E-assessment guidelines and case studies

Interim report
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12 May 2011
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Acknowledgement

This report was produced for the Australian Flexible Learning Framework and National Quality Council by Rob Stowell (Learning Australia Pty Ltd) and Reese Lamshed (Binary Blue Pty Ltd).

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Definition of e-assessment

E-assessment is the use of information technology for any assessment-related activity. Within the national training system, e-assessment involves the use of information technology in the design, delivery and administration of assessment activities which contribute to the award of nationally recognised Statements of Attainment or qualifications under the Australian Qualifications Framework. These activities include the design of assessment tools, the delivery of assessments and the reporting, storing and transferring of assessment data.

In some cases, these activities are provided through end to end e-assessment solutions. These are complete systems in which users are able to create electronic assessment content and deliver it to candidates. Such systems normally enable users to create assessment items, publish assessments, deliver assessments to candidates, and record candidates' performance on assessments. A common example of this type of e-assessment is the interactive online assessment bank or quiz which allows for the creation of test items, the collection and processing of candidate responses, the provision of feedback and the generation of reports.

More often, e-assessment involves the use of one or more technologies to support the overall assessment process. For example, an assessor may use an e-portfolio to gather information on candidate performance in the workplace or an online quiz to assess their knowledge of key concepts and processes. The assessor may use this information in combination with other assessment evidence, such as direct observation or a third party report, to evaluate candidate performance. In turn, the outcomes of the assessment may be captured in a management information system and used to produce rapid, reliable information on candidate progress.

E-assessment may be used for diagnostic, formative or summative assessment purposes. In diagnostic assessment, e-assessment resources and materials are used to identify candidate’s strengths and areas for improvement. This form of assessment often occurs at the commencement of a training program. In formative assessment or assessment for learning, evidence is used to provide developmental feedback to learners on their current skills and knowledge relative to a defined standard. This information may also be used by trainers so that instruction may be modified to suit learner needs. In summative assessment or assessment of learning, e-assessment resources and materials are used in gathering evidence and making decisions about the competence of the candidate. Such assessment often leads to the awarding of a Statement of Attainment or qualification under the Australian Qualifications Framework.

Potential benefits of e-assessment

E-assessment offers a range of potential benefits for assessors, candidates, regulators, industry and other users. These include:

- Provision of accurate and timely information on the effectiveness of training program design and delivery.
- Linkage of assessments to other online course materials being used – examples include the use of learning management systems (LMS), virtual classrooms and mobile phones.
- Collection of evidence on skills and knowledge not easily assessed by other means – examples include the use of e-portfolios, gaming, simulations, online role-play and virtual worlds.
- Greater flexibility in the timing and location of assessments – examples include mobile phones, tablets/e-readers and learning management systems.
- Improved consistency and speed in processing assessment evidence with opportunities to combine human and computer marking – examples include online quizzes and learning management systems.
- Efficient assessment moderation processes – examples include cloud computing, wikis and document sharing.
- Reliable submission and storage of assessment evidence - examples include cloud computing, mobiles, external storage devices and document sharing.
- Enhanced question styles which incorporate interactivity and multimedia – examples include audio, video, digital photo stories.
- Greater variety and authenticity in the design of assessments – examples include simulations, multimedia use, virtual worlds and online roleplays.
- Immediate feedback – examples include virtual classrooms, online quizzes and learning management systems.
- Enhanced learner engagement through interactive formative assessments with adaptive feedback – examples include online quizzes and learning management systems.
- Improved opportunities for peer assessment through online interaction – examples include via email, wikis, blogs, voice boards, virtual classrooms and voice over internet protocols (VOIP).
- Improved reliability of assessment through using computer marking that is more reliable than human marking – examples include online quizzes, SCORM learning objects and learning management systems.
- Increased opportunities for learners to act on feedback by reflection – examples include the use of e-portfolios and mobile phones.
- Increased opportunities for self-assessment – examples include use of online logs, digital stories, wikis, blogs and online quizzes.
- Production of rapid and reliable information on candidate progress – examples include mobile phones, learning management systems, document sharing and voice over internet protocols.
- Increased capacity to provide remote access to assessment – examples include the use of learning management systems, mobile phones, and tablets/e-readers.
- Improved capacity to clarify competency requirements – examples include the use of forums, blogs, virtual classrooms, video streaming and voice over internet protocols.
Promotion of discussion about the features of competent performance – examples include video and image sharing, digital stories and video streaming.

Enhanced capacity to validate assessments with industry and other stakeholders – examples include the use of online forums and discussion groups.

Rapid sharing of assessment materials between assessors may reduce unnecessary duplication of effort and improve consistency in assessment processes – examples include cloud computing, wikis and document sharing.

**Application of e-assessment resources and materials**

There is a growing range of e-assessment resources and materials. These include generic resources, such as blogs and wikis, and specialist assessment materials, such as simulations, online quizzes and e-portfolios. These resources and materials, either used individually or in combination with other materials and resources, should be used by assessors to add value to the assessment process. For example, an assessor may support candidates by allowing them to present assessments in a variety of written, audio or video formats. This not only gives candidates a wider range of reporting formats but also gives them greater control over the assessment process and engages them in making judgements about the benefits of different forms of communication.

![Figure 1: The assessment process](image)

Figure 2, provides an overview of how different e-assessment resources and materials may be used to enhance key stages in the assessment process.
### Figure 2 – Potential applications of e-assessment resources and materials in the assessment process

<table>
<thead>
<tr>
<th>Key stage in assessment process</th>
<th>Reasons for using e-assessment resources and materials</th>
<th>Sample application of e-assessment resources and materials</th>
</tr>
</thead>
</table>
| Plan assessment | E-assessment resources and materials are used to plan assessments, assist candidates to understand assessment requirements, design or select assessment materials and validate assessments with industry and others. | E-assessment resources and materials may be used to improve assessment planning through:  
  - Clarifying competency requirements using online interaction via forums, blogs, email, voice boards as well as voice over internet protocols.  
  - Promoting discussion amongst candidates about the qualities of competent performance, and using video and image sharing, digital stories and video streaming to provide candidates with examples of work that illustrate competent performance.  
  - Identifying candidates’ prior learning through the use of online self assessments and e-portfolios.  
  - Identifying assessment materials by accessing online repositories of assessment items, purchasing e-assessment products and using online tools to customise or personalise these materials to meet candidate requirements.  
  - Validating assessment materials using online interactive technologies to share digital information and facilitate discussions between RTOs and their industry and community partners, using wikis, cloud computing and document sharing. |
| Gather quality evidence | E-assessment resources and materials are used by assessors and candidates working either individually or collaboratively to gather quality evidence of performance. | E-assessment resources and materials may be used to collect different types of evidence.  
  - Real work / real time evidence - technologies such as: education point of view glasses, video and image sharing, digital stories, and video streaming may be used to collect direct evidence of candidate performance on real work tasks in real time. This may be supported by online self and peer assessments as well as comments from workplace supervisors.  
  - Simulation and demonstrations – computer simulations may be used to collect evidence of candidate performance in off-the-job situations. Simulations range from simple demonstrations of workplace tasks and role plays, which may be captured on video and reviewed, through to complex applications such as virtual worlds in which multiple users can interact together or with characters or interactive environments.  
  - Questioning – online quizzes created either within or outside a Learning Management System may be used to test candidate knowledge. VOIP such as Skype or proprietary applications such as virtual classrooms may be used for questioning, interviews and discussions.  
  - Portfolios – e-portfolios or online collections of reflections and digital artefacts, such as documents, images, blogs, resumes, multimedia, hyperlinks and contact information, may be assembled by candidates to demonstrate and record their learning and skill development over time. |
<table>
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<th>Key stage in assessment process</th>
<th>Reasons for using e-assessment resources and materials</th>
<th>Sample application of e-assessment resources and materials</th>
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</thead>
</table>
| Support the candidate          | E-assessment resources and materials are used to provide support to the candidates. This may involve making reasonable adjustments to the assessment process for candidates with disabilities, providing feedback to candidates and enabling candidates to access specialist support in line with the assessment plan. | E-assessment resources and materials may be used to support candidates. This may include:  
- Making reasonable adjustment to the assessment process through using online assessment tasks, such as assignments and quizzes, which allow candidates to undertake assessments at times, in places and under conditions that take into account their specific needs.  
- Providing spaces for candidates to submit assessments in a closed space, for example learning management systems and content management systems (CMS)  
- Differentiated online feedback that is linked to online learning resources, such as podcasts, audio recordings and Braille materials, enables assessors to provide personalised feedback that addresses individual learning needs.  
- Using management information systems to monitor candidate progress on formative assessment tasks.  
- Social networking tool allow provision of space, culture and environment to enable learner centred assessment to build collaborative learning and assessment spaces.  
- Use of short messaging services (SMS), instant messaging services (chat) and micro blogging (Twitter and Yammer) to support students adhere to their assessment plans. |
| Make the assessment decision   | E-assessment resources and materials are used in processing and analysing evidence and providing assessors with evidence on aspects of performance that are not easy to capture using conventional assessment approaches. | E-assessment resources and materials may support assessment decision making through:  
- Providing better processing and analysis of assessment evidence. For example, the use of computer marking and analysis of online quizzes and short answer free text questions may speed up the processing of assessment evidence and provide richer information which assessors can use in making assessment decisions.  
- Providing richer, more diverse evidence to inform assessment decision making. For example, the use of simulation, tools in the hand such as voting devices and internet connected mobile phones as well as candidate reflections / self assessments in e-portfolios and blogs can provide assessors with evidence on aspects of performance that are not easy to capture using conventional assessment approaches.  
- Providing ‘safe’ spaces for the investigation of aspects of competence not easily captured by traditional assessment methods. This can include use of simulations and simulated work environments, virtual worlds to explore areas of ethical sensitivity (e.g. alcohol and drug use) as well as role plays to explore multiple approaches to a work based problem. |
<table>
<thead>
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<th>Key stage in assessment process</th>
<th>Reasons for using e-assessment resources and materials</th>
<th>Sample application of e-assessment resources and materials</th>
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</thead>
</table>
| Provide feedback              | E-assessment resources and materials are used to provide clear and constructive feedback to candidates which identifies achievable suggestions for improvement. | E-assessment resources and materials may be used to enhance the quality of feedback. For example:  
  - Timeliness of feedback may be improved by automated marking of online quizzes as well as voice over internet protocol (VoIP), virtual classrooms and mobile phones.  
  - Peer feedback may be facilitated through online interaction via social media tools, forums, email and voice boards.  
  - Personalised feedback, even with large groups, may be provided through technologies, such as voice over internet protocol (Skype), social networking (Facebook, Ning), micro blogging tool (Twitter and Yammer) and SMS/IM.  
  - Two way feedback may be facilitated through online learning logs, blogs and e-portfolios that enable candidates to respond to feedback.  
  - Self assessment and personal reflection may be supported by video-recordings that allow candidates to reflect on their own performance.  
  - Improvements in candidate performance may be gained by linking feedback to podcasts that provide suggestions for improving performance.  
  - Consistency of feedback may be improved through the use of technologies such as automated marking of online quizzes and computer marking of short answer free text questions. |
| Record and report the assessment decision | E-assessment resources and materials are used to promptly and accurately record assessment outcomes, complete assessment reporting procedures and inform candidates and other relevant parties of assessment decisions. | E-assessment resources and materials may be used to improve assessment recording and reporting processes. For example:  
  - Management information systems may be used to collect, store and retrieve assessment information which may be used for candidate reporting, national statistical data collection purposes, and curriculum review and quality assurance processes.  
  - Online communications and social media, including email, SMS, IM, VOIP, mobile phones, virtual classrooms, microblogging, blogs and wikis, may be used to inform and gather feedback from candidates and other relevant parties of assessment decisions.  
  - Mobile phones, tablets and laptops can be used to record assessment decisions and store them until extraction to information management systems. |
<table>
<thead>
<tr>
<th>Key stage in assessment process</th>
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<th>Sample application of e-assessment resources and materials</th>
</tr>
</thead>
</table>
| Review the assessment process  | E-assessment resources and materials are used to review the assessment process in consultation with candidates and others with a view to improving future practice. | E-assessment resources and materials may be used to review and identify improvements to the assessment process through:  
  - Moderating assessment processes and outcomes using web conferencing systems and virtual classrooms to enable assessors to meet, discuss and reach shared understandings about assessment processes, outcomes and areas for improvement.  
  - Gathering candidate feedback on assessment process using online forums, discussions groups and surveys and using this evidence to further improve e-assessment processes.  
  - Promoting professional self reflection on assessment practice through assessors using reflective tools such as online diaries, blogs and e-portfolios.  
  - Rapidly sharing assessment materials through the use of cloud computing, wikis and document sharing between assessors may reduce unnecessary duplication of effort and improve consistency in assessment processes. |
Guidelines for e-assessment

The recent report produced by the Australian Flexible Learning Framework, *E-assessment and the AQTF: Bridging the divide between practitioners and auditors*, highlighted the growing interest in e-assessment in the national training system. VET Practitioners are increasingly using:

- online quizzes, e-portfolios and simulations to gather assessment evidence,
- management information systems to record assessment outcomes and track and monitor candidate progress,
- online logs, wikis and blogs to provide and respond to assessment feedback,
- mobile devices to support workplace assessment, and
- web conferencing to moderate assessment processes and outcomes.

A key issue confronting assessors, AQTF auditors, State and Territory Registering Bodies and the developers of these resources and materials is how to identify quality e-assessment arrangements.

The ensuing section of this paper provides a draft set of guidelines for these groups to use in making decisions about the design and use of e-assessment resources and materials.

These guidelines, which build on the *Common framework for e-learning quality* developed by the Insight Observatory for New Technologies in Education, are presented in five broad categories. These are:

1. infrastructure provision
2. technical standards
3. e-assessment development and maintenance
4. e-assessment practices
5. e-assessment context

The first two categories focus on the infrastructure and technical standards required to support e-assessment, ensure interoperability and facilitate access for all candidates. While the other three categories address the quality of e-assessment resources and materials and the services required to support their implementation.

It is envisaged that assessors, AQTF auditors, State and Territory Registering Bodies and developers will apply specific combinations of these guidelines when developing or evaluating e-assessment systems and materials.

The draft e-assessment guidelines are summarized in Figure 3 and full descriptions are supplied in the ensuing section of this paper.
### Figure 3: Summary of draft e-assessment guidelines

<table>
<thead>
<tr>
<th>Group</th>
<th>Theme</th>
<th>Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure provision</td>
<td>1.1 Web based functionality</td>
<td>E-assessment providers must meet minimum web based functionality requirements to support e-assessment</td>
</tr>
<tr>
<td></td>
<td>1.2 Desktop functionality</td>
<td>E-assessment providers must meet minimum desktop functionality requirements to support e-assessment</td>
</tr>
<tr>
<td>Technical guidelines</td>
<td>2.1 Accessibility</td>
<td>E-assessment resources and materials must be accessible to people with a disability</td>
</tr>
<tr>
<td></td>
<td>2.2 Content packaging</td>
<td>E-assessment resources and materials must be transportable between different repositories and learning management systems</td>
</tr>
<tr>
<td></td>
<td>2.3 Desktop content formats</td>
<td>E-assessment resources and materials must meet the standard for desktop content formats</td>
</tr>
<tr>
<td></td>
<td>2.4 Mobile content formats</td>
<td>E-assessment resources and materials must meet the standards for mobile content formats</td>
</tr>
<tr>
<td></td>
<td>2.5 Metadata</td>
<td>E-assessment resources and materials must be described using the Vetdata standard to facilitate interoperability and discovery of e-assessment resources across the VET system</td>
</tr>
<tr>
<td>E-assessment development and maintenance</td>
<td>3.1 Benchmarks</td>
<td>E-assessment resources and materials must meet the requirements of the relevant Training Package or accredited course</td>
</tr>
<tr>
<td></td>
<td>3.2 Assessment principles</td>
<td>E-assessment resources and materials must provide for valid, reliable, fair and flexible assessment</td>
</tr>
<tr>
<td></td>
<td>3.3 Personalisation</td>
<td>E-assessment resources and materials must provide for personalisation of assessment</td>
</tr>
<tr>
<td></td>
<td>3.4 Validation</td>
<td>E-assessment resources and materials must be systematically validated</td>
</tr>
<tr>
<td></td>
<td>3.5 Workplace and regulatory requirements</td>
<td>E-assessment resources and materials must address workplace and regulatory requirements</td>
</tr>
<tr>
<td></td>
<td>3.6 Candidate authentication and security</td>
<td>E-assessment resources and materials must provide for candidate authentication and the security of both the assessment process and assessment data</td>
</tr>
<tr>
<td></td>
<td>3.7 Maintenance</td>
<td>E-assessment resources and materials must be maintained</td>
</tr>
<tr>
<td>E-assessment practices</td>
<td>4.1 Collaboration</td>
<td>E-assessment involves collaboration with industry and other stakeholders.</td>
</tr>
<tr>
<td>------------------------</td>
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<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4.2 Evidence collection</td>
<td>E-assessment involves collecting quality evidence for use in assessment decision making.</td>
<td></td>
</tr>
<tr>
<td>4.3 Feedback</td>
<td>E-assessment feedback must identify candidate strengths, areas for improvement and ways in which performance may be improved.</td>
<td></td>
</tr>
<tr>
<td>4.4 Assessment judgements</td>
<td>E-assessment involves evaluating evidence and making assessment judgments.</td>
<td></td>
</tr>
<tr>
<td>4.5 Recording and reporting e-assessment outcomes</td>
<td>E-assessment outcomes must be accurately recorded, reported and stored.</td>
<td></td>
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<tr>
<td>4.6 Complaints and appeals</td>
<td>E-assessment must provide for complaints and appeals.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E-assessment context</th>
<th>5.1 E-assessment support services</th>
<th>E-assessment providers must have appropriate support services for e-assessment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2 E-assessment deployment strategy</td>
<td>E-assessment providers should have an e-assessment deployment strategy.</td>
<td></td>
</tr>
</tbody>
</table>
Full descriptions of the draft guidelines for e-assessment

1 Infrastructure provision

1.1 Web based functionality

Guideline
E-assessment providers must meet minimum web based functionality requirements to support e-assessment.

Explanation
This VET Teacher E-learning Toolkit specifies the minimum web based functionality requirements needed to support e-learning in the national training system. This information is intended to inform the development of Standard Operating Environments to support the e-learning functionality required by VET Practitioners. These requirements address the minimum hardware and software requirements for VET Practitioners to access:

- national VET teaching and training resources
- digital resources to support teaching and training
- social, collaborative communication and content creation tools
- virtual classroom and synchronous communication tools
- tools to support evaluation and assessment activities.

Relevant standards
Web based functionality requirements specified in the VET Teacher E-learning Toolkit. These may be viewed at http://e-standards.flexiblelearning.net.au/docs/2010-TET-recommendations.pdf

Note
1. The existing web based functionality requirements for accessing tools to support evaluation and assessment activities should be reviewed to take into account the full range of applications of e-assessment resources and materials specified in Figure 2 in this report.

1.2 Desktop functionality

Guideline
E-assessment providers must meet minimum desktop functionality requirements to support e-assessment.

Explanation
This VET Teacher E-learning Toolkit specifies the minimum desk top functionality requirements needed to support e-learning in the national training system. This information is intended to inform the development of Standard Operating
Environments (SOE) to support the e-learning functionality required by VET Practitioners.

These requirements address the minimum hardware and software requirements for VET Practitioners to have the ability to:

- author and view documents
- play audio and video content
- create and customise multimedia content
- access and subscribe to information feeds
- (eg RSS, podcasts and newsgroups)
- develop web-based learning content

**Relevant standards**

Desktop functionality requirements specified in the VET Teacher E-learning Toolkit. These may be viewed at http://e-standards.flexiblelearning.net.au/docs/2010-TET-recommendations.pdf

**Note**

1. Minimum desk top functionality requirements for developing and accessing e-assessment resources should be established.
2. Minimum mobile functionality requirements should be established for mobile assessment. Mobile assessment refers to any assessment activity that is facilitated by the use of digital mobile devices, such as mobile phones and PDAs.

### 2 Technical guidelines

#### 2.1 Accessibility

**Guideline**

E-assessment resources and materials must be accessible to people with a disability.

**Explanation**

Accessibility means that people with disabilities can use the e-assessment materials. More specifically, accessibility means that people with disabilities can perceive, understand, navigate, and interact with the e-assessment materials.

Accessibility also benefits people without disabilities. For example, a key principle of accessibility is that e-assessment products and services are flexible and are able to meet different user needs, preferences and situations. This flexibility also benefits people without disabilities in certain situations, such as those using slow Internet connections, people with "temporary disabilities" such as a broken arm and people with changing abilities due to aging.

**Relevant standard**

All e-assessment materials used in the national training system must meet WCAG 2.0 Level AA, that is, all criteria for Level A plus those in Level AA.
2.2 Content packaging

**Guideline**

E-assessment resources and materials must be transportable between different repositories and learning management systems.

**Explanation**

Content packaging refers to the ability to combine e-assessment resources into self-contained packages that can be readily transported between different repositories and learning management systems.

E-assessment resources must be portable between different web browsers, platforms and learning management systems.

Use of open and widely supported standards for content will ensure that:

- content can be successfully accessed by users using a range of browsers, including text readers, without having to install proprietary plug-ins
- content can be modified by assessors and other content developers where this is necessary and consistent with intellectual property conditions
- content can be accessed, and where necessary manipulated, by learners without requiring expensive proprietary software
- e-assessment providers comply with their legal requirements to make services available to all users under disability discrimination legislation.

**Relevant standards**

All e-assessment materials used in the national training system must meet the standards for content packaging approved by the E Standards Expert Group for use in the Australian VET system in 2011.

**Note**

1. The Vetdata Educational Use vocabulary should be reviewed to ensure that it provides adequate terms to describe e-assessment content. The glossary accompanying this document should provide the basis for this review.

2.3 Desk top content formats

**Guideline**

E-assessment resources and materials must meet the standard for desk top content formats.

**Explanation**

Content formats refer to the internal file structure of e-assessment resources. Formats for content to be viewed in a web browser include the scripting language to be used and its version (e.g. HTML 4.01), and the kind of audio, video and graphic files (e.g. JPEG) to be embedded. The format of content files to be downloaded (e.g. PDF) is also included.

Desk top content format standards have been identified for:

- File format for web content
- Style and formatting of web content
- Text documents (Fixed display)
- Text documents (Standard)
- Presentation formats
- Graphics (non-animated)
- Audio formats
- Video formats
- Interactive content

**Relevant standards**

All e-assessment materials used in the national training system must meet the standards for desk top content formats approved by the E Standards Expert Group for use in the Australian VET system in 2011.

**Note**

1. The Vetdata Educational Use vocabulary should be reviewed to ensure that it provides adequate terms to describe e-assessment content. The glossary accompanying this document should provide the basis for this review.

### 2.4 Mobile content formats

**Guideline**

E-assessment resources and materials must meet the standards for mobile content formats.

**Explanation**

Mobile assessment can be defined as assessment that is facilitated and enhanced by the use of digital mobile devices that can be carried and used anywhere and anytime, such as mobile phones and PDAs.

Content formats refer to the internal file structure of e-assessment resources. Formats for content to be viewed in a web browser include the scripting language to be used and its version (eg HTML 4.01), and the kind of audio, video and graphic files (eg JPEG) to be embedded. The format of content files to be downloaded (eg PDF) is also included.

Desk top content format standards have been identified for:

- File format for web content
- Style and formatting of web content
- Text documents: eBooks and fixed display content
- Text documents: editable content
- Web graphics (non-animated)
- Audio formats
- Video formats
- Interactivity

**Relevant standards**
Mobile e-assessment materials used in the national training system must meet the standards for mobile content formats approved by the E Standards Expert Group for use in the Australian VET system in 2011.

**Note**

1. The Vetdata Educational Use vocabulary should be reviewed to ensure that it provides adequate terms to describe e-assessment content. The glossary accompanying this document should provide the basis for this review.

### 2.5 Metadata

**Guideline**

E-assessment resources and materials must be described using the Vetdata standard to facilitate interoperability and discovery of e-assessment resources across the VET system.

**Explanation**

Metadata is structured information about a print or digital resource describing the resource itself, as well as aspects such as its creation and administration, copyright conditions and technical features (e.g., size, format). Information commonly stored as a metadata record may include authorship, title, publication date, description, copyright information, and subject keywords.

Vetdata, which was approved by FLAG and released for use in January 2005, is the metadata system used in the Australian vocational education and training sector. It provides structured descriptions of VET learning resources. Vetdata aims to improve interoperability and discovery of educational resources across the VET system.

**Standard**

E-assessment materials used in the national training system must be described using the Vetdata standard.

### 3 E-assessment development and maintenance

#### 3.1 Benchmarks

**Guideline**

E-assessment resources and materials must meet the requirements of the relevant Training Package or accredited course.

**Explanation**

All components of the Training Package or accredited course must be addressed when developing e-assessments. These include:

- Units of competency, including:
  - Elements
  - Performance criteria
  - Range statement
  - Evidence guide.
Australian Flexible Learning Framework and National Quality Council

3.2 Assessment principles

**Guideline**

E-assessment resources and materials must provide for valid, reliable, fair and flexible assessment.

**Explanation**

E-assessment processes and tools must satisfy the principles of validity, reliability, flexibility and fairness. These principles ensure the quality and consistency of assessment outcomes.

Validity is concerned with the extent to which an assessment decision about a candidate is fair and is justified. Whereas reliability refers to the extent to which e-assessments are consistent.

To be flexible, e-assessments should reflect the candidate’s needs; provide for recognition of competencies no matter how, where or when they have been acquired; draw on a range of methods appropriate to the context, competency and the candidate; and, support continuous competency development.

Fairness in e-assessment requires consideration of the individual candidate’s needs and characteristics, and any reasonable adjustments that need to be applied to take account of them. It requires clear communication between the assessor and the candidate to ensure that the candidate is fully informed about, understands, is able to participate in, the e-assessment process, and agrees that the process is appropriate. It also includes an opportunity for the person being assessed to challenge the result of the e-assessment and to be reassessed if necessary.

**Standard**

Australian Quality Training Framework Standard 1: The RTO provides quality training and assessment across all of its operations. Part 1.5a: Assessment including Recognition of Prior Learning (RPL) meets the requirements of the relevant Training Package or accredited course.

3.3 Personalisation

**Guideline**

E-assessment resources and materials must provide for personalisation of assessment.

**Explanation**

E-assessment resources and materials should facilitate personalised assessment.
E-assessment tools, such as e-portfolios, digital stories and online quizzes, provide assessors with ways of gathering evidence on individual learners and identifying where they are in their learning. Online communications tools, such as email and e-portfolios, offer assessors ways of providing highly personalised feedback to learners about what they need to do next. While podcasts, video and image sharing and video streaming may be used to provide candidates with clear, personalised advice on how they can improve their performance.

In addition, online interaction through forums, blogs, email and voice boards can provide opportunities for peer assessment which enables candidates to gain feedback and suggestions for improvements from their peers.

**Standard**

Australian Quality Training Framework Standard 2 The RTO adheres to principles of access and equity and maximises outcomes for its clients. Element 2.5 Learners receive training, assessment and support services that meet their individual needs.

**3.4 Validation**

**Guideline**

E-assessment resources and materials must be systematically validated.

**Explanation**

Validation is a quality review process. It involves checking that e-assessment tools produced valid, reliable, sufficient, current and authentic evidence to enable reasonable judgements to be made as to whether the requirements of the relevant aspects of the Training Package or accredited course have been met. It includes reviewing and making recommendations for future improvements to e-assessment tools, process and/or outcomes.

**Standard**

Australian Quality Training Framework Standard 1: The RTO provides quality training and assessment across all of its operations. Part 1.5d: Assessment including Recognition of Prior Learning (RPL) is systematically validated.

**3.5 Workplace and regulatory requirements**

**Guideline**

E-assessment resources and materials address workplace and regulatory requirements.

**Explanation**

E-assessment tools must take into account workplace and regulatory requirements. Where e-assessment is used in the workplace, such as using point of view glasses to observe real work in real time or workplace procedures and events are recorded in e-portfolios, assessors and developers should consult with enterprises and industry. This consultation will provide information about when and how assessment can take place and the extent to which enterprise staff can contribute to assessment activities.
Where e-assessment involves simulation, assessors and developers should consult with industry or enterprises on how best to create simulated work environments for assessment.

Any regulatory or licensing authority requirements that relate to specific units or qualifications must be incorporated in e-assessment tools.

**Standard**

Australian Quality Training Framework Standard 1: The RTO provides quality training and assessment across all of its operations. Part 1.5c: Assessment including Recognition of Prior Learning (RPL) meets workplace and, where relevant, regulatory requirements.

### 3.6 Candidate authentication and security

**Guideline**

E-assessment resources and materials must provide for candidate authentication and the security of both the assessment process and assessment data.

**Explanation**

Security and candidate authentication arrangements should reflect the purpose and level of risk associated with e-assessment.

In both low and high stakes e-assessment, procedures should be in place to:

- authenticate candidates
- protect against viruses and hacking
- allocate permissions and rights of access
- provide for the physical security of e-assessment hardware
- provide the functionality required for audit trails and reports of system use.
- protect assessment data, back up assessment data and prevent data loss
- ensure business continuity, address business interruptions and recover from e-assessment system failures.

In high stakes e-assessment, additional safeguards must be in place to ensure the security of all aspects of the e-assessment process. This includes procedures to deal with plagiarism, copying and any interference with e-assessment materials or assessment outcomes.

**Standard**

There are no existing standards related to this guideline.
3.7 Maintenance

Guideline

E-assessment resources and materials must be maintained.

Explanation

E-assessment resources and materials need to be maintained. This includes the maintenance of hardware and software systems as well as the content of e-assessment materials. Maintenance arrangements need to take into account:

- changes in the requirements of the relevant Training Package or accredited course
- changes in relevant legislation, regulations and codes or practice
- changes in work practices
- changes to e-standards
- upgrades to generic and specialist e-assessment software
- upgrades to hardware.

Maintenance of e-assessment resources and materials may be undertaken by the developer or the provider of e-assessment services. However, the Registered Training Organisations must ensure that maintenance of e-assessment resources and materials forms part of their continuous improvement strategy for training and assessment.

Standard

Australian Quality Training Framework Standard 1: The RTO provides quality training and assessment across all of its operations. Element 1.1: The RTO collects, analyses and acts on relevant data for continuous improvement of training and assessment.

4 E-assessment practices

4.1 Collaboration

Guideline

E-assessment involves collaboration with industry and other stakeholders.

Explanation

E-assessment involves collaboration between assessors, candidates, enterprise clients, industry organisations and, where relevant, licensing bodies.

E-assessment should be informed by consultation with industry and other stakeholders. Information collected through such consultations may include:

- Legislation and standard operating procedures that may be assessed through online quizzes.
- Work activities that may be assessed through simulation.
- Information about the work environment, such as shifts or seasonal changes to schedules, that may affect the selection of e-assessment resources and materials or the ways in which they are deployed.
- Employer preferences about the e-assessment resources and materials.
- Information about how licensing bodies and other groups view e-assessment.
- Employee views on e-assessment.
- Candidate characteristics and reasonable adjustments that may need to be accommodated in e-assessment.
- Ways of using e-assessment resources and materials, such as wikis, blogs and email, to support peer and self assessment.

**Standard**

Australian Quality Training Framework. Standard 1: The RTO provides quality training and assessment across all of its operations. Element 1.2 Strategies for training and assessment meet the requirements of the relevant Training Package or accredited course and are developed in consultation with industry.

**4.2 Evidence collection**

**Guideline**

E-assessment involves collecting quality evidence for use in assessment decision making.

**Explanation**

E-assessment involves collecting quality evidence.

Quality evidence complies with the rules of evidence. This means that the evidence used in assessment decision making must be valid, sufficient, authentic and current.

E-assessment resources and materials are used to collect four different types of evidence. These are:

- **Real work / real time evidence** – technologies such as: education point of view glasses, video and image sharing, digital stories, and video streaming may be used to collect direct evidence of candidate performance on real work tasks in real time. This may be accompanied by online self and peer assessments as well as comments from workplace supervisors.

- **Simulation and demonstrations** – computer simulations may be used to collect evidence of candidate performance in off-the-job situations that replicate the workplace. Simulations range from simple demonstrations of workplace tasks and role plays, which may be captured on video and reviewed, through to complex applications such as virtual worlds in which multiple users can interact together or with characters or interactive environments.

- **Questioning** – online quizzes created either within or outside a Learning Management System may be used to test candidates’ knowledge. Generic programs such as Skype or specialist applications such as virtual classrooms may be used for questioning, interviews and discussions.

- **E-portfolios** – online collections of reflections and digital artefacts, such as documents, images, blogs, resumés, multimedia, hyperlinks and contact
information, may be assembled by candidates to demonstrate and record their learning and skill development over time.

**Standards**

- Australian Quality Training Framework. Standard 1: The RTO provides quality training and assessment across all of its operations. Element 1.5b: Assessment including Recognition of Prior Learning (RPL) is conducted in accordance with the principles of assessment and the rules of evidence.
- Online quizzes should be consistent the IMS Question and Test Interoperability standards

**4.3 Feedback**

**Guideline**

E-assessment feedback must identify candidate strengths, areas for improvement and ways in which performance may be improved.

**Explanation**

Feedback to candidates must provide information on where learners are in their learning, identify what they need to improve and offer practical suggestions for how performance may be improved.

There is a wide range of e-assessment resources and materials that can enhance the quality of feedback. For example, [1] personalised feedback may be provided through technologies, such as email, Skype, Facebook, Twitter and SMS, [2] the quality and timeliness of feedback may be improved by automated marking; [3] peer feedback may be facilitated through online interaction via forums, email and voice boards, and [4] practical suggestions for improving feedback may be delivered through podcasts and video streaming that show examples of competent performance.

The use of e-assessment resources and materials, such online learning logs, blogs and e-portfolios, may also be used to provide two way feedback in which assessors and candidates are able to offer and respond to feedback.

**Standards**

Australian Quality Training Framework. Standard 1: The RTO provides quality training and assessment across all of its operations. Element 1.2 Strategies for training and assessment meet the requirements of the relevant Training Package or accredited course and are developed in consultation with industry.
4.4 Assessment judgements

**Guideline**
E-assessment involves evaluating evidence and making assessment judgments.

**Explanation**
Assessors use the evidence gathered through e-assessments to make judgements on competence.

In evaluating evidence, assessors need to ensure that it meets the rules of evidence and addresses the full requirements of the competency standards.

Increasingly, assessors are using e-assessment resources and materials to assist with the processing of collected evidence. For example, computers marking and analysis of candidate responses to online quizzes and short answer questions can speed up the processing of assessment evidence and provide richer information that assessors can use in making assessment decisions.

E-assessment resources and materials are also being used to gather more diverse evidence to inform assessment decision making. For example, the use of simulation, e-portfolios and blogs can provide assessors with evidence on aspects of performance that are not easy to capture using conventional assessment approaches.

While e-assessment resources and materials may provide more timely, rich and diverse evidence, assessors must be able to evaluate evidence and make assessment decisions.

**Standard**
Australian Quality Training Framework. Standard 1: The RTO provides quality training and assessment across all of its operations. Element 1.2 Strategies for training and assessment meet the requirements of the relevant Training Package or accredited course and are developed in consultation with industry.

4.5 Recording and reporting e-assessment outcomes

**Guideline**
E-assessment outcomes must be accurately recorded, reported and stored.

**Explanation**
E-assessment outcomes must be accurately reported to candidates. Records of these assessment outcomes must be systematically collected, recorded and stored. Candidates must be able to access their assessment records so that they can monitor their progress.

**Standard**
Australian Quality Training Framework. Standard 2: The RTO adheres to principles of access and equity and maximises outcomes for its clients. Element 2.6: Learners have timely access to current and accurate records of their participation and progress.
### 4.6 Complaints and appeals

**Guideline**

E-assessment must provide for complaints and appeals.

**Explanation**

Complaints and appeals arise when candidates are not satisfied with assessment decisions. They can also relate to other aspects of the assessment process, such as unfair treatment or inconsistent assessment requirements.

E-assessment arrangements must allow for candidates to make complaints and appeals and have these resolved fairly.

Candidates are more likely to feel confident that they are being treated fairly when:

- they are clearly informed in a timely way about how to complain or appeal
- they have opportunity to present their case
- they have access to an independent arbiter if this is needed
- they are clearly informed of the outcomes of the complaint or appeal
- complaints and appeals are resolved within realistic and fair timelines.

**Standard**

Australian Quality Training Framework. Standard 2: The RTO adheres to principles of access and equity and maximises outcomes for its clients. Element 2.7: The RTO provides appropriate mechanisms and services for learners to have complaints and appeals addressed efficiently and effectively.

### 5 E-assessment context

#### 5.1 E-assessment support services

**Guideline**

E-assessment providers must have appropriate support services for e-assessment.

**Explanation**

Providers of e-assessment services must support services that include:

- technical and administrative support
- qualified assessors
- professional development programs for assessors and technical and administrative support staff engaged in the delivery of e-assessment
- an acceptable use policy and the capacity to monitor and enforce compliance with the policy.

**Standard**

There are no existing standards related to this guideline.
5.2 E-assessment deployment strategy

**Guideline**
E-assessment providers should have an e-assessment deployment strategy.

**Explanation**
Providers of e-assessment services must have a deployment strategy that addresses matters such as:
- policy and procedure documentation
- how resources are deployed and made available to candidates
- computing infrastructure
- mobile assessment.

**Standard**
There are no existing standards related to this guideline.
E-assessment case studies

Four case studies have been selected. The case study report structure will be mapped against the e-assessment guidelines. In this respect, the case studies will test and validate the guidelines, as well as highlight issues that may occur with their implementation in practice. Where the case studies practitioners have not yet considered or dealt with aspects of the e-assessment guidelines, we will explore their perspectives on these issues and report on them separately in the context of the case study.

CASE STUDY 1

<table>
<thead>
<tr>
<th>Institute</th>
<th>Canberra Institute of Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualification</td>
<td>Requirements Analysis (Cert IV) from the ICAO Information and Communications Training Package</td>
</tr>
<tr>
<td></td>
<td>Project Architecture - Games (Degree)</td>
</tr>
<tr>
<td>Cohort</td>
<td>There are 50 learners involved in the Requirements Analysis course, which is conducted on campus. Project Architecture is conducted all online in a partnership with the Academy of Interactive Entertainment AIE, involving 7 learners</td>
</tr>
<tr>
<td>E-assessment technology</td>
<td>Learning Management System (Moodle), Virtual classroom (Wimba), Forum (Moodle) and Quiz (Moodle).</td>
</tr>
<tr>
<td>Description</td>
<td>The Learning Management System is used to provide the online learner resources; communicate with them (announcements, email, calendar), provide assessment feedback and record / communicate results.</td>
</tr>
<tr>
<td></td>
<td>The Virtual Classroom is used as a tutorial session, where learners discuss issues. They are assessed on the basis of their contribution and participation in the discussion. This is used in the Project Architecture course.</td>
</tr>
<tr>
<td></td>
<td>A Forum is used to encourage discussion on issues and topics between class sessions and facilitate collaboration between learners. They are assessed on their contribution and participation. This is used in the Project Architecture course.</td>
</tr>
<tr>
<td></td>
<td>The Quiz is used both as a formative and summative tool for assessment. The questions are taken from a bank and automatically assessed. This is used extensively for both formative and summative assessment in the Requirements Analysis course, and is just being introduced into the Project Architecture course.</td>
</tr>
<tr>
<td>Reasons for selection</td>
<td>This case study provides an excellent example of the utilisation of a number of technologies in the assessment process.</td>
</tr>
<tr>
<td></td>
<td>Learning Management Systems have been used for some time in e-learning and assessment, and it is important that their practice is reflected in the e-assessment guidelines.</td>
</tr>
<tr>
<td></td>
<td>The virtual classroom is becoming more popular in e-learning contexts, particularly for distance learning, so it is important that this practice is reflected in the e-assessment guidelines.</td>
</tr>
<tr>
<td></td>
<td>The Forum raises issues when using social networking tools and collaborative assessment.</td>
</tr>
</tbody>
</table>
|                    | The use of the “quiz” has been highlighted in a number of recent reports and the case
study will provide the opportunity to highlight how they can be conducted within a rigorous assessment framework.

- The degree course is interesting to focus on, as there are a number of TAFE colleges that are moving in this direction of providing degree courses.
- The TAFE Institute is metropolitan-based.
- The case study context is a training partnership arrangement, which could be used as off-shore delivery model.

### CASE STUDY 2

**Institute**  
Skills Institute (Tasmania Launceston)

**Qualification**  
- AURV225908A Carry out panel repairs  
- AURV331987A Restore vehicle exterior paint  
Automotive Industry Retail, Service and Repair Training Package AUR05

**Cohort**  
Trades apprentices – on-the-job training.

**E-assessment technology**  
Mobile device (iPhone/iQTIm player)

**Description**  
The mobile device is used conduct a competency assessment. The device is linked to a database that contains the competency elements and validated assessment questions. The mobile device is used on-the-job to assess the apprentice against a set of questions that are verbally conducted; the judgment is made and sent immediately back to the database using the mobile device. Photos, videos, audio recordings can also be made using the mobile device and used as evidence.

**Reasons for selection**  
- Mobile devices will be used increasingly in e-assessment, so it’s important that their use is considered in the development of the e-assessment guidelines.
- The cohort is trades apprentices.
- The assessment is conducted on-the-job.
- The TAFE Institute is based in regional Australia.

### CASE STUDY 3

**Institute**  
Western Sydney Institute

**Qualification**  
Competency units taken from Hairdressing Training Package WRHO6

**Cohort**  
On campus learners

**E-assessment technology**  
e-portfolio (Mahara)

**Description**  
The e-portfolio is assigned to individual learners to access and use for the recording of their
learning and assessment.

Assessment in this case is conducted using the system where images are provided from both the trainers and the learners from their actual hairdressing experience, and the learner evaluates them against a set of industry validated assessment questions. The evidence is assessed and feedback / results communicated through the e-portfolio, and stored.

**Reasons for selection**

- Eportfolios are being used increasingly in learning and assessment, and therefore their use needs to be reflected in the e-assessment guidelines.
- They have the capacity to be portable (used across RTOs) and long-life (as a life-long record of an individual’s training). They therefore raise many important assessment issues in regards to interoperability, security and trusted systems.
- In this case, the eportfolio is used as an on-campus tool, although some of the assessments may be conducted on the job and recorded in the system.
- The Institute is a TAFE College in a metropolitan context.

### CASE STUDY 4

<table>
<thead>
<tr>
<th>Institute</th>
<th>Community College (Lake Kathie NSW)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
</tr>
<tr>
<td>Aged Care Work and Community Care</td>
<td></td>
</tr>
<tr>
<td>Competencies from the Community Services and Health Industry Training Package CHC08.</td>
<td></td>
</tr>
<tr>
<td><strong>Cohort</strong></td>
<td></td>
</tr>
<tr>
<td>Aged care and home and community care industry. There are 19 people currently undertaking the assessment process.</td>
<td></td>
</tr>
<tr>
<td><strong>E-assessment technology</strong></td>
<td></td>
</tr>
<tr>
<td>POV and cam video recorders</td>
<td></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td></td>
</tr>
<tr>
<td>There are a number of units that require both supervised and unsupervised practical work in an actual work environment. The videos (POV and cam-recorder) is used to capture the way in which learners relate to clients in the work context. They are currently used in the context of recognition of prior learning (RPL). These videos are compressed and stored on a database, where they are accessed by the trainer/ assessor. The learners can also access this system for feedback and results.</td>
<td></td>
</tr>
<tr>
<td><strong>Reasons for selection</strong></td>
<td></td>
</tr>
<tr>
<td>Video has increasing appeal for assessment purposes, as it is used to capture demonstrations of workplace competency for evidence gathering purposes. It is important therefore to reflect this technology in the e-assessment guidelines.</td>
<td></td>
</tr>
<tr>
<td>The cohort is in the context of work placement and RPL.</td>
<td></td>
</tr>
<tr>
<td>The institute is part of an independent not-for-profit network of colleges.</td>
<td></td>
</tr>
<tr>
<td>The institute is based in rural Australia.</td>
<td></td>
</tr>
</tbody>
</table>

### CASE STUDY 5 (Reserve)

This case study is being held in reserve as the process in which to get permission to conduct a case study within the Australian Army is complicated. We are therefore not certain whether the tight timelines will allow sufficient time to investigate and write up the case study report. However, we do believe that this will have very interesting issues for our study in e-assessment, which can be applied in other contexts.
### Institute
Australian Army (Oakley, Queensland)

### Qualification
S70A-9 Blackhawk helicopter and Aircrewman

### Level
Aligned to Certificate IV

### Cohort
6 trainees per course.

### E-assessment technology
Full Flight Motion Simulation and Virtual Reality Simulation

### Description
The simulation tool is used to train and test learners in a simulated environment. The assessment is industry validated and the simulation generates a changing set of tasks for the trainee to accomplish. Their responses are recorded and matched against the competencies within the simulation system. An opportunity is provided for re-assessment.

### Reasons for selection
- Simulation is being used more and more for virtual-world training, particularly in the heavy transport industries. It has application in a wide range of other industries – chemical, technical where control over systems can only be simulated to replicate real contexts. Therefore it is important to reflect in the e-assessment guidelines.
- The Australian army is unique in that it has the resources to be a leader in the training field, and the case study will therefore raise issues and provide solutions that other cases studies may not have contended with.
- The training is based in regional Queensland.
E-assessment case study research questions

The case studies will investigate a range of e-assessment processes across a range of contexts.

Questions:

1. What technologies are being used across the assessment process?

<table>
<thead>
<tr>
<th>Diagnostic test/information on learner assessment process</th>
<th>Evidence gathering (Formative/summative)</th>
<th>Judgement</th>
<th>Feedback (communicated, retrieved and stored)</th>
<th>Record</th>
</tr>
</thead>
</table>

2. Focussing on the primary technology in the process, what is it and how is it used in the assessment context? (There may be more than one technology used.)

3. What Training Package/competency/accredited course is it addressing and who is the cohort?

4. Why was this technology chosen to do the assessment – is it the best choice? Is it appropriate for the learner and competency? What were other options? How would have it been done previously?

5. How does the technology meet technical standards?
   - Interoperability
     - Usability
     - Metadata (VETdata)
     - Accessibility (WCAG 2.0)
     - Content formats
     - Asset quality

6. How does the e-assessment meet the AQTF standards?
   - Valid
   - Fair
   - Reliable
   - Flexible

7. Is there a range of assessments being offered with and around the technology?
8. What security is provided for the technology (hacking, cheating, plagiarism, viruses, unacceptable use)?

9. How is it ensured that the assessment process is consistent?

10. Is the evidence gathering process industry-validated?

11. Is the assessment process moderated (checked by another assessor)?

12. How is learner authenticity assured in using the technology?

13. How is the assessment personalised – tailored for the individual learner?

14. What is the process to maintain the e-assessment content? How easy is this to do?

15. What is the cost of development? Is the use of the technology cost-effective? Measured against what alternative options?

16. What aptitudes are necessary for the a) learner and b) trainer to use the technology proficiently?

17. How is the technology deployed to learners to use?

18. How is the technology used for self-and peer-assessment?

19. How does the technology support collaborative assessment?

20. How is feedback provided to the learner from the technology or elsewhere?

21. How is the assessment judgement made? Is it automated or manual?

22. How are the recording of results managed, communicated and stored?

23. What opportunities are provided to the learner for re-assessment?

24. How does the e-assessment process support learning?

25. What support is provided by the RTO for the e-assessment technology:
   - Training for trainers
   - Training for learners
   - Infrastructure support – bandwidth, equipment, technology access, etc.
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# Draft e-assessment glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acceptable use policy</strong></td>
<td>An acceptable use policy is a set of rules applied by the owner/manager of a network, website or large computer system that restrict the ways in which the network site or system may be used.</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td>The extent to which a service can be used by people with disabilities or special access requirements. With reference to e-assessment, the accessibility of an e-assessment is the extent to which the e-assessment system (including the physical environment, test software itself, and the administration system) can be accessed, including by the student using specialist software access tools (such as Screen Readers, Screen Magnifiers, Braille readers and speech recognition software).</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>The process of collecting evidence and making judgements on whether competency has been achieved, to confirm that an individual can perform to the standard expected in the workplace, as expressed by the relevant endorsed industry/enterprise competency standards of a Training Package or by the learning outcomes of an accredited course.</td>
</tr>
<tr>
<td><strong>Assessment guidelines</strong></td>
<td>The endorsed component of a Training Package that underpins assessment and sets out the industry’s approach to valid, reliable, flexible and fair assessment.</td>
</tr>
<tr>
<td><strong>Assessment judgement</strong></td>
<td>Assessment judgement involves the assessor evaluating whether the evidence gathered is current, valid, authentic and sufficient to make the assessment decision. The assessment judgement will involve the assessor in using professional judgement in evaluating the evidence available.</td>
</tr>
<tr>
<td><strong>Assessment process</strong></td>
<td>The assessment process is the agreed series of steps that the candidate undertakes within the enrolment, assessment, recording and reporting cycle. The process must suit the needs of all stakeholders and be both efficient and cost-effective.</td>
</tr>
<tr>
<td><strong>Assessment tools</strong></td>
<td>An assessment tool includes the following components: the context and conditions for the assessment, the tasks to be administered to the candidate, an outline of the evidence to be gathered from the candidate and the evidence criteria used to judge the quality of performance (i.e. the assessment decision making rules). It also includes the administration, recording and reporting requirements.</td>
</tr>
<tr>
<td><strong>Assessor</strong></td>
<td>An individual or organisation responsible for the assessment of Units of Competency in accordance with the Australian Quality Training Framework.</td>
</tr>
<tr>
<td>Australian Qualifications Framework (AQF)</td>
<td>The policy framework that defines all qualifications recognised nationally in post-compulsory education and training in Australia. The AQF comprises titles and guidelines that define each qualification, as well as the principles and protocols covering cross-sectoral qualification links and the issuing of qualifications and statements of attainment.</td>
</tr>
</tbody>
</table>
| Australian Quality Training Framework (AQTF) | The Australian Quality Training Framework (AQTF) is a set of nationally agreed quality assurance arrangements for training and assessment services delivered by training organisations. The first version of AQTF was implemented in 2002, and revised in 2002 and 2007. This version of the AQTF was implemented 1 July 2010. The AQTF comprises:  
  a) AQTF Essential Conditions and Standards for Initial Registration  
  b) AQTF Essential Conditions and Standards for Continuing Registration  
  c) AQTF 2007 Standards for State and Territory Registering Bodies  
  d) AQTF 2007 Excellence Criteria  
  e) AQTF 2007 Standards for Accredited Courses  
  f) AQTF Standards for State and Territory Course Accrediting Bodies. |
| Authentication | 1. Use of specialised software to authenticate the identity of the user of a computer terminal.  
   2. Confirmation that the work has been produced by the candidate who is putting it forward for assessment, and, where applicable, that it has been produced under the required conditions. |
| Authenticity | One of the rules of evidence. To accept evidence as authentic, an assessor must be assured that the evidence presented for assessment is the candidate’s own work. |
| Blog (web log) | From the term weblog, a website that allows users to reflect, share opinions, and discuss various topics in the form of an online journal. Readers can comment on posts and entries typically appear in reverse chronological order. |
| Candidate | A candidate is any person presenting for assessment. The candidate may be:  
  • a learner undertaking training in an institutional setting  
  • a learner/worker undertaking training in a workplace  
  • a learner/worker wanting their skills recognised  
  • or any combination of the above. |
| Cloud computing | Cloud computing is Internet-based computing, whereby shared resources, software and information are provided to computers and other devices on-demand as opposed to hosted on an |
| **Competency** | Competency is the consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments. |
| **Content Management System (CMS)** | A computer software system for organizing and facilitating collaborative creation of documents and other content, especially for loading to a website. |
| **Currency** | One of the rules of evidence. In assessment, currency relates to the age of the evidence presented by candidates to demonstrate that they are still competent. Competency requires demonstration of current performance, so the evidence must be from either the present or the very recent past. |
| **Dimensions of competency** | Dimensions are part of the broad concept of competency, which includes all aspects of work performance as represented by task skills, task management skills, contingency management skills and job/role environment skills. |
| **E-assessment** | E-assessment is the use of information technology for any assessment-related activity. |
| **End-to-end electronic assessment** | This is used to denote the process of creating electronic assessment content and then delivering it to a student. To achieve it, a solution must provide the ability to:  
  - author questions  
  - create assessments from the questions  
  - publish assessments  
  - deliver assessments to students  
  - record students' performance on assessments. |
| **e-portfolio** | A purposeful collection of digital items such as ideas, evidence, reflections, feedback, etc, which presents a selected audience with evidence of a person's learning and/or ability. |
| **Evidence and ‘quality’ evidence** | Evidence is information gathered which, when matched against the performance criteria, provides proof of competency. Evidence can take many forms and be gathered from a number of sources. Assessors often categorise evidence in different ways, for example:  
  - direct, indirect and supplementary sources of evidence  
  - evidence collected by the candidate or evidence collected by the assessor  
  - historical and recent evidence collected by the candidate and current evidence collected by the assessor.  
  Quality evidence is valid, authentic, sufficient and current evidence that enables the assessor to make the assessment judgement. |
<p>| <strong>Evidence gathering techniques</strong> | Evidence gathering technique means the particular technique or method used to gather different types of evidence. This may include methods or techniques such as questioning, observation, third party reports, interviews, simulations and portfolios. |</p>
<table>
<thead>
<tr>
<th><strong>In an e-assessment context, this could include:</strong></th>
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</thead>
<tbody>
<tr>
<td>• Real work / real time evidence</td>
<td></td>
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<tr>
<td>• Simulation and demonstrations</td>
<td></td>
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<tr>
<td>• Questioning</td>
<td></td>
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<tr>
<td>• E-portfolios</td>
<td></td>
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</tbody>
</table>

<p>| <strong>Fairness</strong> | One of the principles of assessment. Fairness in assessment requires consideration of the individual candidate’s needs and characteristics, and any reasonable adjustments that need to be applied to take account of them. It requires clear communication between the assessor and the candidate to ensure that the candidate is fully informed about, understands, is able to participate in, the assessment process, and agrees that the process is appropriate. It also includes an opportunity for the person being assessed to challenge the result of the assessment and to be reassessed if necessary. |
| <strong>Feed forward</strong> | Advice on forthcoming work based on feedback previously given. |
| <strong>Feedback</strong> | Qualitative information about their performance given to learners after an assessment. |
| <strong>Flexibility</strong> | One of the principles of assessment. To be flexible, assessment should reflect the candidate’s needs; provide for recognition of competencies no matter how, where or when they have been acquired; draw on a range of methods appropriate to the context, competency and the candidate; and, support continuous competency development. |
| <strong>Formative assessment</strong> | Assessment that provides developmental feedback to a learner on his/her current understanding or skills. |
| <strong>High-stakes assessment</strong> | An assessment of which the outcomes are of high importance and affect progression to subsequent activities. |
| <strong>Interoperability</strong> | A feature of computer systems components which allow the components to interact according to technical standards which define functionality useful to the user. The IMS QTI specification is an example of an interoperability specification within the e-assessment domain. |
| <strong>Information technology</strong> | Information technology refers to both the hardware and software that are used to store, retrieve, and manipulate information. |
| <strong>Item</strong> | Smallest separately identified question or task within an assessment plus its associated information (e.g. mark scheme, curriculum reference, media content, performance information, etc.), usually a single objective question. Distinguished from a “question” which may be a longer and less-objective task but often used synonymously. |
| <strong>Item bank</strong> | A storage facility for items which allows them to be maintained and used for automatic and manual test generation purposes (to create tests on-paper and/or on-screen). Today, almost all item banks are electronic although historically many were physical. |
| <strong>JPEG</strong> | A compression format for graphics named after the committee that defined the format. The compression method allows variable levels of compression for colour and monochrome pictures with increasing levels of compression leading to a loss of quality. |
| <strong>Learning management system</strong> | A learning management system (commonly abbreviated as LMS) is a software application for the administration, documentation, tracking, and reporting of training programs, classroom and online events, e-learning programs, and training content. |
| <strong>Login</strong> | The unique user name and password entered to access a computer system. |
| <strong>Low-stakes assessment</strong> | An assessment which carries a low weighting. |
| <strong>Management information system</strong> | An automated system designed to provide progress and status information to management as an aid to decision making. |
| <strong>Metadata</strong> | Reference data about a piece of information (e.g. an assessment item) that enables it to be systematically stored in and retrieved from a database (e.g. an item bank) according to a variety of selection criteria. In the context of assessment, metadata might typically refer to aspects such as qualification or test specifications, curriculum content and performance statistics. |
| <strong>Microblogging</strong> | Microblogging is a broadcast medium in the form of blogging. A microblog differs from a traditional blog in that its content is typically smaller in both actual and aggregate file size. Microblogs “allow users to exchange small elements of content such as short sentences, individual images, or video links”. |
| <strong>Mobile assessment</strong> | Mobile assessment can be defined as assessment that is facilitated and enhanced by the use of digital mobile devices that can be carried and used anywhere and anytime, such as mobile phones and PDAs. |
| <strong>Moderation</strong> | The process of bringing assessment judgements and standards into alignment. It is a process that ensures the same standards are applied to all assessment results within the same Unit(s) of Competency. It is an active process in the sense that adjustments to assessor judgements are made to overcome differences in the difficulty of the tool and/or the severity of judgements. |
| <strong>Moderator</strong> | A person responsible for carrying out moderation processes. A moderator may be external or internal to the organisation. |
| <strong>Moodle</strong> | An open source Learning Management System. |
| <strong>National Recognition</strong> | Recognition by an RTO of the AQF qualifications and statements of attainment issued by all other RTOs, thereby enabling national recognition of the qualifications and statements of attainment issued to any person. Recognition by each state and territory’s registering body of the training organisations registered by any other state or territory’s registering body and of its registration decisions. Recognition by all state and territory course-accrediting bodies and registering bodies of each other’s accredited courses and accreditation decisions. |
| <strong>National Skills Framework (NSF)</strong> | The system of VET that sets out the system’s requirements for quality and national consistency in terms of qualifications and the delivery of training. The NSF applies nationally, and has been endorsed by the Ministerial Council for Tertiary Education and Employment (MCTEE). |
| <strong>National Training Information Service (NTIS)</strong> | The national register for recording information about RTOs, Training Packages and accredited courses. NTIS is part of the National Skills Framework. |
| <strong>Navigation</strong> | In an e-assessment context, the on-screen buttons and other controls that move candidates from screen to screen in an on-screen assessment, and provide access to other non-question specific features such as on-screen help, print functions, exit, etc. They are generally visually separate from controls that relate to the specific question. |
| <strong>Open source</strong> | Software applications and components for which the source code is freely available for use or modification as required. |
| <strong>PDF</strong> | Portable Document Format (a file format created by Adobe® Systems). |
| <strong>Peer assessment</strong> | Assessment of a learner by fellow learners typically following the same programme of study. |
| <strong>Personal Digital Assistant</strong> | A small hand-held computer. Depending on level of sophistication may allow e-mail, word processing, music playback, internet access, digital photography or GPS reception, but generally less functional than a Pocket Computer. |
| <strong>Personalisation</strong> | Tools and interfaces focussed on and driven by the individual user's needs, interests and motivations |
| <strong>Podcast</strong> | A recording made available for download from a website or VLE by syndication (a process of making content available to other sites by means of RSS feeds). The term is now also used to cover recordings distributed by email and played back on either a computer or portable MP3 player. |
| <strong>Principles of assessment</strong> | To ensure quality outcomes, assessment should be fair, flexible, valid, and reliable. See also: Fairness, Flexibility, Reliability and Validity. |</p>
<table>
<thead>
<tr>
<th><strong>Proprietary software</strong></th>
<th>Software requiring a licence from a particular company.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Qualification</strong></td>
<td>Qualification is defined as follows: formal certification, issued by a relevant approved body, in recognition that a person has achieved learning outcomes or competencies relevant to identified individual, professional, industry or community needs.</td>
</tr>
<tr>
<td><strong>Question</strong></td>
<td>This is the assessment object. At a minimum it contains the assessment question, the correct response, and the feedback that may be presented to the candidate including hints and solutions. Other information provided on the question may include: [1] author; [2] date written, [3] status ie: new, pilot, active, retired; [4] question type; [5] mapping information ie: relationship with the relevant unit of competency, qualification and Training Package and [6] dimension of competency assessed.</td>
</tr>
<tr>
<td><strong>Question bank</strong></td>
<td>A repository or collection of test questions related to a unit or cluster of units of competency.</td>
</tr>
<tr>
<td><strong>Quiz</strong></td>
<td>An organized collection of test questions selected from a question bank.</td>
</tr>
<tr>
<td><strong>Randomisation</strong></td>
<td>The selection of individual questions from a predefined set. In online testing, randomisation is used to generate alternate test forms from an item bank. It can also be used to alter the sequence in which items are presented to different candidates.</td>
</tr>
<tr>
<td><strong>Reasonable adjustment</strong></td>
<td>Adjustments that can be made to the way in which evidence of candidate performance can be collected. Whilst reasonable adjustments can be made in terms of the way in which evidence of performance is gathered, the evidence criteria for making competent/not yet competent decisions (and/or awarding grades) should not be altered in any way. That is, the standards expected should be the same irrespective of the group and/or individual being assessed; otherwise comparability of standards will be compromised.</td>
</tr>
<tr>
<td><strong>Recognition of Prior Learning (RPL)</strong></td>
<td>An assessment process that assesses an individual’s non-formal and informal learning to determine the extent to which that individual has achieved the required learning outcomes, competency outcomes, or standards for entry to, and/or partial or total completion of, a qualification</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>One of the principles of assessment. There are five types of reliability: internal consistency; parallel forms; split-half; inter-rater; and, intra rater. In general, reliability is an estimate of how accurate or precise the task is as a measurement instrument. Reliability is concerned with how much error is included in the evidence.</td>
</tr>
<tr>
<td><strong>Result</strong></td>
<td>This is the report of the candidate’s interaction with a quiz. This is usually expressed as a score.</td>
</tr>
<tr>
<td>Rules of evidence sufficient, authentic and current</td>
<td>These are closely related to the principles of assessment and provide guidance on the collection of evidence to ensure that it is valid, sufficient, authentic and current.</td>
</tr>
<tr>
<td>SCORM</td>
<td>See Shareable Content Object Reference Model</td>
</tr>
<tr>
<td>Self-assessment</td>
<td>A judgement a learner makes about his or her level of attainment in relation to the stated learning outcomes for the activity or programme</td>
</tr>
<tr>
<td>Shareable Content Object Reference Model</td>
<td>Abbreviated to SCORM. An XML-based framework used to define and access information about learning objects so they can be used within different learning management systems (LMSs). SCORM was developed in response to a United States Department of Defense (DoD) initiative to promote standardization in elearning.</td>
</tr>
<tr>
<td>Simulation</td>
<td>Simulation is a form of evidence gathering that involves the candidate in completing or dealing with a task, activity or problem in an off-the-job situation that replicates the workplace context. Simulations vary from recreating realistic workplace situations such as in the use of flight simulators, through the creation of role plays based on workplace scenarios to the reconstruction of a business situation on a spreadsheet. In developing simulations, the emphasis is not so much on reproducing the external circumstance but on creating situations in which candidates are able to demonstrate: a. technical skills b. underpinning knowledge c. generic skills such as decision making and problem solving d. workplace practices such as effective communication.</td>
</tr>
<tr>
<td>Social networking</td>
<td>Social networking—new means of communicating and sharing information between two or more individuals on an online community.</td>
</tr>
<tr>
<td>Statement of attainment</td>
<td>A statement of attainment is issued by a registered training organisation when an individual has completed one or more units of competency/modules from nationally recognised qualification(s)/course(s).</td>
</tr>
<tr>
<td>Summative assessment</td>
<td>Final assessment of a learner’s achievement, which, if high-stakes, may lead to the awarding of a formal qualification.</td>
</tr>
<tr>
<td>Training Package</td>
<td>A nationally endorsed, integrated set of competency standards, assessment guidelines and AQF qualifications for a specific industry, industry sector or enterprise.</td>
</tr>
<tr>
<td>Unit of competency</td>
<td>Specification of industry knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace.</td>
</tr>
<tr>
<td><strong>Validation</strong></td>
<td>Validation is a quality review process. It involves checking that the assessment tool produced valid, reliable, sufficient, current and authentic evidence to enable reasonable judgements to be made as to whether the requirements of the relevant aspects of the Training Package or accredited course have been met. It includes reviewing and making recommendations for future improvements to the assessment tool, process and/or outcomes.</td>
</tr>
<tr>
<td><strong>Validity</strong></td>
<td>One of the rules of evidence and one of the principles of assessment. There are five major types of validity: face, content, criterion (i.e. predictive and concurrent), construct and consequential. In general, validity is concerned with the appropriateness of the inferences, use and consequences that result from the assessment. In simple terms, it is concerned with the extent to which an assessment decision about a candidate (e.g. competent/not yet competent, a grade and/or a mark), based on the evidence of performance by the candidate, is justified. It requires determining conditions that weaken the truthfulness of the decision, exploring alternative explanations for good or poor performance, and feeding them back into the assessment process to reduce errors when making inferences about competence. Unlike reliability, validity is not simply a property of the assessment tool. As such, an assessment tool designed for a particular purpose and target group may not necessarily lead to valid interpretations of performance and assessment decisions if the tool was used for a different purpose and/or target group.</td>
</tr>
<tr>
<td><strong>Virtual learning environment (VLE)</strong></td>
<td>A virtual learning environment (VLE) is a system designed to support teaching and learning in an educational setting. Virtual learning environments are also known as online classrooms (e.g., elluminate, Centra)</td>
</tr>
<tr>
<td><strong>Virtual world</strong></td>
<td>A virtual world is a genre of online community that often takes the form of a computer-based simulated environment, through which users can interact with one another and use and create objects (<a href="http://en.wikipedia.org/wiki/Virtual_world">http://en.wikipedia.org/wiki/Virtual_world</a>).</td>
</tr>
<tr>
<td><strong>Virus</strong></td>
<td>In a computer context a virus is programme or piece of code that is installed and runs on a computer without the user’s knowledge. Many viruses subsequently have malicious effects including using system resources such as memory and causing damage through deleting or corrupting files. Viruses typically seek to spread to other computers via network connections and manual file transfer operations. Viruses may be detected and deleted using virus scanning software.</td>
</tr>
<tr>
<td><strong>Voice over Internet Protocol (VOIP)</strong></td>
<td>Voice over Internet protocol is a communications protocol that allows for telephonic communication via the Internet.</td>
</tr>
<tr>
<td><strong>W3C</strong></td>
<td>World Wide Web Consortium a global industry consortium run jointly by the Laboratory for Computer Science at the Massachusetts Institute of technology and INRIA in France. It exists to develop common standards for the evolution of the World Wide Web</td>
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<tr>
<td><strong>Web Accessibility Initiative</strong></td>
<td>A section of the W3C that works in coordination with organizations around the world to pursue accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development. Abbreviated to WAI.</td>
</tr>
<tr>
<td><strong>Web Content Accessibility Guidelines</strong></td>
<td>Guidelines explaining how to make Web content accessible to people with disabilities.</td>
</tr>
<tr>
<td><strong>Wiki</strong></td>
<td>A collaborative webpage which can be directly edited by anyone with access to it</td>
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</table>
For more information:
For more information on the Australian Flexible Learning Framework
Phone: (07) 3307 4700
Email: enquiries@flexiblelearning.net.au
Website: flexiblelearning.net.au