

This document has been written in response to the wide interest within the academic community in how technology can be used to support assessment. It is intended only as a brief guide and includes a number of outline suggestions that readers may like to discuss or explore further.

**This document should help you by:**

- Giving examples of how technology is used to support assessment in other institutions
- Giving some ideas about packages that might be useful
- Giving pointers to other useful sources of information
- Giving examples of innovative uses of technology in support of assessment - more than just objective testing

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## AssessIT? - Or Not?

**In 1995 The Robert Gordon University committed itself to a review of its assessment strategy.**

During the 1995/96 session it used Scottish Higher Education Funding Council (SHEFC) monies to scrutinise assessment practice and procedures. The resulting report drew together staff comment; commended practices from its Teaching Quality Assessment visits; and commended practices from Audit. Building on this, the report formed conclusions on University scales, threshold policies, systems and methods.

Through this investigation and report the University recognised the variety, vitality and dynamics of its assessment processes and publicly acknowledged that considerable flexibility needed to be retained. The University also agreed, however, that it would be preferable to clarify some University-wide expectations about assessment.

The vehicle chosen for this task was an Assessment Handbook.

The University is now compiling its Handbook.

This seeks to

- \* present a University-wide assessment policy
- \* establish principles of good practice
- \* explore current strategies and methods
- \* engage staff in informed debate about aims and learning outcomes
- \* render regulations transparent

The Handbook comes as a reference point, a source of shared scholarship and a compilation of good practice.

Innovation in the use of learning technology for assessment should link to this, coming from shared need and the University's curriculum pull. Demonstrably, any IT-based assessment package or system should be consistent with the institution's culture, and capable of nesting within the University's assessment policy and guidelines as described in the Handbook.

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## The Luton Experience

Since 1993 The University of Luton has been committed to the development of a university wide computerised assessment strategy, using 'Question Mark Designer'. In 1996/97 approximately 1000 students sat formative assessments and a further 9000, summative assessments.

Initially 150 psychology students sat interactive formative assessments, but the system has expanded annually as more subjects and courses have elected to move towards computerised assessments. Subjects involved during this year include midwifery, biology and law for formative assessments, and marketing, politics, maths, sports science, psychology, computing, biology, materials science, economics and communications for summative assessments.

The university has seven computer areas with a total of 200 workstations, linked by a Novell network. Where a module size exceeds 200 students and two sittings of the examination are required, they are timed to be immediately consecutive, and invigilators are used to ensure that the two groups are kept apart. As with other assessments, timetabling is controlled by the exams office.

Academic staff are encouraged to come to the central support unit, ULTRA, to discuss their requirements for any assessment in plenty of time. Arrangements are made for them to see another examination taking place, and they are put in touch with other staff who are involved in computerised assessments. The Question Mark package offers a range of different question styles and types. Issues of question design are discussed with interested staff, and a 'Question Mark' users group meets on a regular basis to discuss good practice and exchange ideas. A typical paper would contain perhaps 60-80 questions for a one hour examination. Additionally about 10 sample questions are provided on the network 3-4 weeks before the examination to allow students to familiarise themselves with the technology. Having designed the questions, academic staff are released from using the software, because the questions are entered by administrators.

Paper copies of the exam are checked by staff and external examiners, then both a paper copy and a disc copy are lodged in the exams office. On the day of the examination the invigilator collects hard copies of the exam. Learning resources staff are responsible for collecting the electronic copy, and for loading it onto the appropriate server(s). Before students are allowed to enter the examination area a final test of the system is made to ensure that all files are operating correctly. On completion of the examination answer files and results are collated and sent to the exams office.

A number of emergency procedures have also been specified in case of any problems occurring. Having such procedures clearly defined in advance of any problems is both helpful and reassuring for the invigilators and students who might be involved. The examination is not loaded onto the network until immediately prior to the exam, hence security is not considered to be a problem. All networks are tested after loading the exam, but before the students enter the hall. There are always a couple of spare machines in the examination hall available in the case of failure of an individual machine. If failure occurs within 15 minutes of the start of the exam the student is moved to a free machine and begins the exam again. If the failure occurs after more than 15 minutes, this could lead to timetable clashes and the student is asked to complete the remaining part of the examination in a paper based format. If an entire network fails, the examination would be rescheduled.

Objective testing can include a wide range of question styles and for some courses may be a more suitable form of assessment than more traditional methods. The system also provides immediate feedback on performance, which is much appreciated by students. Staff can also use this for prompt diagnosis of any important areas of difficulty. Automatic marking, no second marking and comprehensive statistical analysis of results release staff to pursue other areas of interest.

After four years of experience, the keypoints that have emerged are:

Computerised assessment should be integrated with wider institutional assessment practice.

Question design is an important issue and is time consuming. Groups of staff can support each other during this process but allowing enough time is vital.

At present, there is always one academic invigilator and one technical officer for each examination. It is hoped that in the future it will be possible to offer training so that this duplication will not be necessary.

Students appreciate the opportunity to try out the sample questions, and they offer an effective method for familiarising themselves with the style of the assessment and the technology.

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## Question Mark

Question mark designer is a package to support the creation, delivery and marking of objective tests. A wide variety of question styles are supported: multiple choice; multiple response; ranking; fill in the blanks; word matching and hotspots. Colour, graphics, sound, video and a variety of fonts and layouts can all be included in questions or as feedback to the students. Student responses are saved to disk for later analysis, and a full range of reporting and analytical features are provided. Question Mark is available for PC and Mac and the World Wide Web. Site licences are available. A demo disk can be obtained from :

Question Mark Computing Ltd, 5th Floor, Hill House  
Highgate Hill, London, N19 5NA, Tel: 0171 263 7575  
Or look at <http://www.qmark.com/>

## Common Space

Common Space was written as a collaborative writing tool, specifically for an academic market. Text can be organised into any number of columns to facilitate two or more users annotating and comparing each others work. Documents can be updated with changes and all standard text processing tools are included. Additionally Common Space will support the inclusion of recorded comments and allows a tutor to build in a question set which can be especially useful to support students with the overall structure of a piece of work, but which has many other possible uses. Common Space is available in Mac and PC versions from:

Houghton Mifflin, PO Box 269,  
Abingdon, Oxfordshire, OX14 4YN,  
Tel: 01235 833827

## E-mail

You don't need to use a specially designed package in order to get learning technology working to support your assessment strategy: E-mail might be one of your most useful tools. Use E-mail to remind students when assignments are due. Use E-mail to answer questions about the assignment and about the course as a whole. Encourage the students to answer each others questions. Ask your students to submit their assignments electronically -they will be automatically date and time stamped on submission. Store and transport the assignments on floppy. Encourage students to include multimedia elements in their submissions.

## Resource Builder + MediaLink

are both wonderful *simple to use* packages for PC and Mac respectively for creating simple multimedia packages. They are ideal for staff and/or students to build simple tutorial packages or assemble portfolios. Graphics, text, videos, and most other types of resource can be linked into a single package - by staff and/or students with just standard IT literacy skills. All this and affordable too! Demos are available at <http://www.dundee.ac.uk/biochemmed/resource/resource.htm> and <http://web.csd.sc.edu/medialink> or contact LTDI for purchase details.

## Decision Explorer

Constructing a concept map actively involves students with the subject matter, which in turn encourages deeper learning. Decision Explorer can be used in many ways e.g. to compare the students' and the tutor's maps; as a diagnostic tool; to brainstorm ideas for a project.

Decision Explorer is available for PC from Banxia Software Ltd, 141 St. James Road, Glasgow, G4 0LT Tel: 0141 552 3082  
E-Mail: [info@banxia.co.uk](mailto:info@banxia.co.uk)



**Short of ideas about  
how you can use  
technology to support  
assessment ? ... here  
are a few suggestions  
for useful packages and  
how you might use  
them....**

## Examine

Examine is another multiple choice authoring and delivery system for windows. It was developed under the Information Technology Training Initiative (ITTI), and is available, at very reasonable cost, from Jean Burgan, UCoSDA, Ingram House, 65 Wilkinson Street, Sheffield, S10 2GJ

Tel: 0114 222 4211

E-Mail [J.burgan@sheffield.ac.uk](mailto:J.burgan@sheffield.ac.uk) or free from <http://ibis/nott.ac.uk/software/>

## CourseWorks

CourseWorks is a simple easy to use concept mapping tool. Maps can be organised hierarchally and graphics, notes and hyperlinks added to each of the nodes. The software can act as a front-end to simple expert systems and dynamic models and maps may be exported as either plain text or HTML for use in Web pages. The software is available from the CTI Biology Web site at:

<http://www.liv.ac.uk/ctibiol/>

## Thesys

Thesys was developed with funding from the Department of Employment to provide an expert advisor for students writing major projects or assessing their own work. It doesn't claim to be able to replace an experienced and committed supervisor, but can be very useful, especially where staff have a large number of students to supervise.

Available from Prof. Richard Gentle Tel: 0115 9486484

E-Mail : [mec3gentlcr@ntu.ac.uk](mailto:mec3gentlcr@ntu.ac.uk)

## *Have you heard about.....*

***The ASSHE Inventory ?*** ASSHE stands for Assessment Strategies in Scottish Higher Education and the project team carried out a major survey of current assessment practices, compiling the data gathered into a database. A selection of entries from that database have been published as the ASSHE Inventory giving a brief description of the assessment method (not all involve technology), how widely it has been used and contact details for the staff involved. The Inventory can be purchased from

TLA Centre, 34 Buccleuch Place, Edinburgh, EH8 9JS.

Tel: 0131 650 6837 E-Mail: ASSHE.Project@ed.ac.uk

***Deliberations ?*** It's an on-line magazine for academics, librarians and educational developers and includes a section dedicated to assessment - ideas and techniques as well as a variety of other topics.

You can find it at <http://www.lgu.ac.uk/iem/home.html>

***The ALTER project?*** ALTER stands for Assessment of Learning through Technology for Efficiency and Rigour. It was a project funded by TLTP, and has produced a number of useful publications including 'Using Technology to Assess Student Learning'; 'Workshop on Assessment of Learning in Higher Education'; 'Assessment Processes and Personal Judgement in higher Education - A discussion paper'. Constructing Multiple Choice tests - a tutorial, 'Introduction to computer-aided assessment in Higher Education - a tutorial'

Contact : UCoSDA, Ingram House, 65 Wilkinson Street, University of Sheffield, Sheffield S10 2GJ

Tel: 0114 222 4211

E-Mail : j.burgan@sheffield.ac.uk

## ***Assessment on the Web***

### ***...In Mathematics?***

The Use of MANs Initiative project MARBLE is experimenting with delivering maths assessments via the World Wide Web.

<http://www.icbl.hw.ac.uk/marble/maths/public/assessment.html>

### ***...In Medicine and Business Studies?***

There are searchable MCQ databases that you can use to build your own tests at

<http://medweb.bham.ac.uk/http/caa/caa.html>

### ***...In Biology?***

Here there is an article and a hypernews discussion, which will be of interest to staff in other academic subject areas

<http://www.iv.ac.uk/ctibiol/lsec/july96/CBAIntro.html>

***'Setting Effective Objective Tests' ?*** - a self teaching tutorial from the University of Aberdeen, to help you identify whether objective testing has a place in your assessment strategy, and to guide you through the design of objective tests. Another publication is promised soon on the steps of implementing computer based examinations - watch this space!

Contact: Dr Simon Heath, CLUES, MacRobert Building, University of Aberdeen, Aberdeen AB24 5UA

Tel: 01224 273755

e-mail: CLUES@aberdeen.ac.uk

***'The Northumbria Assessment Conference'?*** hosted annually (we hope!) by The University of Northumbria at Newcastle in early September. For further details:

Contact Maureen Dickson Tel: 0191 227 4180

E-Mail: m.dickson@unn.ac.uk

or look at <http://www.unn.ac.uk/~edu8/assessconf.html>

LTDI staff would like to thank all those who have contributed to AssessIT, but particularly Shirley Earl from The Robert Gordon University, David Baume from The Open University and Stan Zakrzewski from The University of Luton.

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