



**General Principles and Minimum
Requirements on E-Assessment of
Qualifications and Part Qualifications on the
Occupational Qualifications Sub-Framework
(OQSF)**

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List of Acronyms

AQP	Assessment Quality Partner
CHE	Council for Higher Education
FLC	Foundational Learning Certificate
NQF	National Qualifications Framework
OQSF	Occupational Qualifications Sub-Framework
QCTO	Quality Council for Trades and Occupations
SDP	Skills Development Provider

Glossary of terms

Accreditation	The certification, usually for a particular period, of a person, a body or an institution as having the capacity to fulfil a particular function in the quality assurance system set up by the Quality Council for Trades and Occupations (QCTO).
Assessment	The process of collecting evidence of learner's work to measure and make judgements about the competence or non-competence of specified National Qualifications Framework (NQF) occupational standards or qualifications and part qualifications.
Assessment centre	A centre accredited by the QCTO for the purpose of conducting external integrated summative assessments for specified NQF registered occupational qualifications and part qualifications.
Assessment Quality Partner	A body delegated by the QCTO to develop assessment instruments and manage the external integrated summative assessments of specific NQF registered occupational qualifications and part qualifications.
Assessment site	Any site selected as suitable and approved by the relevant AQP to conduct the external integrated summative assessments for specified registered occupational qualifications and part qualifications, where the specific assessment specifications do not require the use of an accredited assessment centre.

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Assessment specialist	A person who has been appointed by the relevant AQP in accordance with established criteria to conduct, develop and/or moderate external integrated summative assessments for NQF registered occupational qualifications and part qualifications.
Applied competence	The ability to put into practice in the relevant context the learning outcomes acquired in obtaining an occupational qualification or part qualification.
Candidate	A person whose performance is being assessed by the relevant AQP at an accredited assessment centre or approved workplace.
E-Assessment	Any type of assessment that involves an electronic component and incorporates one or more of e-testing, e-portfolios and e-marking.
E-Learning	Various forms of electronic learning where technology is used to deliver part, or all of a course whether it is within a school or in a distance learning environment.
External summative assessment	A final evaluation of a learner's occupational competence in the specified registered NQF occupational qualification or part qualification conducted at a different place from which the learning took place and by different people from those who offered the learning.
Integrated assessment	A form of assessment which permits the learner to demonstrate applied competence and which uses a range of assessment methods (formative and summative), instruments and techniques.

Moderation	The process managed by the AQP which ensures that the assessment of the learning outcomes described in the NQF occupational standards, qualifications and part qualifications is fair, valid, reliable and unbiased.
Moderator	A person who has been appointed by the relevant AQP in accordance with established criteria to ensure that the assessment process and procedure is fair, valid, reliable and unbiased.
Monitoring	A continuous process of the review of quality that can be conducted internally and/or externally to recommend quality improvements.
Occupational curriculum	Is derived from the occupational profile and is the purposeful combination of conceptual, practical and work experience knowledge and skills in order to achieve a certain occupational qualification.
Occupational qualification	A qualification associated with a trade, occupation or profession, resulting from work-based learning and consisting of the knowledge, practical skills and work experience standards as defined in the Skills Development Act (Act No. 97 of 1998).
Part qualification	An assessed unit of learning that is registered on the NQF as a part qualification. Occupational part qualifications must comprise all three learning components.
Skills Development Provider	A body that delivers learning programmes which culminate in specified registered NQF occupational standards and qualifications and part qualifications and manages the internal assessment thereof.

Systems auditor	The person responsible for auditing the management and information systems of the AQP
Validation	The end-process by which it is determined by the relevant AQP whether or not an assessment is valid and leading to the acceptance or rejection of assessment results.
Verification	The process managed by the relevant AQP for externally checking moderation processes and confirming or overturning moderation findings.

1. QCTO Mission and Vision

Vision: To *qualify* a skilled and capable workforce.

Mission: The QCTO's mission is to effectively and efficiently manage the occupational qualifications sub-framework in order to set standards, develop and quality assure national occupational qualifications for all who want a trade or occupation and, where appropriate, professions.

2. Preamble

In line with its key mandate of upholding the quality of qualifications within the Occupational Qualifications Sub-Framework (OQSF), the QCTO is committed to quality assuring all forms of assessment of programmes and qualifications within the sub-framework. To this end, there is recognition of the prevalence of use of technology not only in delivering training programmes within this sector, but also in assessing students. An increasing number of providers that roll out e-learning programmes now prefer to use e-assessment in order to overcome the limitations of time, distance and resources. In order to maintain credibility of both formative and summative e-assessment, the Council needs to put in place robust quality regulation processes and procedures that Approved Assessment Quality Partners (AQPs) should adhere to. In addition to assessment, the Council seeks to ensure that all technology supported delivery (e-learning) is deployed in the most professional manner and to the best advantage of the student. The affordances of technology should be used to enhance the quality of delivery, to open access, to be flexible, and to achieve cost-effectiveness in service delivery. This policy document provides a framework that ensures that consistent and robust approaches are taken to the delivery of formative and summative e-assessment. The framework document is in line with the basic tenets of seminal national policies like the White Paper on Post-School Education and Training as well as with the general assessment principles guiding assessment in the sub-sector.

3. White Paper on Post-School Education and Training

One of the key objectives of the White Paper on Post-School Education and Training is to expand access, improve quality and increase diversity of provision in post-school education and training. The QCTO makes an undertaking to support policy implementation by accommodating diverse ways of both delivery and assessment whilst at the same time it strengthens the quality of these processes. Whilst the White Paper envisages expansion of equitable access by embracing ICTs and expanding open and distance modes of delivery in the post-school education and training sub-sector, it underscores the importance of quality assuring the delivery processes by the Quality Councils in order to ensure that high quality education is provided. Due to the envisaged expansion, the Paper encourages Quality Councils to exercise greater flexibility to quality assure qualifications on the NQF. Further, there is encouragement of the Quality Councils to tighten their quality assurance processes by using external assessment in order to identify poor performance. In instances where learners consistently perform poorly, appropriate remedial action and/or capacity building

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measures should be taken. To this end, the assessment of qualifications delivered through e-learning or blended learning under the Occupational Qualifications Sub-Framework needs to be rigorous enough to identify areas deserving support. This includes quality assurance of assessment systems, processes and procedures.

Traditionally, the QCTO has been quality assuring forms of assessment that have mainly been paper-based. As more and more providers embrace educational technologies to deliver training programmes and assess students, it has become clear that some occupational qualifications require an electronic system of assessment. To facilitate standardisation of such assessment practices across a diverse range of its Approved Assessment Bodies, it has become necessary to develop policy guidelines on e-assessment.

4. Audience and applicability

This policy applies to all QCTO approved Assessment Bodies, assessment centres and skills development providers conducting external summative assessments via the digital mode. The guidelines are applicable to the assessment of occupational qualifications and part qualifications registered on the NQF.

This policy should be read in conjunction with the QCTO Policy on Delegation of Qualification Assessment to Assessment Quality Partners (AQP), Assessment Policy for Qualifications and Part qualifications on the Occupational Qualifications Sub-Framework (OQSF) and Policy on accreditation of assessment centres.

5. Assessment of technology-supported programmes

As institutions move to fifth-generation distance education provision, with increased e-learning and online learning, it is necessary for any Quality Council to consider how the role of assessment and feedback is being re-imagined in a digital era. The integration of ICT opens up increased functional possibilities for interaction with dispersed learners, a development that introduces the flexibility needed to make education and training more accessible. Learners can submit assignments, including multiple media, online; provided there are some kind of guidelines or a rubric, they can receive constructive feedback from peers and from a tutor or educator; and the submission and feedback process can be monitored to ensure quick turnaround times.

However, before considering the implications that a changing approach to e-learning has for assessment, it is important to recognize that there are certain characteristics of an effective assessment strategy, regardless of the mode of provision. The CHE (2015)¹ alludes to the following basic principles of an effective assessment strategy:

- Sufficient measures are in place to ensure the validity and reliability of assessment.
- Assessment is rigorous enough to give reliable evidence of student achievement, so there can be no doubt that students have met the exit level outcomes and earned a qualification they can be proud of.

¹ CHE (2014) Distance Higher Education Programmes in a Digital Era: Good Practice Guide, CHE, Pretoria.

- An efficient management system is in place to ensure fair administration of both formative and summative assessment, security of assessment items and results, and timely release of assessment results.
- There is sufficient formative feedback to help students to check their progress against the intended learning outcomes and assessment criteria.
- *There is sufficient evidence to allow students and lecturers to diagnose potential problems and areas of strength.*
- *There is sufficient guidance and feedback to maximise student chances of success.*
- *Support to students in time management by staggering assignments and workloads so that they can be sure that they cover the complete programme adequately in the time they have available.*
- *Motivation to students to succeed by encouraging them to relate their studies to their own working/potential working and/or learning environments and problems and through the provision of encouraging and realistic feedback².*

6. What is e-assessment?

E-assessment is the use of electronic systems for the development, operation and delivery of accredited qualification assessment or the collection of performance evidence, which contributes to the awarding of a unit or an accredited qualification.

E-assessment is any type of assessment that has an electronic component and incorporates one or more of e-testing, e-portfolios and e-marking. Examples of e-assessment include:

- *Assessments that are distributed, completed, marked automatically and administered electronically using local intranets/networks and individual workstations.*
- *Assessments that are distributed, completed, marked automatically and administered electronically using the internet.*
- *Assessments comprising a combination of automatic marking and manual.*
- *Electronic test delivery, with all marking completed manually on screen or on paper.*
- *A range of multimedia formats for submitting assessment*
- *Electronic scanning of completed assessments for marking.*
- *Tests downloaded from the internet by the centre.*
- *Delivery of assessments and submission of completed assessments by secure email.*
- *E-portfolios to store and manage candidates' evidence electronically.*
- *Assessments that are automatically marked and react adaptively to student performance*

7. Why e-assessment?

Due to the increasing use of technology for the development, delivery and administration of education, many organisations prefer to harness the affordances of technology to assess students and reporting of assessment. In the South African context, e-assessment is a huge advantage to students as they do not need to wait for too long before they get the results of

² Adapted from Raggatt 1994 in Lockwood 1994: 138; Morgan & O'Reilly 1999: 80

the assessment, and the system is cost-effective as students do not need to shoulder any postage costs. Use of e-assessment is motivated by a number of factors that include:

- The dispersed nature of students served by a provider;
- Flexibility of taking tests/exams - learners can register and sit the exam whichever day and time suits them;
- Cost effectiveness of transporting assessment documentation electronically rather than physically, and the relative security associated with electronic delivery of assessment;
- Mechanism for getting regular feedback from users.

8. General Principles of e-assessment

In order for an e-assessment system to have credibility, there are generic principles of assessment that should be upheld, over and above the specific principles that are germane to electronically supported assessment systems. Assessment Quality Partners must adhere to these general principles of assessment in order to ensure that they implement credible systems.

8.1 Validity of e- assessment

Assessment Quality Partners should ensure that:

- Students who pass the programme demonstrate the graduate competences indicated in the purpose and exit level outcomes of the programme.
- Where relevant, practical competences are adequately assessed
- Systems have been put in place to ensure reliability, rigour and security of the e-assessment system for remote students
- Assessment activities are sufficiently varied for the programme purpose and level and the diversity of its student body. Appropriate constructs as covered in the relevant courses are adequately covered in the assessment.
- Where students submit assessment individually by electronic means from homes or workplaces, and not from a recognized assessment centre, the programme has the necessary security systems for electronic assessment.
- Programmes delivered exclusively or mainly through electronic learning methods do not narrow the range of assessment to the assessment of factual knowledge (which is most easily assessed), rather than the full range of outcomes and depth of knowledge required for the particular programme of study. In technology supported distance education delivery, there is the danger of limiting assessment tasks to low level cognitive skills (e.g. simple multiple choice questions [MCQs] that can be computer-marked) at the expense of high level skills (usually requiring more open-ended written and practical assignments) that enhance deep and critical engagement with concepts. Higher order thinking skills like application, analyses, evaluation and creation should be covered in the assessment.
- There is evidence of staff development to familiarise academic staff with online assessment strategies that take high level cognitive skills into account thereby ensuring credible online assessment.

8.2 Management of e-assessment

- There is evidence that the assessment body understands the importance of feedback on formative assessment in e-learning.
- There is evidence of an assessment management system to ensure that feedback on assessment is confidential and reaches the right students timeously. Systems are in place to communicate feedback and results quickly, efficiently and securely to a distributed student body.
- Adequate systems to guarantee the integrity and security of the assessment system and the authenticity of student submissions (including means to discourage plagiarism from online sources) are in place.
- E-assessment systems are tested to ensure proper functionality and any shortcomings identified are fully addressed prior to full implementation.
- There is regular monitoring and checking of the smooth functioning of e-assessment systems to make sure that the assessment system is not compromised in any way.
- The e-assessment body has enough competent staff to address any technical problems students face with the assessment system to ensure the assessment process runs smoothly and does not in any way disadvantage the student.
- The assessment body does not pass on unnecessary costs to students.
- There is a policy on external moderation of the e-assessment and the policy is effectively implemented.
- External moderation reports are used to improve the various aspects of the e-assessment process, like the validity of the assessment instruments, the quality of student performance, and the reliability of the marking process.
- Assessment partners must have effective quality assurance measures in place to ensure the integrity of the assessment data.
- E –assessment systems must have capacity to generate key information like system error reports and data that demonstrates regulatory compliance.
- Where Assessment Partners enter into partnership arrangements with any other provider, formal service level agreements with clearly stated roles and responsibilities must be signed.

8.3 Teaching/Learning value of e-assessment

- The central role of formative assessment and feedback in online learning is formally recognised and there is evidence of an appropriate number and variety of formative assessment tasks, and mechanisms for the monitoring and quality assurance of feedback and minimum turn-around time are in place.
- Accurate and reliable records of student e-assessment are kept and can easily be retrieved as when there is need.
- The potential of the electronic environment for the use of ongoing formative assessment of different kinds (self-, peer- and tutor assessment) is exploited appropriately.

8.4 User-friendliness of e-assessment System

- The rules and regulations governing assessment are published and clearly communicated to students and relevant stakeholders.
- Evidence is provided to demonstrate that these rules are widely adhered to.
- Breaches of assessment regulations are dealt with effectively and timeously.
- Students are provided with information and guidance on their rights and responsibilities regarding e-assessment processes (for example, definitions and regulations on plagiarism, penalties, terms of appeal, supplementary examinations, etc.).
- Student appeals procedures are explicit, fair and effective.
- There are clear and consistent published guidelines/regulations for:
 - Marking and grading of results.
 - Aggregation of marks and grades.
 - Progression and final awards.
 - Credit allocation and articulation.
- As much as possible, e-assessment systems should operate on inclusive principles and therefore accommodate learners with various forms of physical challenges.
- E-assessment systems are designed in such a way that they are easy for learners to navigate. Assessment partners should ensure that learners do not spend much time grappling with system issues instead of with the content of the assessment.
- Mechanisms are in place to support learners who are less competent in working with technologies so they can gain the necessary skills and gain sufficient confidence in working with the technology; and
- Ensure that there is fair and equal treatment of all undertaking e-assessment, irrespective of geographical location, time of assessment and course.

8.5 Use of e-portfolios for assessment

In addition to regulatory principles 8.1 - 8.12, e-portfolio systems should store and maintain performance evidence for access by all required parties securely, meet the evidence needs for a range of qualification types and enable learners to move their portfolios from one centre to another.

- E-portfolio systems must have the capabilities to store and maintain a variety of forms of performance evidence or coursework for secure access by the learner, assessors, verifiers and moderators based on a robust authentication process.
- As far as is practicable, awarding bodies must give due consideration to the need to support a degree of inter-operability in the e-portfolio systems that they develop or endorse to enable learners to move their portfolios from one centre to another.

NOTE WELL:

- *The qualification assessment specifications must spell out clearly the internal and external assessment modes identifying whether the assessment will be practical, paper based, electronic or blended.*

- *The e-assessment instruments must be designed and developed in accordance with the QCTO Guide for developing assessment tools.*

9 Administration of e-assessments and technical support

- All staff undertaking e-assessment processes at assessment centres must be familiar with the on-line environment and have undergone appropriate training prior to gaining access to the system.
- Accredited Assessment centres should have plans in place to manage every aspect of the e-assessment procedure, ensuring that the process is robust, reliable, fair and efficient and that robust contingency plans are in place to mitigate against technical failure.
- In the case of technical failure occurring within the first 80% of the scheduled time of the assessment, it is recommended that the EISA be rescheduled. If a technical failure occurs within the last 20% of the scheduled time, the assessment may be concluded (provided the previous 80% has been saved), and the marks gained may, at the discretion of the AQP and the QCTO be standardised accordingly.
- In cases of serious technical failure which affects the whole group assessments may be rescheduled or where appropriate students offered the assessment in paper form. In either case, the QCTO should be immediately informed of the new arrangements by telephone and a written communication should be sent to the QCTO soon after the assessment.
- Learners must be given access to and be familiar with the assessment format, question types and the technology prior to the summative examination.

10 Roles and responsibilities

Approved Assessment Quality Partners (AQPs) wishing to use e-assessment should ensure that the assessment centres comply with the appropriate procedures and policies which include the roles and responsibilities of staff, both within and outside of the AQP who are involved in the e-assessment process.

All AQPs should have:

- Senior management whose role it is to conceptualise and develop an e-assessment policy strategy for the AQP. To ensure effective implementation of the e-assessment policy strategy, sufficient operational management should be in place;
- Well trained and knowledgeable invigilation staff that ensures the credibility and smooth running of the assessment system;
- A system where queries from learners and other stakeholders are addressed within the shortest possible time;
- A system that adequately prepares learners for e-testing so that their performance is not negatively affected by the e-assessment system;
- Reliable records of all e-assessment that allow recourse to transactional evidence as and when there is need.

11 Qualification Assessment Specifications

- The QCTO has introduced a compulsory qualification development model which culminates in three documents; the qualification documents to be registered by SAQA; the curriculum to guide learning and the qualification assessment specifications to guide internal and external assessments. By ensuring the validity and reliability of the assessment specifications based on a national standard, the QCTO aims to enhance the credibility of the certificates issued to qualifying learners for occupational qualifications.
- The Qualification Assessment Specifications which spell out the assessment strategy for that particular occupational qualification are developed during the qualification development process and it is expected that a minimum of 50% of the working group members should be experts in that particular occupational qualification.
- Internal assessment is conducted by providers in line with the guidelines given in the curriculum for each curriculum component. Workplaces offering the work experience are provided with a work experience record which must be completed and signed off, as well as specifications regarding supporting evidence to be collected. The learner achievements resulting from internal assessment are recorded in statement of results.
- Candidates become eligible for external assessment when they have statements of results which show they have met the stated requirements for Knowledge, Practical and Workplace.
- **Recognition of Prior Learning (RPL)** – In case of an RPL process, e-learning and assessment are recommended as a mechanism to fast-track the closure of identified gaps so that candidates are not unnecessarily delayed.

12 Assessment Design and Delivery requirements

In order to protect the integrity of the assessments, learners will take e-assessment only from QCTO accredited assessment centres.

The processes surrounding the compilation of e-assessments should be the same as those for other forms of External Integrated Summative Assessment of OQSF qualifications. In addition to this,

- The e-assessment tool will be based on a Qualification Assessment Specifications (QAS) Addendum (Blueprint) approved by the QCTO.
- External moderators should have experience of the process of e-assessment and be provided with appropriate training to allow for effective interaction with the University's software;

- In order to fulfil their responsibilities, external moderators should be granted access to the e-assessment software to review assessment papers and learner scripts in the format in which they are to be delivered; and
- External moderators should approve the base design of the e-assessment.
- A peer review system for the assessment items should be undertaken to the satisfaction of the QCTO.
- AQPs must ensure that e-assessment is fit for purpose and does not compromise the integrity of what is being assessed.

13 Quality assurance and monitoring of the implementation of the E-Assessment Criteria and Guidelines

- The effectiveness of the general principles and minimum requirements for E-Assessment shall be monitored and reviewed on a regular basis against the set quality assurance standards and appropriate amendments aimed at improving their effectiveness, efficiency and economy will be implemented.
- Best practice models of e-assessments will be identified and used to benchmark the practice on e-learning and e-assessments amongst providers.
- The Assessment Body will submit its E-Assessment strategy to the QCTO. This provides the basis for the QCTO to locate and monitor the e-assessment activities.

14 Appendices

14.1 Appendix A: Case studies

14.1.1 International case studies³

Case study 1: Advice NI

Number of learners involved: 20 Area: e-portfolios

Background

Advice NI is a voluntary sector organisation that provides a range of services in Northern Ireland to support a professional advice and guidance service across the community. One aspect of providing this support is to offer professionals working in the sector the opportunity to gain appropriate qualifications. Advice NI undertakes this through programmes of supported distance learning. This includes a number of relevant NVQs which are accredited by the OU awarding body. Advice NI is based in Belfast and its learners are spread throughout Northern Ireland, which has proved challenging for Advice NI both in terms of providing support to learners and undertaking assessment. In 2006, this led the centre to consider how it might use an e-portfolio system to address these challenges.

Issues

The first issue that needed to be addressed was the choice of system. Ideally, the organisation wanted a VLE that would enable it to combine the provision of learning material with an e-portfolio system. A major barrier was cost – as a small voluntary organisation many of the commercially provided systems were beyond the budget available. Furthermore, Advice NI felt it did not want to be ‘tied in’ to a bespoke system.

For these reasons, Advice NI chose Moodle, a free, open source software package. While there is a strong online community for Moodle, Advice NI felt that contract support was needed in the first instance to ensure the system was up and running successfully and to populate the learning materials. Consequently, the organisation put out the tender to a number of companies to both develop online learning material and provide Moodle support. The first group of 20 learners started their programme in January 2007 and completed in June 2008. Issues included:

- Ensuring that all the learners were confident in using the system. Advice NI decided to run a half-day workshop to introduce the group to the system and ensure that they all had the minimum IT skills necessary to use it, for example, using a scanner. A further IT skills workshop was held in 2007.
- Ensuring that everybody using the system was aware of the facilities Moodle offered and how Advice NI was expecting them to be used.

³ International case studies are from Qualifications and Curriculum Authority (2007) Regulatory Principles for E-Assessment, QCA, London.

- Undertaking one or two ‘fixes’ or ‘workarounds’ where it would appear that the system could not offer a particular facility. For example, Advice NI wanted to use the blog facility within the system as the particular area of work required assessors to see journals of learners’ thoughts and activities. However, it had not been possible for the blog facility to be configured so that the assessors could view individual learner blogs.
- Ensuring that learners had access to support from other learners, not just from the assessors and tutors. This has been achieved by a ‘buddy’ system and use of the discussion forums within the VLE.

Progress

Advice NI is still learning what the system can offer and how it can be used. In this sense the process is different from introducing a commercially based package. A significant amount of learner material has been produced and this is integrated with the assessment requirements in a very effective and engaging way. This ensures that the collection of evidence is not seen as separate from the learning support. Advice NI has also begun using the system to monitor learner progress and assess learner evidence.

The organisation found the guide to be a very useful document to raise awareness of a number of issues within the team that may otherwise not have been considered. At the time of this case study (April 2007) it was too early to assess whether learners preferred the electronic system to the use of paper. However, feedback from learners by that time was very positive, learners were excited about their overall online experience. Advice NI has actively involved its awarding body, which has been very supportive of the development.

Case study 2: The CADCentre UK Ltd

Number of learners: 800 Area: e-testing

Background

The CADCentre UK Ltd offers training for employed and unemployed candidates, specialising in IT and engineering, and has training centres strategically positioned along the M4 corridor. It set up an e-testing system four years ago upon which it is now heavily reliant, with around 800 candidates currently using e-testing.

Issues and actions

Generally, the CADCentre has found the e-testing software to be reliable. However, when trying to deliver the e-tests ‘on-site’ at an employer’s premises, there are issues with the reliability of the software, which sometimes fails to download exams correctly. Wayne Fisher says, “Having the option to deliver the e-test on-site is brilliant as it falls into line with the assessment strategies in place. However, due to the potential unreliability of the software this can prove somewhat difficult. Overall the e-testing idea is a brilliant one, however the software needs to be more reliable in order to give assessors confidence in the delivery of the tests on-site.”

To combat this unreliability, the CADCentre has liaised with the manufacturer of the software, who has taken steps to overcome this issue. The original version of the testing software has undergone numerous updates and changes to ensure that candidates are able to sit the tests without any major problems. The CADCentre also keeps the awarding body informed of any problems, so that the body can feed these back to the e-testing software developers.

Feedback from candidates

The CADCentre reports that all candidates have found the e-testing method a lot easier and more user-friendly, and the majority of candidates commented on the ease of use of the software and the ability to review their answers. The feedback generally received from candidates has been that they are happy to carry on with e-testing. However, not all qualifications offered currently support this and the CADCentre hopes that developments will enable e-testing to be implemented for more qualifications and at all levels wherever possible.

Success rates

Although candidate success rates have not improved in themselves, the introduction of e-tests has enabled the CADCentre to have a quicker turnaround of completed candidates. The tests can be sat when the candidates are ready rather than when designated by an awarding body, and learners can register and sit the exam whichever day and time suits them.

Benefits

Generally the CADCentre is happy with the e-testing package, as its flexibility brings many benefits for both the training centre and the candidate. The centre feels that e-testing works extremely well with the qualifications it currently offers, and that a successful e-testing operation can be achieved with minimal cost. For other centres wishing to start implementing e-testing, the CADCentre would suggest using the guide to help make the transition period from paper to e-testing run as smoothly as possible, as the guide gives a clear indication as to the personnel, responsibilities and infrastructure required.

Case Study 3: Chartered Institute of Purchasing and Supply

Number of learners: Area: e-testing

Background

The Chartered Institute of Purchasing and Supply (CIPS) is a small awarding body with learners spread across both public and private centres in the UK and worldwide. CIPS offers a wide range of qualifications, primarily at level 3 and above. However, CIPS recently decided to introduce a level 2 qualification and deliver the associated examination via an e-test.

One reason for deciding to use e-testing was the expectation that a number of the learners for the qualification would be based outside the UK, and they considered that it would be

both flexible and cost-effective to use an e-testing system from the beginning of the new qualification. This qualification is the first to be offered at this level and the first to use e-assessment.

CIPS is now in the process of signing up centres to offer the new qualification and undertake the approval process to offer e-testing. The tests will initially be available on four weeks' notice within a 9am–5pm support window, using fixed papers from a test bank. The market for the qualification will be primarily those in employment and, with this in mind, assessment is through standard multiple choice question (MCQ) papers. Following the initial period of system testing and familiarity, CIPS intends to offer tests on a 24/7 basis (world-wide and across time zones) and to extend their use outside the UK, beyond an initial small group of overseas centres.

Issues

Initially, CIPS found it difficult to find impartial advice and guidance on how to approach e-testing as a small awarding body, and it is still concerned that the smaller awarding bodies find it difficult to access impartial e-assessment advice and guidance. There was also concern that the overall reputation of CIPS qualifications should not be compromised by any negative perceptions of the use of e-testing, either in terms of test content or of the way the e-testing was conducted.

Having chosen a technology partner and designed a system to meet its needs, CIPS found the guide extremely valuable in providing:

- the necessary information to develop its own e-testing guidance
- documentation
- an application process for centres wishing to become test centres
- the design of the training programme that centre staff will need to undertake for approval to offer the qualification and use the e-testing system.

CIPS has used appropriate parts of the e-testing sections in full to ensure that the centres will meet its requirements and standards. Each centre will be required to install and test the software prior to live testing and the centre staff will use guidance based on the role matrix to ensure that they meet CIPS's quality standards.

Progress to date

At the time of this case study (June 2007) the application process is well advanced and the initial tests have been written to meet the needs of the qualification specification. An initial, small group of centres will pilot the system and the tests later in the summer. CIPS then wants to ensure that it can provide adequate geographical coverage of test centres that will enable candidates who are not attached to a learning provider to access the tests.

Future developments

CIPS is keen to ensure that its examination staff undertake the appropriate LLUK units as these become available, and will encourage staff in its centres to do the same. CIPS also

wants to investigate further use of e-assessment, perhaps using an e-portfolio system to assess some aspects of its higher level qualifications.

Case Study 4: EAGIT Ltd

Number of learners: 30–40 Area: e-portfolios and e-testing

Background

EAGIT is a long-established private sector training provider based in Norwich. It is primarily engaged in training for the engineering sector and runs a wide range of programmes including working with schools at 14 to 16, apprenticeships and bespoke industry-based training. Traditionally, learners have attended EAGIT's Norwich facilities for training and assessment. However, in some cases this requires learners to travel significant distances, and also restricts the area within which EAGIT can operate.

EAGIT has been operating e-testing for some time for areas such as key skills testing. Last year it decided that one way to provide a more flexible offer to employers and their employees would be through the use of an e-portfolio system to capture evidence in the workplace. EAGIT saw a number of advantages of using e-portfolios, particularly for the group of adult learners it was planning to use them with initially.

- Learners would not have to maintain a large portfolio of paper-based evidence.
- All the assessment observations undertaken could be put directly onto the system and signed off immediately.
- Evidence could be collected in a variety of forms, including:
 - photographic or scanned evidence of documentation
 - video evidence of performance tasks
 - video records of answering knowledge questions.
- Trainees could upload evidence for the assessor using the internet.
- Indications of progress would be ongoing and immediately available.
- Assessors, verifiers and external verifiers could carry out their work remotely.

Progress to date

EAGIT undertook a detailed procurement process for its e-portfolio system. The final choice was based on one key consideration: that the system chosen enabled the assessor to mirror portfolios on the e-portfolio system server by synchronising them to a laptop. The assessor could then take the laptop to the workplace, work with the learner, add evidence through the laptop and, if an internet connection was not available, synchronise it back to the e-portfolio system server on returning to 'base'.

In late 2006, the system was set up and the first EAGIT staff trained. A small group of learners on Train to Gain programmes based at a number of employers began developing e-portfolios using the system. Initially, the assessor would collect the evidence on visits, review it with the learner and upload onto the laptop for later synchronisation. However, a number of the learners have now gone one step further and begun sending evidence to the

assessor by email, and EAGIT is confident that, in due course, some learners will gain the confidence to access the system directly and upload their own evidence.

EAL has worked alongside EAGIT to monitor these developments and is actively discussing how it might engage with the system to undertake external verification. EAL is also encouraged by the ability of the alternative types of evidence being gathered to immediately demonstrate appropriate and verifiable learner competence.

Issues

The relatively modest level of activity to date has not raised many issues, and EAGIT is very pleased to have moved forward fairly quickly, with a number of learners having populated significant proportions of their portfolios. However, while most employers have been supportive of this way of working, one or two have been less so. Extending the use of the system to other programmes will require some active 'people engagement'. This will include other staff within EAGIT, employers and awarding body external verifiers, as well as the learners themselves.

While there have been no insurmountable technical issues, if learners begin to actively access their own portfolios or even wish to use email to submit evidence, the issue of access may become important, and for a number of older learners using technology may present a skills issue. However, to date the learners have been very positive, with no problems in using video or photographs to collect performance evidence and only one or two not happy to be audio recorded.

EAGIT has deliberately kept the initial introduction of e-portfolios to a manageable number of learners and wishes to see the issues raised by a complete cycle of activity before extending their use to other groups. However, the training provider is already considering which other learners could benefit from the use of e-portfolios. For example, there are advantages for level 3 learners who, in addition to performance evidence, produce other evidence using word processing.

EAGIT has also begun to consider how to change its patterns of work and visits. Its 'operational' area has already been extended with the Train to Gain group, where learners have been recruited across eastern England and the East Midlands because they do not need to attend the facilities in Norwich.

Case Study 5: Hyfforddiant Mon Training

Number of learners: 6

Area: e-testing and e-portfolios

Programmes involved:

- Technical certificates for hospitality and catering, retail and customer service
- Basic skills diagnostics on desktop and laptop computers
- European Computer Driving Licence (ECDL)

Background

Hyfforddiant Mon Training is a DCELLS-approved work-based learning provider that operates under the umbrella of the Isle of Anglesey County Council. Almost all students recruited are placed/employed within industry, commerce and business, or within the local authority.

The objectives of its pilot were to:

- provide initial feedback on the guide related to its use for the centre (desk research)
- provide an improved e-testing process for six catering and hospitality learners
- use the guide to help select a suitable e-portfolio system.

Commitment to e-testing

Hyfforddiant Mon has made further financial commitments to e-testing by providing internet access within other training rooms at its centre, which will enable further capability for e-testing. For catering and hospitality learners, laptops are being provided to staff to enable them to visit work placements with a view of carrying out online e-testing at the place of work. Careful planning will be needed to take into account requirements for examination conditions and the guide will help with this.

Selecting an e-portfolio

For the pilot the administration/IT team were asked to look at and use an e-portfolio system, as this team were best placed to determine which system would be the best for their use. At present, Hyfforddiant Mon is still at the stage of deciding which e-portfolio to pilot. The cost of the systems will also be taken into account.

Due to the relatively short interval of time of the pilot period the centre has not moved as far forward as it would have liked. However, three systems have been demonstrated. Two were relevant for the purpose but the third was not. Before making a final decision, the centre wants to look at more systems.

This careful approach is partly due to the need to consider the council's procurement rules if purchasing above a certain limit. Costs will have a major influence on choice. One quote so far is for £3,500 for 20 users, which would have major implications in terms of ongoing costs, so the decision is not to be made lightly. Hyfforddiant Mon says, 'From experience we know that this sort of decision can be costly and time-consuming if we get it "wrong".'

In the meantime, this has prompted the centre to develop a system devised in-house, which it admits is far more basic and offers at the moment a bank of resources.

Key issues encountered to date

- Convincing staff that e-assessment is better than conventional systems has been a challenge. Current achievement rates have increased but other factors as well as e-assessment may have contributed to this.

- Staff development issues in learning how to use new software systems and new technological advances are proving costly. It is hoped, though, that this investment will pay dividends in the returns that the centre and learners will receive as a result of e-testing.
- Staff who have been identified as having a significant role in e-assessment are well-qualified and have considerable experience. These members of staff attend forums and events linked with e-learning. The centre looks to these people to provide training and assistance for other members of staff.
- Feedback on the guide Hyfforddiant Mon says that the guide is helping with decisions on matters which need to be addressed, and it believes that without the guide less informed decisions might have been made. However, the centre also feels that the guide is heavily weighted towards larger organisations, and that it would be helpful if a condensed/summarised version for smaller organisations could be developed.

Conclusions/next steps

The centre is comfortable that e-testing has been appropriate for its uses. It hopes to expand this facility within the organisation to cover other vocational areas. In the main, e-testing has been used for MCQ. This is seen as an excellent way to carry out this kind of assessment as the results are fed back quickly. The centre has also indicated that it would like to increase its e-testing provision steadily in future years.

In relation to e-portfolios Hyfforddiant Mon needs to conduct more research to determine which system suits its needs best.

14.1.2 Local case studies

Case study 1: Moonstone

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Number of learners: 350

Area of e-assessment: e-testing

Background

Moonstone is one of the QCTO's Approved Assessment Quality Partners (AQPs) that has embraced technology for student assessment purposes. This organisation is using technology to administer e-testing. Moonstone developed an e-learning programme relating to the National Credit Act, and use a Moodle platform for e-assessment. This was done due to the regulatory requirements for motor dealers. It is a short course. Each module ends with a formative assessment. The learner must pass this assessment before being allowed to advance to the next module. After the completion of all modules a final summative assessment is done. The learner has one chance to pass the assessment. If the student does not pass, he or she is required to start at module one again and do a re-assessment.

Programmes involved at NQF Level

Currently, e-assessment is implemented in one short none credit bearing course as well as in various other short courses and learning programmes leading towards SAQA accredited full qualifications. The following are some of the programmes where e-assessment is implemented:

- FETC Short Term Insurance NQF Level 4 – e-portfolio (Summative assessment close book invigilated sessions)
- Higher Certificate in Wealth Management NQF Level 5 – e-testing (Summative assessment close book invigilated sessions)
- Advanced Certificate in financial planning NQF Level 6 – e-testing (Summative assessment close book invigilated sessions)
- All short courses – full online testing, quizzes and lessons

There is a total of around 5000 students registered on the system. Moonstone has been implementing e-assessment in these selected qualifications for only 2 years, so there is still a lot to learn and improve in this area.

Measures to make e-assessment credible

Right from the offset, Moonstone put in place the necessary mechanisms to ensure that they run a credible e-assessment system. To ensure that the right candidate takes the test, each student has a user name and password. Assessments can only be done once the students are logged in and all actions are tracked and logged by the system. Formative assessments are done by the students on line. Summative assessments for accredited SAQA qualifications are completed under supervision in an examination venue with invigilation. This is currently done on paper. Computers are available at the permanent venues to do the assessments electronically using Question Mark Perception. Short courses are not credit bearing and final assessments are done online by the students.

Moonstone e-assessment is also done on a secured server and measures are in place to prevent hacking of the system. User access is also controlled. Systems are also in place to ensure data back.

Advantages of e-assessment

According to Andre Marais, Manger: Assessment, e-testing has the advantage that the test gets marked immediately by the system and results can be released timely. This is a huge advantage to students as they do not need to wait for too long. Also, online submission of assignments is cost-effective as students do not need to shoulder any postage costs. Online marking is also environmentally friendly and it saves paper. The data base of questions allows for randomisation of questions that lead to a more valid assessment. As part of formative assessment students can redo the assessment any number of times and will each time get a different set of questions.

Moonstone provides students with a feedback form which enables the organisation to get students' views regarding the assessment processes. Generally, the organisation reports positive feedback from students.

Policy Guidelines Suggested

Based on their two-year experience, Moonstone suggests the following as policy guidelines:

- Randomisation of questions
- Access control
- Summative assessment under the control of invigilators
- Username and password access
- Password requirements must be in place (lengths and symbols used)
- Plagiarism testing on assignments

Next steps

Moonstone is currently redeveloping all their qualifications for e-portfolio and e-testing. This means e-assessment will be more entrenched in the organisation. Mechanisms for expanding e-assessment at Moonstone include ongoing research and implementation.

Case study 2: SAMRA

Case study 2: South African Marketing Research Association (SAMRA)

Number of learners: About 1000 in first year **Area of e-assessment:** Both e-testing and e-portfolios

Background

SAMRA is one of the QCTO's Approved Assessment Quality Partners (AQPs) that uses technology for student assessment. This organisation is using technology to administer both e-testing and e-portfolios at level 4 qualification, although Matriculation is a requirement for candidates. This is to ensure that candidates have appropriate literacy skills to cope with e-assessment processes. SAMRA can also provide on-demand assessment. E assessment at SAMRA is however just starting and most of the arrangements are still being planned. So, the organisation's experience in this area is still very limited and processes that have been put in place will be refined based on experience.

Programmes involved and NQF Level

As mentioned above, SAMRA conducts e-assessment for Level 4 qualifications. Examples of qualifications include survey interviewers. This qualification is mostly for people who are already involved in the field of research.

Measures to make e-assessment credible

According to Leonie Vorster, the Chief Executive Officer of SAMRA, there are in-built systems that ensure that assessment is credible. There is an authentication system where candidates use webcams and can be seen taking the examination from wherever they are. The photograph submitted online by the candidate upon registration and their identification document are used to confirm that the right person is taking the test and completing the assessment. For field interviews, the processes are also recorded to allow assessors to review them.

To ensure the security of the assessment, the system runs on a dedicated server with all security measures taken and access controlled.

Advantages of e-assessment

Leone believes that in a world where technology drives all business, learning should take advantage of such technology and make assessment convenient for learners. Some of the advantages of e-assessment she cites include:

- On-demand assessment
- Assessment and processing of results is faster
- It is cost-effective as students do not need to travel to central venues
- E-assessment is objective as assessments can be monitored virtually
- E-assessment is more aligned with how candidates work in their day-to-day roles

Challenges faced

As the organisation is only starting to roll out the system, no particular challenges have yet been faced. They however anticipate that some people may face technology challenges, especially at the beginning. To curtail this problem, there are guidelines candidates can follow to address certain problems. SAMRA also provides candidates with practice sessions on the platform, they can log in and practice as much as they want before the actual examination.

Policy Guidelines Suggested

The policy guidelines should include guidelines related to technical problems that interrupt assessments; scope of assessments (summative and formative); competence of those involved in running the e-assessment system; e-assessment must be fit for purpose, methodology and what is being assessed; preparation of students to use the system is paramount. Other aspects that should be covered include assessment design, scheduling, roles and responsibilities, candidate identity verification (instead of or in addition to invigilation), data storage and security, and appeals.

Next steps

The assessments that are being developed will be the online equivalent of open book tests, and it is imperative that a large number of assessments are developed, to assess all combinations of skill required for the qualification.

Data costs may have a negative impact on the willingness of candidates to complete the assessments, and so industry infrastructure support is planned to overcome this obstacle.

