

# Computer Assisted Assessment: The future, right here, right now

In April 2004, the Scottish Executive praised SQA's Computer Assisted Assessment programme as providing 'a sound basis for the future development of ICT in assessment'. This is but one example of the growing recognition of SQA's work in this area by policymakers and press — including the Times Educational Supplement and the BBC.

The Executive also promised a joint national strategy that would guide the use of ICT for teaching, learning and assessment. This response by the Scottish Executive is the culmination of intensive research, development and consultation by the CAA team. Their activities have implications across the range of SQA's work: from developing qualifications to running exams.

## But what is Computer Assisted Assessment?

CAA is defined as 'assessment activities supported by the use of information and communications technology (ICT)'. This means:

- ◆ The delivery of assessment tasks and results to students.
- ◆ Assessments taken in whole or part on computer.
- ◆ Computer marking of assessments.
- ◆ Electronic collation and transfer of grades and assessment data.
- ◆ Electronic delivery of training and support materials.

The CAA team is the catalyst for SQA's work in all of these areas: working with colleagues across the organisation, partners in organisations such as the Scottish Executive, Learning and Teaching Scotland (LTS), the Scottish Further Education Funding Council (SFEFC), Scottish Further Education Unit (SFEU), and centres themselves. Developments are now at the stage of putting theory into practice across the curriculum.

## New developments in online assessment

Colleges have already been working on formative online assessment for Higher National Provision. Funded by SFEFC, CAA's project will build on the outcomes of this work and develop summative assessments in up to ten occupational areas. These will be available to centres from spring 2005 and will help SQA create a sustainable model for the development of online assessment for HN.

As for National Qualifications (NQ), a business case is in preparation for a programme of work to roll out online assessment. This will be done incrementally consistent in rationale with the development of the 5 – 14 Bank of National Assessments. These ‘e-NABs’ will be stored electronically so that teachers can access them from a website when needed. The e-NABs have been designed so that teachers will not know the content of any NAB in advance.

Most e-NABs will be printed for candidates to use on paper, but in a small number of subjects they will also be available for candidates to work on-screen. As demand for them grows, more will be produced in this way. It is also expected that a proportion of the on-screen NABs will be automatically marked, releasing the time currently taken by teachers on this activity.

## Pass-IT

The Phase 2 pilots in Pass-IT, in which SQA is working with other national bodies to research the implications of online assessment, are nearing completion. Online assessments for NABs in Maths, English, French and Music have been piloted in 18 centres including Edinburgh’s Royal Blind School. This reflects a particular focus on access to online assessment for those who need additional support. The data from the pilots will be analysed over coming weeks with the final project report due at the end of 2004. A major dissemination event is planned for late October.

As a project focused specifically on researching the impact and implications of online assessment, Pass-IT will have a significant part to play in influencing SQA’s future direction and approach to the use of online assessment.

Pass-IT set out to research a number of specific research questions, one of the most important of which was whether changing the medium of assessment from paper to screen has any impact on candidate attainment. This is clearly a critical question in making the transition from paper to screen and on which centres, candidates, parents and other stakeholders will need reassurance.

Through detailed and carefully designed research which involves comparison of marks achieved by candidates for the same test on paper and on screen, Pass-It has already provided significant information in this area. To date the results of the research indicate that the shift from paper to screen results in very little or no impact on candidate performance. There have been very few similar studies undertaken internationally and, as far as we know, none in the UK. The results of these comparability studies have therefore attracted interest from within the UK and internationally.

Other questions on which Pass-IT has shed light have included the impact of changing the order of questions within a test on candidate attainment, and of changing the variables within a question. Both of these are important in gaining maximum benefit from e-assessment, but before we do so we need to understand

whether they have an impact — studies undertaken to date indicate that these types of changes do *not*.

The examples cited above required SQA to work in close partnership with the Scottish Centre for Research into Online Learning and Assessment (SCROLLA), whose mathematicians and statisticians have been central both to the design of this complex research and to the number-crunching that has been required to generate the results.

At a more practical level, SQA's work with the centres to pilot Pass-IT assessments has allowed us to gain a clear understanding of what support centres need to run online assessment. It is clear that the nature of this support is very different from that needed for conventional paper-based assessments. Before it rolls out online assessment, SQA therefore needs to understand and make provision for this; ranging from revised and updated guidance on quality assurance to having an SQA liaison officer in the centre the first time online assessments is delivered. Without this support, centres could quickly become disenchanted if they experience difficulties.

Further down the road, the use of e-assessment will allow SQA to enhance and strengthen the quality assurance of assessments through the collection of item statistics. At present very few statistics — measures of the quality of an item in doing what it was designed to do — are collected following SQA's assessments. Use of e-assessment allows these statistics to be captured as a matter of course. It will then be possible for us to review the quality of items on a far more methodical basis than is currently possible, 'weeding out' those that are not good and to cultivating those that are. This will enhance the validity and reliability of our assessments so that we can be even more confident in their quality. The ability to gather statistics in this way is a key consideration of the e-NAB project.

In addition to SQA's own research, drawing upon the experience and learning from other awarding bodies' research into e-assessment is vital to SQA's plans. Most awarding bodies in the UK are at a similar stage of development of e-assessment, are experiencing the same issues and have the same questions to answer. They are therefore often very willing to share information, as SQA is not seen as a competitor by most other UK awarding bodies. It is essential that this process is reciprocal, and SQA also shares its experiences, which makes our participation at conferences in the UK and overseas an important investment. SQA is also holding a joint research day with SCROLLA and the University of Cambridge Local Examinations Syndicate (UCLES) in early October to share experiences and identify some possible areas of future collaboration.

In a new and developing field such as this, it is essential to underpin our activities and plans with a sound research base looking into the implications of change. As the pace quickens, it is ever more important that the research keeps up: like a three-legged race where all three legs must be well co-ordinated and operating in tandem to make any progress.

As for the future, there are many developments that will continue to transform the way we think about and use assessment in coming years. Perhaps one of the most significant is how we can use technology to mark essays and other long pieces of text. It isn't yet possible, at least not with the level of reliability that SQA needs, but a number of people across the world are working hard to be the first to crack it. There is a consensus that the breakthrough that's needed will be made soon — and yes, SQA has a finger in that research pie too, through work with a Scottish based company that hopes to find this 'golden egg'.

## The Future

Overall, Computer Assisted Assessment is a good example of how research and development combine to enhance SQA's portfolio, the products and services offered. However, development of online assessment is costly and beyond the scope of SQA's current core funding. A number of alternative or additional sources of funding have thus been identified, including:

- ◆ Development funding provided by the Scottish Executive, SFEFC or other national bodies in recognition of how development of online assessment contributes to their respective priorities including the development of a more modern, robust and cost-effective model of assessment.
- ◆ Funding provided by research bodies in Scotland, the UK more widely or internationally.
- ◆ Funding from European sources, including but not confined to the European Social Fund.

Funds from some of these additional sources have already been secured, with further bids in preparation. It is also possible that development and use of online assessment may be capable of supporting a self-sustaining business model in which the charges made for online assessment cover the costs of its development. CAA also offers other new possibilities for SQA to help enhance the quality of its qualifications, assessments and its service to customers, whilst at the same time creating a product with intrinsic commercial value.