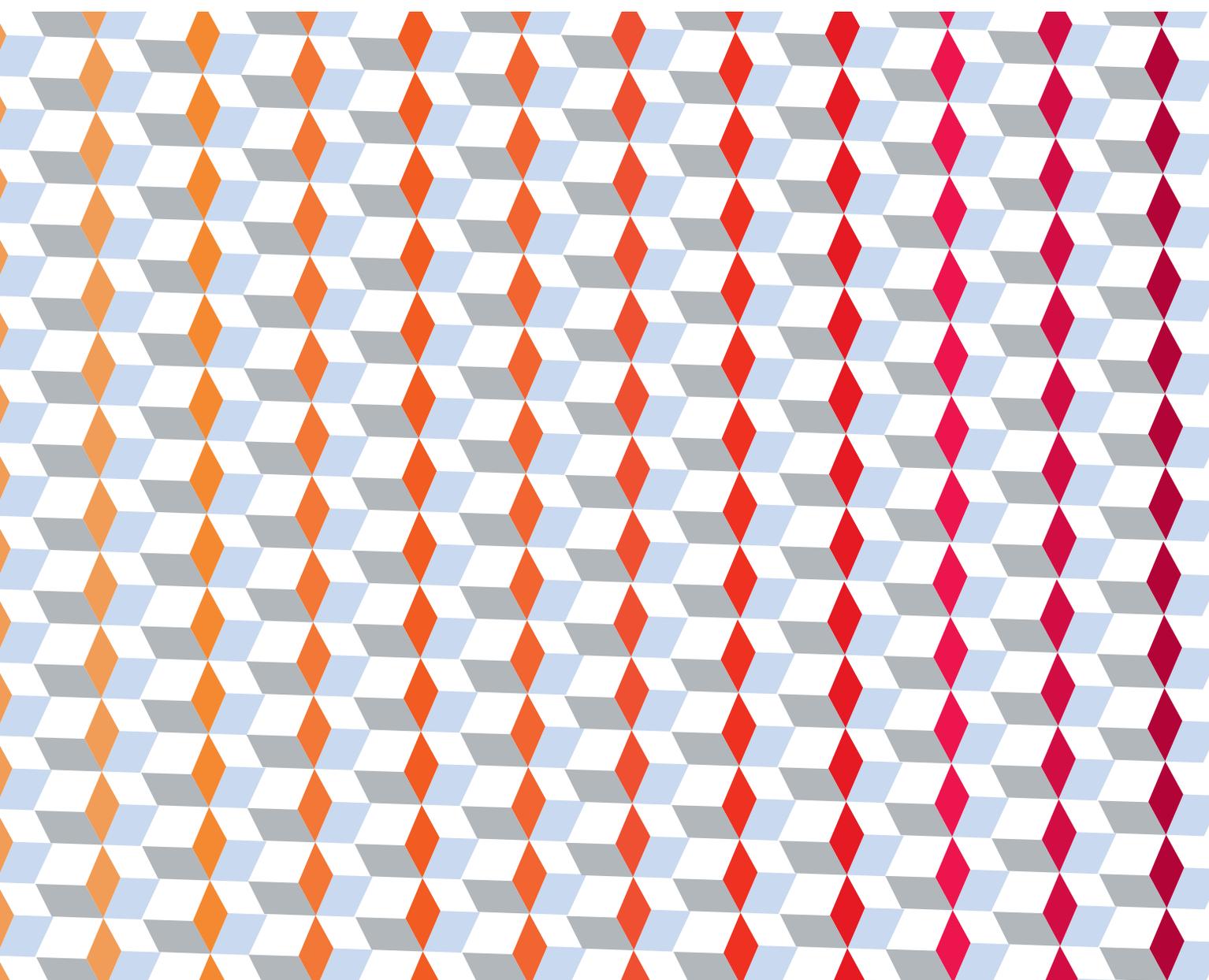


E-assessment guidelines for the VET sector





E-assessment guidelines for the VET sector

Final report

10 August 2011

**flexiblelearning.net.au
www.nqc.tvetaustralia.com.au**



Australian Government

**Department of Education, Employment
and Workplace Relations**

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Disclaimer

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The NQC has noted but not endorsed the *E-assessment Guidelines for the VET sector*. The NQC has agreed that the guidelines are a work in progress and provide a starting point for further work in this area. They should be made available to the NSSC or any other appropriate body for further consideration.

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Background

The use of e-assessment is increasing rapidly in the vocational education and training (VET) sector in Australia.

Recent national benchmarking surveys, conducted by the Australian Flexible Learning Framework (Framework), revealed that over forty per cent of Registered Training Organisations (RTOs) and more than sixty per cent of teachers and trainers are using some form of e-assessment (Australian Flexible Learning Framework 2010).

The most common form of e-assessment appears to be the online quiz (Callan and Clayton, 2010). However the consultations conducted during the development of these guidelines revealed that assessors are using a wide range of e-assessment strategies to collect evidence, provide feedback and record and report assessment outcomes.

Both the Framework and the former National Quality Council have been keen to promote e-assessment and to ensure that e-assessment materials and practices are consistent with the principles of good assessment that are embedded in the Australian Quality Training Framework (AQTF).

To this end, the Council and the Framework commissioned the development of this set of guidelines. These are designed to:

- promote quality e-assessment materials and practices that are consistent with the (AQTF),
- ensure that e-assessment materials are readily accessible across the VET system, and
- encourage further innovation in the design and deployment of e-assessment materials and systems.

It is envisaged that a range of stakeholders will use the guidelines. For example:

- enterprise and industry organisations may use the guidelines to check that e-assessment materials meet the relevant competency standards, are accessible to all employees and are deployed in the most efficient manner.
- RTOs may use the guidelines to inform decisions about the acquisition or development of e-assessment materials and systems.
- assessors may apply the guidelines in deciding how e-assessment materials and systems may be used to enhance the collection of quality evidence, improve feedback to candidates and streamline the processing, storage and retrieval of assessment data.
- AQTF auditors may use the guidelines as a reference when evaluating the e-assessment arrangements employed by RTOs.
- AQTF registering bodies may use the guidelines in providing information to assessors, AQTF auditors and RTOs on the features of quality e-assessment materials and practices.

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 Framework¹. 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 may lead 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 RTOs, candidates, industry, assessors, AQTF² auditors and assessment developers.

Benefits for RTOs:

- More efficient assessment moderation processes – examples include the use of cloud computing, wikis and document sharing to facilitate exchange of materials between assessors.

¹ <http://www.aqf.edu.au/>

² Australian Quality Training Framework - <http://www.nqc.tvetaustralia.com.au/aqtf>

- Improved consistency and speed in processing assessment evidence through combining human and computer marking – examples include the use of online quizzes and Learning Management Systems (LMS).
- Reliable submission and storage of assessment evidence - examples include the use of cloud computing and external storage devices to store and retrieve evidence.
- Improved reliability of assessment through using computer marking – examples include the use of online quizzes, SCORM learning objects and LMS.
- Enhanced learner engagement through interactive assessment with adaptive feedback – examples include the use of online quizzes and LMS.
- Provision of accurate and timely information on the effectiveness of training program design and delivery – examples include the use of wikis, blogs and online surveys to gather candidate and industry feedback.

Benefits for candidates:

- Improved explanation of competency requirements – examples include the use of forums, blogs, virtual classrooms, video streaming and voice over internet protocols (VoIP).
- Gaining immediate feedback – examples include the use of virtual classrooms, online quizzes and LMS.
- Improved opportunities for online peer assessment – examples include the use of email, wikis, blogs, voice boards, virtual classrooms and VoIP.
- Increased opportunities for self-assessment – examples include use of digital stories, wikis, blogs and online quizzes.
- Improved feedback by including links to online support materials – examples include the use of LMS and virtual classrooms.

Benefits for industry:

- Increased capacity to provide on the job assessment and assessment in remote areas – examples include the use of LMS, mobile phones and tablets/e-readers.
- Enhanced capacity to participate in assessment validation – examples include the use of online forums and discussion groups.
- Greater flexibility in the timing of assessments – examples include the use of mobile phones, tablets/e-readers and LMS to facilitate on the job assessment.

Benefits for assessors:

- 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.
- Production of rapid and reliable information on candidate progress – examples include mobile phones, LMS, document sharing and voice over internet protocols.
- 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.

Benefits for AQTF auditors include:

- Rapid retrieval of assessment documentation – examples include the use of LMS and document sharing systems.
- Ease of establishing authenticity of evidence through improved audit trails – examples include the use of email, cloud computing and e-portfolios.

Benefits for assessment developers include:

- Enhanced question styles which incorporate interactivity and multimedia – examples include the use of digital images and audio files to support questioning.
- Greater variety and authenticity in the design of assessments – examples include the use of simulations and virtual worlds.

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, used individually or in combination with other materials, should 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 allows candidates to use a variety of reporting formats, gives them greater control over the assessment process and engages them in making judgements about the benefits of different forms of communication. Figure 1 shows the assessment process.

Figure 1 - The assessment process

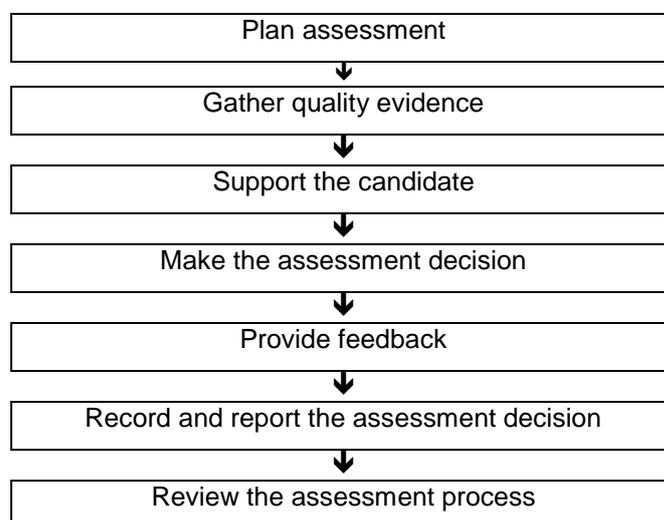


Figure 2, overleaf, provides an overview of how different e-assessment resources and materials may be used to enhance key stages in the assessment process regardless of whether the assessment is being conducted for diagnostic, formative or summative purposes.

Figure 2 – Potential applications of e-assessment resources and materials in the assessment process

| Key stage in assessment process | Reasons for using e-assessment resources and materials | Sample application of e-assessment resources and materials |
|---------------------------------|--|---|
| 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. | <p>E-assessment resources and materials may be used to improve assessment planning through:</p> <ul style="list-style-type: none"> ▪ Clarifying competency requirements using online interaction via forums, blogs, email, voice boards and VoIP. ▪ 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. | <p>E-assessment resources and materials may be used to collect different types of evidence.</p> <ul style="list-style-type: none"> ▪ Real work / real time evidence - technologies such as: education point of view (POV) 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 LMS may be used to test candidate knowledge. VoIP such as Skype or proprietary applications as well 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. |

| Key stage in assessment process | Reasons for using e-assessment resources and materials | Sample application of e-assessment resources and materials |
|--|--|--|
| 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. | <p>E-assessment resources and materials may be used to support candidates. This may include:</p> <ul style="list-style-type: none"> ▪ 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 LMS 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 tools 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 to 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. | <p>E-assessment resources and materials may support assessment decision making through:</p> <ul style="list-style-type: none"> ▪ 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 3G 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 (eg alcohol and drug use) as well as role plays to explore multiple approaches to a work based problem. |

| Key stage in assessment process | Reasons for using e-assessment resources and materials | Sample application of e-assessment resources and materials |
|---|---|--|
| Provide feedback | E-assessment resources and materials are used to provide clear and constructive feedback to candidates which identifies achievable suggestions for improvement. | <p>E-assessment resources and materials may be used to enhance the quality of feedback. For example:</p> <ul style="list-style-type: none"> ▪ Timeliness of feedback may be improved by automated marking of online quizzes as well as 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 VoIP (Skype), social networking (Facebook, Ning), micro blogging tools (Twitter and Yammer) and SMS/IM. ▪ Two way feedback may be facilitated through 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. | <p>E-assessment resources and materials may be used to improve assessment recording and reporting processes. For example:</p> <ul style="list-style-type: none"> ▪ 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, micro blogging, blogs and wikis, may be used to inform and gather feedback from candidates and other relevant parties about assessment decisions. ▪ Mobile phones, tablets, personal data assistant (PDA) and laptops can be used to record assessment decisions and store them until extraction to information management systems. |

| Key stage in assessment process | Reasons for using e-assessment resources and materials | Sample application of e-assessment resources and materials |
|--|---|--|
| 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. | <p>E-assessment resources and materials may be used to review and identify improvements to the assessment process through:</p> <ul style="list-style-type: none"> ▪ 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*³, 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
- 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 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*⁴ 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 summarised in Figure 3 and full descriptions are supplied in the ensuing section of this paper.

³ http://www.flexiblelearning.net.au/files/Eassessment_AQTF_final.pdf

⁴ http://www.xplora.org/ww/en/pub/insight/thematic_dossiers/articles/quality_criteria/equality1.htm

Figure 3: Summary of e-assessment guidelines

| Group | Theme | Guideline |
|--|---|---|
| Infrastructure provision | 1.1 Web based functionality | E-assessment providers must meet minimum web based functionality requirements to support e-assessment |
| | 1.2 Desktop functionality | E-assessment providers must meet minimum desktop functionality requirements to support e-assessment. |
| Technical guidelines | 2.1 Accessibility | E-assessment providers must confirm that e-assessment materials are accessible to people with disabilities |
| | 2.2 Portability | E-assessment resources and materials must be transportable between different repositories and learning management systems. |
| | 2.3 Desk top content formats | E-assessment resources and materials must meet the standard for desk top content formats. |
| | 2.4 Mobile content formats | E-assessment resources and materials must meet the standards for mobile content formats. |
| | 2.5 Metadata | To support discovery and re-use of e- assessment resources and materials across the VET system, assessment content should be described using the Vetadata standard. |
| E-assessment development and maintenance | 3.1 Benchmarks | E-assessment resources and materials must meet the requirements of the relevant Training Package or accredited course. |
| | 3.2 Principles of assessment | E-assessment resources and materials must provide for valid, reliable, fair and flexible assessment |
| | 3.3 Personalisation | E-assessment resources and materials must provide for personalisation of assessment. |
| | 3.4 Validation | E-assessment resources and materials must be systematically validated. |
| | 3.5 Workplace and regulatory requirements | E-assessment resources and materials must address workplace and regulatory requirements |
| | 3.6 Candidate authentication and security | E-assessment resources and materials must provide for candidate authentication and the security of both the assessment process and assessment data. |
| | 3.7 Maintenance | E-assessment resources and materials must be maintained. |

| | | |
|------------------------|--|---|
| E-assessment practices | 4.1 Collaboration | E-assessment must be developed in consultation with industry and other stakeholders. |
| | 4.2 Evidence collection that meets Rules of Evidence | E-assessment involves collecting quality evidence to support assessment decision-making. |
| | 4.3 Feedback | E-assessment feedback must identify candidate strengths, areas for improvement and ways in which performance may be improved. |
| | 4.4 Assessment judgements | E-assessment involves assessors in evaluating evidence and making assessment judgments. |
| | 4.5 Recording and reporting e-assessment outcomes | E-assessment outcomes must be accurately recorded, reported and stored. |
| | 4.6 Complaints and appeals | E-assessment processes must provide for complaints and appeals from candidates. |
| E-assessment context | 5.1 E-assessment support services | E-assessment providers must have appropriate support services for assessors and candidates. |
| | 5.2 E-assessment deployment strategy | E-assessment providers should have an e-assessment deployment strategy. |

Full descriptions of the 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

The VET Teacher E-learning Toolkit⁵ 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 (SOEs) 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

⁵ <http://e-standards.flexiblelearning.net.au/support/networks.htm>

The 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 SOEs 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 personal digital assistants (PDAs).

2 Technical guidelines

2.1 Accessibility

Guideline

E-assessment providers must confirm that e-assessment materials are accessible to people with disabilities.

Explanation

An international set of standards has been developed to ensure that all e-learning materials are accessible to people with disabilities. These standards are organized under four principles: perceivable, operable, understandable, and robust.

Relevant standard

All e-assessment materials used in the national training system must meet Web Content Accessibility Guidelines (WCAG) 2.0 Level AA, that is, all criteria for Level A plus those in Level AA. These may be viewed at <http://www.w3.org/WAI/intro/wcag>.

2.2 Portability

Guideline

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

Explanation

E-assessment resources must be portable between different web browsers, platforms and learning management systems. This 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 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 relevant standards for portability approved by the E Standards Expert Group⁶ for use in the Australian VET system in 2011.

Note

1. The Vetadata 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 formats of e-assessment resources. Formats for content to be viewed in a web browser include the mark-up 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 (fixed display)
- text documents (standard)
- presentation formats

⁶ <http://e-standards.flexiblelearning.net.au/support/eeg.htm>

- 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 Vetadata 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 Vetadata 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

To support discovery and re-use of e-assessment resources and materials across the VET system, assessment content should be described using the Vetadata standard.

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 (eg size and format). Information commonly stored as a metadata record may include authorship, title, publication date, description, copyright information, and subject keywords.

Vetadata, which was approved by the Flexible Learning Advisory Group (FLAG)⁷ and released for use in January 2005, is the metadata system used in the Australian VET sector. It provides structured descriptions of VET learning resources. Vetadata 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 Vetadata 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 qualification or accredited course must be addressed when developing e-assessments. These include:

- units of competency, including:
 - elements
 - performance criteria
 - range statement
 - required knowledge and skills

⁷ <http://www.flag.edu.au/>

- evidence guide.
- assessment guidelines
- employability skills.

Standard

Australian Quality Training Framework Standard 1: The Registered Training Organisation (RTO) provides quality training and assessment across all of its operations.

- Element 1.5a: Assessment including recognition of prior learning (RPL) meets the requirements of the relevant Training Package or accredited course.

3.2 Principles of assessment

Guideline

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

Explanation

E-assessment processes and materials must satisfy the principles of assessment. To ensure quality outcomes, e-assessment should be fair, flexible, valid, and reliable.

Validity is concerned with the extent to which an assessment decision about whether a candidate is competent or not yet competent, based on the evidence of performance by the candidate, is justified.

Whereas 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.

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.

- Element 1.5b Assessment including RPL is conducted in accordance with the principles of assessment and the rules of evidence.

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.

- Element 1.5d: Assessment including 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.

- Element 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 that edited evidence submitted by candidates is validated by a third party

- ensure that the use of e-assessment tools do not result in the loss of candidates' intellectual property or breach the rights of copyright holders
- ensure that e-assessment tools or resources do not breach the privacy and / or confidentiality of candidates and others associated with the assessment process
- 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

Australian Quality Training Framework Standard 1: The RTO provides quality training and assessment across all of its operations.

- Element 1.5b Assessment including RPL is conducted in accordance with the principles of assessment and the rules of evidence.

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 of 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, RTOs 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 must be developed in consultation 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 that meet the Rules of Evidence

Guideline

E-assessment involves collecting quality evidence to support 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 e- assessment decision making must be valid, sufficient, authentic and current.

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 (eg 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.

Sufficiency relates to the quality and quantity of evidence assessed. It requires collection of enough appropriate evidence to ensure that all aspects of competency have been satisfied and that competency can be demonstrated repeatedly. Supplementary sources of evidence may be necessary. The specific evidence requirements of each unit of competency provide advice on sufficiency.

In e-assessment, currency relates to the age of the evidence presented by a candidate to demonstrate that they are still competent. Competency requires demonstration of current performance, so the evidence collected must be from either the present or the very recent past.

To accept evidence as authentic, an assessor must be assured that the evidence presented for assessment is the candidate's own work.

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 LMS 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. Specifically, Element 1.5b: Assessment including RPL is conducted in accordance with the principles of assessment and the rules of evidence.
- E-portfolios should comply with the functional specifications for e-portfolio system implementers and developers in *The VET E-portfolio Roadmap: A strategic roadmap for e-portfolios to support lifelong learning*⁸, Commonwealth of Australia, 2009.
- Online quizzes should be consistent with the IMS Question and Test Interoperability standards. **Note:** Further work may be required to identify which parts of this standard are recommended for VET sector.

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 suggestion 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.

⁸ http://www.flexiblelearning.net.au/files/VETePortfolioRoadmap_web.pdf

4.4 Assessment judgements

Guideline

E-assessment involves assessors in 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 principles of assessment and addresses the full requirements of the competency standards, of the Training Package or the accredited course.

Increasingly, assessors are using e-assessment resources and materials to assist with the processing of collected evidence. For example, computer 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 and may be used to provide evidence of the demonstration of competency over time

While e-assessment resources and materials may provide more timely, rich and diverse evidence, assessors must 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.
- Element 1.5: Assessment including RPL - a) meets the requirements of the relevant Training Package or accredited course, b) is conducted in accordance with the principles of assessment and the rules of evidence, c) meets workplace and, where relevant, regulatory requirements and d) is systematically validated.

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 processes must provide for complaints and appeals from candidates.

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 assessors and candidates.

Explanation

Providers of e-assessment services must have appropriate support services for assessors and candidates, including:

- technical and administrative support
- training for candidates on e-assessment processes and equipment
- professional development programs for assessors, 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

Australian Quality Training Framework. Standard 2: The RTO adheres to principles of access and equity and maximises outcomes for its clients.

- Element 2.1: The RTO establishes the needs of clients, and delivers services to meet these needs.
- Element 2.3: Before clients enrol or enter into an agreement, the RTO informs them about the training, assessment and support services to be provided, and about their rights and obligations.

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.

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E-assessment glossary

| Term | Definition |
|------------------------------|---|
| Acceptable use policy | 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. |
| Accessibility | 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 special software access tools (such as screen readers, screen magnifiers, Braille readers and speech recognition software). |
| Assessment | 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. |
| Assessment guidelines | The endorsed component of a Training Package that underpins assessment and sets out the industry's approach to valid, reliable, flexible and fair assessment. |
| Assessment judgement | 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. |
| Assessment process | 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. |
| Assessment tools | 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 (ie the assessment decision making rules). It also includes the administration, recording and reporting requirements. |
| Assessor | An individual or organisation responsible for the assessment of units of competency in accordance with the Australian Quality Training Framework. |

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| Australian Qualifications Framework (AQF) | <p>The policy framework that defines all qualifications recognised nationally in post-compulsory education and training in Australia.</p> <p>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.</p> |
| Australian Quality Training Framework (AQTF) | <p>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.</p> <p>The AQTF comprises:</p> <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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 | <p>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.</p> |
| Blog (web log) | <p>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.</p> |
| Candidate | <p>A candidate is any person presenting for assessment. The candidate may be:</p> <ul style="list-style-type: none"> • 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. |
| Case studies | <p>Case studies provide examples of real life scenarios for problem solving and decision making.</p> |

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| Chat sessions | Tools and services which allow participants to log in to a virtual room and communicate together in real time from their computer. |
| Computer marked quizzes | Computer marked quizzes provide options for objective testing using a database of questions developed by a teacher and marked by the computer. |
| 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 internal server (http://en.wikipedia.org/wiki/Cloud_computing). |
| 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 organising 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. |
| Digital video | The power of video as a teaching tool, coupled with the versatility of the digital medium and the sharing compatibilities of social networking software. |
| 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: <ul style="list-style-type: none"> • author questions • create assessments from the questions • publish assessments • deliver assessments to students • record students' performance on assessments. |
| e-portfolio | Collections of work (files, graphics, photos, curriculum vitae, multimedia etc) used to demonstrate competence that grows with the learner through a life long cycle of training and employment. The purpose of most e-portfolios is to provide learners with a space to record, reflect and present information about themselves and their education and training experiences for the purpose of learning, assessment and making transitions, particularly to employment. |
| Evidence and | Evidence is information gathered to support a judgement of |

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| ‘quality’ evidence | <p>competence against the specifications of the relevant unit or units of competency. Evidence can take many forms and be gathered from a number of sources. Assessors often categorise evidence in different ways, for example:</p> <ul style="list-style-type: none"> • 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. <p>Quality evidence is valid, authentic, sufficient and current evidence that enables the assessor to make the assessment judgement.</p> |
| Evidence gathering techniques | <p>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> <p>In an e-assessment context, this could include”</p> <ul style="list-style-type: none"> • real work / real time evidence • simulation and demonstrations • questioning • e-portfolios |
| Fairness | <p>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.</p> |
| Feed forward | <p>Advice on forthcoming work based on feedback previously given.</p> |
| Feedback | <p>Qualitative information about their performance given to learners after an assessment.</p> |
| Flexibility | <p>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.</p> |
| Formative assessment | <p>Assessment that provides developmental feedback to a learner on his/her current understanding or skills.</p> |

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| High-stakes assessment | High-stakes assessments are assessments that have important consequences for the candidate. Passing has important benefits, such as gaining an occupational license. Failing has important disadvantages, such as not being able to work legally in an occupational area or being forced to take remedial classes until the assessment can be passed. A high-stakes assessment has major consequences or is the basis of a major decision. Under a more precise definition, a high-stakes assessment is any assessment that: [1] is a single, defined assessment, [2] has clear line drawn between those who pass and those who fail, and [3] has direct consequences for passing or failing (something "at stake"). |
| Interoperability | 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. |
| Information technology | Information technology refers to both the hardware and software that are used to store, retrieve, and manipulate information. |
| Item | Smallest separately identified question or task within an assessment plus its associated information (eg 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. |
| Item bank | 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. |
| Journals | Digital tools for learners to record their feelings, observations and reactions and to reflect on their learning. |
| JPEG | 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. |
| Learning Management System | A learning management system (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. |
| Login | The unique user name and password entered to access a computer system. |
| Low-stakes assessment | Low-stakes assessments are assessments that encourage learner and trainer reflection and are used to inform the teaching and learning process. |
| Management information system | An automated system designed to provide progress and status information to management as an aid to decision making. |

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| Metadata | Reference data about a piece of information (eg an assessment item) that enables it to be systematically stored in and retrieved from a database (eg 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. |
| Micro blogging | Micro blogging is a broadcast medium in the form of blogging. A micro blog differs from a traditional blog in that its content is typically smaller in both actual and aggregate file size. Micro blogs allow users to exchange small elements of content such as short sentences, individual images, or video links. |
| Mobile assessment | 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 personal digital assistants (PDAs). |
| Moderation | 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. |
| Moderator | A person responsible for carrying out moderation processes. A moderator may be external or internal to the organisation. |
| Moodle | An open source Learning Management System. |
| National recognition | <p>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.</p> <p>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.</p> <p>Recognition by all state and territory course-accrediting bodies and registering bodies of each other's accredited courses and accreditation decisions.</p> |
| National Skills Framework (NSF) | The system of vocational education and training (VET) that: (a) applies nationally; (b) is endorsed by the Ministerial Council for Tertiary Education and Employment (MCTEE). |
| National Training Information Service (NTIS) | The national register for recording information about RTOs, Training Packages and accredited courses. NTIS is part of the National Skills Framework. This is soon to be replaced by training.gov.au. |
| Navigation | 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. |

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| Open source | Software applications and components for which the source code is freely available for use or modification as required. |
| PDF | Portable Document Format (a file format created by Adobe® Systems). |
| Peer assessment | Assessment of a learner by fellow learners typically following the same programme of study. |
| Peer-to-peer collaboration | Using the potential of peer-to-peer activities and communication to enhance learning |
| Personal digital assistant (PDA) | 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. |
| Personalisation | Tools and interfaces focussed on and driven by the individual user's needs, interests and motivations. |
| Podcast | 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. |
| Principles of assessment | To ensure quality outcomes, assessment should be fair, flexible, valid, and reliable. See also: fairness, flexibility, reliability and validity. |
| Project based learning | Focussed activities integrating a range of skills to develop an end product |
| Proprietary software | Software requiring a licence from a particular company. |
| Qualification | 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. |
| Question | 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. |
| Question bank | A repository or collection of test questions related to a unit or cluster of units of competency. |
| Quiz | An organised collection of test questions selected from a question bank. |

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| Randomisation | 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. |
| Reasonable adjustment | 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. |
| Recognition of Prior Learning (RPL) | 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. |
| Reliability | 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. |
| Rules of evidence | 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. |
| SCORM | See Shareable Content Object Reference Model |
| Self-assessment | A judgement a learner makes about his or her level of attainment in relation to the stated learning outcomes for the activity or programme |
| Shareable Content Object Reference Model (SCORM) | 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 standardisation in e-learning. |
| Simulation | 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: <ul style="list-style-type: none"> a. technical skills b. underpinning knowledge |

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| | <p>c. generic skills such as decision making and problem solving</p> <p>d. workplace practices such as effective communication.</p> |
| Social networking | Social networking is a means of communicating and sharing information between two or more individuals on an online community. |
| Statement of attainment | A statement of attainment is issued by an RTO when an individual has completed one or more units of competency/modules from nationally recognised qualification(s)/course(s). |
| Student Management System | A system that documents student enrolment as well as recording and reporting of student outcomes. |
| Summative assessment | Final assessment of a learner's achievement which may lead to the awarding of a formal qualification. |
| Training Package | A nationally endorsed, integrated set of competency standards, assessment guidelines and AQF qualifications for a specific industry, industry sector or enterprise. |
| Unit of competency | Specification of industry knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace. |
| Validation | 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. |
| Validity | One of the principles of assessment and also one of the rules of evidence. Assessment is valid when the process is sound and assesses what it claims to assess. Validity requires that: (a) assessment against the units of competency must cover the broad range of skills and knowledge that are essential to competent performance; (b) assessment of knowledge and skills must be integrated with their practical application; and (c) judgement of competence must be based on sufficient evidence. |
| Virtual classrooms | A range of technologies, teaching strategies, presentations and learning activities which encourage and promote real time voice interactions between a group of learners and trainers online. |
| Virtual learning environment (VLE) | A virtual learning environment (VLE) is a system designed to support teaching and learning in an educational setting. VLEs are also known as online classrooms (eg, Elluminate, Centra). |

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| Virtual world | 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. |
| Virus | 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. |
| Voice boards | Voice boards are online discussion boards that use voice postings rather than text as the primary means of communicating. |
| Voice over Internet Protocol (VoIP) | Voice over internet protocol is a communications protocol that allows for telephonic communication via the Internet. |
| W3C | 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. |
| Web Accessibility Initiative | A section of the W3C that works in coordination with organisations 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. |
| Web Content Accessibility Guidelines | Guidelines explaining how to make Web content accessible to people with disabilities. |
| Wiki | A collaborative webpage which can be directly edited by anyone with access to it. |

For more information:

Benchmarking and Research business activity

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