt without the need for centralized control. It can evolve to meet the diverse needs of teachers in different schools with different skills and teaching requirements. The Question Tools software suite was developed with precisely this model in mind.

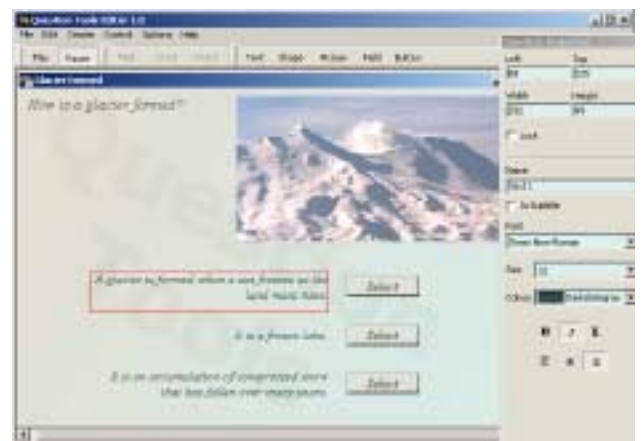
The free SimpleSet editor allows teachers to create and amend questions using an easy-to-use form-based editor. Creating a test is just a case of pressing a button. SimpleSet is aimed at users who lack either IT skills, confidence or time, as well as users who already have a number of multiple choice, true/false and text questions in paper form.

Question Tools Editor does the same job as SimpleSet, except that it allows users to lay out questions using a graphical interface. Question feedback can be included, as can drawings, photographs, sound, speech, video and animated formats, such as Flash files and animated gif files. Moreover, screens containing information can be added—again these can include text, drawings, photographs, sound, speech, video and Flash files.



Imagine...

Teacher B needs a test on glacial features. She starts her web browser, downloads an assessment, and then removes a couple of questions that are irrelevant to her students. She adds some questions, as well as some screens with information, and then turns on the random feature so that the students get the questions in random order. The whole process takes 20 minutes. By the end she has a ready-to-use test suitable for her class. She knows that her students will receive immediate feedback on their scores and answers, including categories of performance where they did well and where there may be problems. There is no marking required, and the group summary will highlight strengths and weaknesses by identifying the categories of questions where scores dip.



References

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