Cambridge Assessment

Background

The Cambridge Assessment Group is a department of the University of Cambridge. It is made up of three exam boards – University of Cambridge International Examinations (CIE), University of Cambridge ESOL Examinations (Cambridge ESOL), OCR – and an extensive Assessment Research and Development unit. Through the 3 exam boards the organisation develops and delivers examinations and tests globally. In the UK OCR is one of the larger regulated awarding bodies offering a wide range of qualifications both general and vocational across schools colleges and private training providers including employer based training.

Cambridge Assessment and e-assessment

Cambridge Assessment has over 20 years experience in researching the development of e-assessment solutions and is fully committed to the development of e-assessment options across its qualification offer. These include both vocational and general qualifications. Cambridge Assessment provide a number of technology based solutions with assessment techniques ranging from on screen testing to the use of e-portfolios for storage of digital performance based evidence. These e-assessment solutions are classified in two ways:

- Computer Based Assessment – This is where the computer performs the marking such as automatic assessment of multiple-choice or other objective items and more recently research into automatic assessment of longer passages of text or audio.
- Computer Mediated Assessment – This is where technology is used to assist or facilitate the marking process. On Screen Marking systems are an example of this where paper scripts are scanned to become digital images and/or responses are captured at source from e-test delivery. More recently this work has also covered any form of assessment where the test is delivered or the evidence is captured in digital format – e.g. e-portfolios, e-repositories, escape project, online listening exams etc.

For the sake of clarification the purpose of assessment in this context is summative, where the outcomes are used to gain external accreditation, gain entry or define choices for next stage of education or achieve a licence to practice. Cambridge Assessment does also have examples of work that has supported diagnostic or formative assessment but that is not included in the scope of this study.

Introducing e-assessment

Cambridge Assessment began to explore the possibilities of computer based solutions in the late 1980s for vocational qualifications. Over the years this has also progressed to the development of computer mediated solutions which include online marking, e-testing and the use of digital evidence and e-portfolios.

There have been varied reasons for adopting and introducing e-assessment into qualifications. Whilst business demands in terms of cost savings and efficiencies are presumed, this hasn't always been the main driver. Service improvement has always been a key factor, the ability in general, to improve turnaround time for assessments and results has by default introduced enhanced quality assurance procedures as well.

Learner expectations to an extent have quietly added to this drive towards e-assessment. Traditionally the learner is the passive consumer with a reasonably low level of influence, however there is now a generation of learners who are incredibly comfortable with and so immersed in technology that to do things differently becomes increasingly alien to them. This

presents interesting challenges in terms of e-assessment; whilst potential learner expectation doesn't force change it does put an obligation on AOs and the education system to become increasingly sensitive to this and the use of technology in generating evidence of activity. This in turn has the potential to provide a far richer learning experience than the world of A4 paper.

Key focus for e-assessment.

Cambridge Assessment recognises that there is a wide scope for the application of technology to support assessment – in its broadest terms this is referred to as computer mediated assessment. However, for the outcomes to maintain their integrity and credibility the assessment and use of technology must be "fit for purpose". Fitness for purpose can apply here to three domains - content, skills and infrastructure. Of these content is arguably the most critical domain to ensure authenticity of the assessment but skills and infrastructure play an equally vital role in ensuring the success of e-assessment ventures.

Content - In terms of content, the first thing that needs to be asked is; does the assessment domain and form lend itself to technology based assessment? In the simplest of examples there is the straight migration from pen and paper to onscreen test – typically the MCQ e-test. Multiple choice questioning is a common place format for an e-test and when used correctly it is an appropriate and effective form of assessment. However overuse of this form can bring its own unintended constraints and Cambridge Assessment maintains that it is important that the integrity and validity of the assessment is retained and therefore the assessment design must match the level of knowledge or skills that are to be assessed. Technology should not be used for the sake of it – it should enhance the reliability, validity, accessibility or efficiency of the assessment process without impacting on the quality or outcome.

Infrastructure – To realise such fitness for purpose the required infrastructure must be in place at both the AO and educational centre. Key questions that need to be considered are: what size and frequency of cohort does the centre expect? Has both the centre and the Awarding Organisation the capacity to cope with this? Current experience has shown that there is still a gap to be filled here and that gap is especially stark in schools where the infrastructure is not always in place. Although one might assume that this gap will lessen over time it has been slow to evolve over the last twenty years and continues to present real challenges to deployment of e-assessment into mainstream education.

Skills - There are still difficulties in marrying the skills set with the infrastructure – both internally and externally. Even if the infrastructure is robust there needs to be confidence and skills in its use in both a teaching and learning capacity. Cambridge Assessment align with the view expressed by Dundee University of the emergence of the "hidden team" - the human resource married with the technology resource. A balanced combination is required to develop a suitable level of expertise and confidence for deployment. It is also clear that the human resource team expands to include far more than traditional administration interface points. Many historical skills development programmes have concentrated too much on upskilling the teacher but ignored the needs of this wider team.

Are there constraints on e-assessment?

The diversity of subject domains and the complexity of such can present some additional challenges for e-assessment. In the area of science and mathematics it is common to find objective assessment – one right answer. It would be expected that this type of assessment could therefore lend itself quite easily to e-assessment. However, it is more difficult to allow an authentic learner response without resorting to conversion to multiple choice items. In simple terms it is difficult to allow students to interact with formulae or equation responses in an e-assessment domain. The danger is that the use of multiple choice in this instance may simply test recognition and selection rather than understanding and application; in such a case the limitation of the technology for assessment should be avoided. Cambridge Assessment have

explored the use of new software utilities which allow the creation of formulae and equation builders – this may present some valid options for response in this domain. In tandem with such solutions there must be capacity building and awareness amongst teaching staff and learners in the application of such utilities.

E-assessment provides two key opportunities: to assess things differently (in new ways), and to assess different things (previously ignored domains and concepts). It heralds the potential to venture into new domains by allowing judgements about such things as process (e.g problem solving) and contribution (eg team work, collaboration) and assessing them in new ways. It also allows us to enhance the assessment of existing domains and CA have explored this in subjects such as foreign languages and the use of audio files to assess speaking components. The oral assessment which is normally deferred to local activity and is internally assessed can now be made more standardised and independent with external assessment options.

This all serves to highlight that E-assessment is a relatively slow adoption process. Although increasingly the skills issue around the learner is being solved there is still further progress needed in other areas of skills and infrastructure development. E-assessment does introduce choice for the learner, which itself can be a challenge. This option for preference can be a problem for some but increasingly it is becoming accepted that being au fait with technology is a prerequisite of being defined as literate (digitally so) in the 21st Century.

On an organisational level there needs to be sufficient "buy in" from staff supported by timely development and training. At a centre level it is more difficult for AOs to have influence and we know that the infrastructure and skill sets still remain patchy. There still needs to be top down commitment within centres with adequate levels of support for ICT staff. Admin staff also need to be trained in e-assessment systems and are often overlooked by policy driven staff development initiatives. It is also important that the benefits to learners and educational institutions are stated clearly from the outset as this will help to fuel engagement.

Despite ongoing developments in technology and its potential in the teaching and learning environment, its impact on the assessment system is still relatively small. There are many reasons why this might be so but one important factor may be the need for contingency options. In order to make sure the AO service is resilient and can be trusted to deliver on the day of the test there need to be contingency options and the obvious one is to provide the pen and paper equivalent. This clearly has its own drawbacks as there is then less imperative for centres to change practice and move to e-assessment and therefore less imperative for AOs to prioritise e-assessment services.

Cambridge Assessment also gives much consideration to the whole area of accessibility. It is a general truism that the more assessment goes down the innovation route the more potential there is to create accessibility issues. Most importantly technology-rich solutions should not be deployed as e-assessment just for the sake of it. The mode of assessment should not unduly impact on the fundamental elements of the assessment objectives or the recognition of achievement process. This said, it is a common misconception that in e-assessment it is the technology that should adapt in terms of accessibility. Rather human assistance in the use of the technology should also be considered to enable access. The core of this principle is that accessibility is about giving the learner opportunities to access the 'assessment' – not necessarily the technology without any additional assistance – and therefore ensuring the learner is not disadvantaged.