

PASS-IT: Developing assessment through technology



By Dr Joanna Bull, Project Manager, PASS-IT.

The project seeks to explore and extend the use of information and communications technology for assessment in schools and colleges through a process of developing and piloting assessments for a range of qualifications.

Introduction

This article provides an overview of PASS-IT – Project on Assessment in Scotland Using Information Technology. The project seeks to explore and extend the use of information and communications technology for assessment in schools and colleges through a process of developing and piloting assessments for a range of qualifications.

Overview of PASS-IT

PASS-IT is a two-phase, Scottish Executive-funded project which began in August 2002. The overall aim of the project is to create, pilot and evaluate a number of different approaches to information and communication technology (ICT) based assessment in schools and colleges throughout Scotland. PASS-IT builds on a wealth of previous research and development undertaken by some of the partners involved in the project. The delivery of ICT-based assessment has been pioneered by groups like the Computer-Aided Learning in Mathematics project team at Heriot-Watt University since 1985. Over time the tools of ICT-based assessment have advanced dramatically and assessment systems now have greater flexibility and sophistication allowing a range of assessment types and question styles to be created, delivered and often automatically marked.

The project is a partnership between the Scottish Qualifications Authority (SQA), Learning and Teaching Scotland, BBC Scotland, the Scottish Further Education Unit and SCROLLA (the Scottish Centre for Research into On-Line Learning and Assessment at Heriot-Watt University). These key players in Scottish education are dedicated to working together to investigate how best to exploit ICT-based assessment to enhance flexibility, improve attainment and support teaching and learning in the Scottish education system.

The outcomes of the project will include:

- A research report examining the viability and applicability of ICT-based assessments
- Guidelines on quality assurance for ICT-based assessments
- Good practice documentation on question writing
- Staff development and training activities for colleges and schools
- Recommendations for future activities and development
- Updates and dissemination events for students, parents, teachers and institutions
- Recommendations on a national implementation strategy.

Phase One

During Phase one (August 2002-October 2003) the project team worked with SQA principal

assessors and qualifications managers to develop a range of ICT-based assessments for National Assessment Banks in Mathematics and Chemistry (Higher and Advanced Higher) and in HNC Computing. Figure 1 shows an example of an ICT-based question in Mathematics.

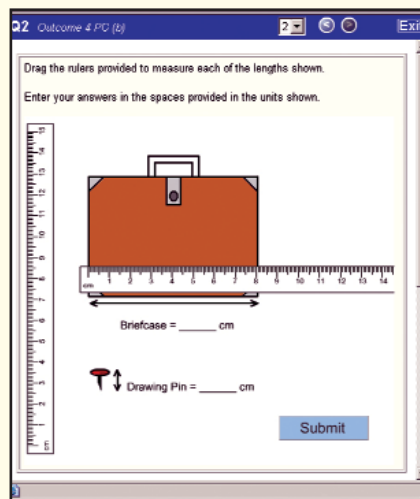


Figure 1.

Schools and colleges were invited to pilot the assessments and the project liaised with the Scottish Executive and HMI to select appropriate centres. Between March and May 2003 pilots of the ICT-based assessments took place in the following schools: Balerno Community High School, Currie High School, George Watson's College and St Thomas of Aquin's in Edinburgh, and Old Machar Academy, Dyce Academy and St Machar Academy in Aberdeen. In mid May 2003 three pilots were conducted in Langside, Reid Kerr and Glenrothes Colleges to trial HNC Computing unit assessments. The participating centres contributed to the research aims of the project and an evaluation of the pilots.

Evaluation

An evaluator worked with the project team and conducted a series of staff focus groups and an e-mail questionnaire. This evaluation sought to capture experiences and perceptions of ICT-based assessment and issues concerning the practical and organisational delivery of ICT-based assessments. The evidence gathered from centre staff highlighted a wide range of issues including:

- Timing of the pilots
- Nature of the assessment
- Technical issues
- Organisational issues.

The outcomes of this internal evaluation have helped in the planning of phase two and informed the continuing research aims of the project. In particular, the second phase will allow greater flexibility in the timing of the pilots to better reflect the teaching of the curriculum and provide

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greater motivation for students involved in the pilots to undertake practice assessments.

For the second phase of the project an external evaluator has recently been appointed who will work with the project team to undertake a broader, strategic evaluation of the project as a whole.

Research

The scope of the research which could be undertaken by the project was potentially broad, encompassing many aspects of learning and assessment. Much discussion and debate during the early stages of the project, by the project team, Project Board and Advisory Group, helped to focus and refine the research aims. In Phase One the project sought to:

- Examine the impact of medium of delivery
- Explore the effect of providing 'steps' and feedback on student performance
- Gather and analyse student and staff experiences and perceptions of ICT-based assessments.

answers; and student attitudes towards ICT-based assessment in a range of subjects.

Phase Two

Phase two of PASS-IT has recently started and will continue until October 2004. The second phase will progress the development of ICT-based assessments, extending to a range of new subject areas and levels, including:

- Maths Access 2 and 3
- Maths Intermediate 1 and 2
- Music Higher
- French Higher
- English Intermediate 1.

Project staff are currently working with subject specialists to explore ways in which existing paper-based assessments can be transformed, amended and re-designed for an ICT-based format. A number of centres have been approached and invited to participate in the pilots which will take place across Scotland between December 2003 and May 2004.

During phase two further exploration of some of the research issues addressed in phase one will take place. In particular the research will explore: the effect of medium of delivery where listening forms part of the assessment; the use of 'steps' in subjects other than mathematics; the validity of different styles of questions for assessing the same learning outcome; and the potential for automated short text assessment in a range of subjects. Also of particular interest in phase two is the exploration of special educational needs in relation to ICT-based assessments.

ICT-based assessment has the potential to enhance the assessment process, offering teachings and students new opportunities for flexible and diverse assessments, as well as assisting in the integration of learning and assessment. The outcomes of PASS-IT will help to inform the future direction of research and highlight issues concerning implementation and scale up.

Further information about PASS-IT can be found on the project website at <http://www.pass-it.org.uk>

<http://www.balernocho.sch.uk>
<http://www.bbc.co.uk/scotland>
<http://www.curriehighschool.org>
<http://www.dyceacademy.aberdeen.sch.uk>
<http://www.glenrothes-college.ac.uk>
<http://www.hw.ac.uk>
<http://www.langside.ac.uk>
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<http://www.sqa.org.uk>
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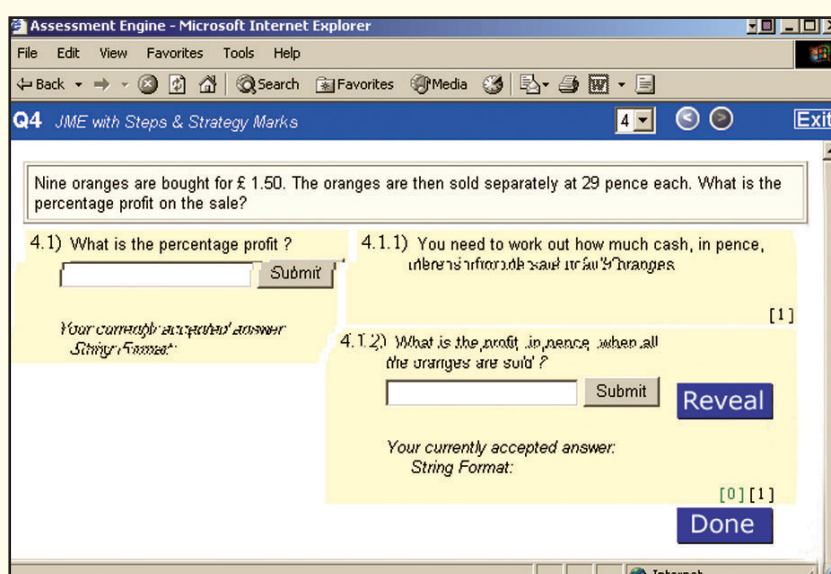


Figure 2.

One of the unusual features of the assessment design approach and CUE software used to pilot the assessments is the capability to break down questions into several distinct parts or 'steps' as shown in Figure 2. This provides students with a choice of whether they answer questions in one or more parts and can be reflected in the marking strategy. Research data was gathered from the pilots and has helped to inform an interim research report and the focus of phase two planning. The research report outlines the interim findings on the effect on student performance of delivering assessments on screen and on paper; the awarding of partial credit through the use of steps within questions; the potential for free text assessment of short