Introduction

The way students are assessed is central to the student learning experience. Getting assessment right is therefore of paramount importance. The student body in 2010 expects and deserves assessment practices that work for them – assessment that not just a means to an end, but part of a process of continual learning.

The idea that assessment should only be based on an end-of-year exam or two or three essays is outdated, and students deserve a more continual monitoring of their progress in order to become better learners.

What is e-assessment?

What is meant by 'e-assessment'? A broad definition is 'the use of computers and digital technologies to facilitate assessment'.

JISC defines e-assessment as “the end-to-end electronic assessment processes where ICT is used for the presentation of assessment activity, and the recording of responses. This includes the end-to-end assessment process from the perspective of learners, tutors, learning establishments, awarding bodies and regulators, and the general public” (JISC 2007).

The delivery of e-assessment for students can vary. Some of the most popular methods of delivering e-assessment are discussed below.

Virtual learning environments

The vast majority of universities now have virtual learning environments (VLEs). These are usually used by students to access course resources, check timetables and assignment marks, and contact other students and academics.

VLEs can also serve a very useful assessment and feedback purpose.

- Blackboard

This American software company designed the Blackboard VLE. Already widely used across the sector, Blackboard has the capability to create quizzes and online tests, low-stake assessments, and also collect student work. Blackboard also enables institutions to create student surveys, which could be used as a vehicle for student feedback on issues such as how they feel their course is progressing.

More information can be found on the Blackboard website:

www.blackboard.com

- Moodle

Similar to Blackboard, Moodle can also facilitate online testing. It has a wide variety of question types to choose from, and is considered to be the most sophisticated aspect of this particular VLE (Cole and Foster, 2007). It can also host forums, databases and wikis.

www.moodle.org

E-portfolios

"An e-portfolio is a purposeful aggregation of digital items - ideas, evidence, reflections, feedback etc, which 'presents' a selected audience with evidence of a person's learning and/or ability."

Sutherland and Powell, 2007

An e-portfolio is a collection of electronic evidence assembled and managed by
a student. In much the same way as a traditional portfolio of work, it consists of a number of different pieces collated throughout a module or course, which is then assessed as a whole.

Already popular in further education, e-portfolios are beginning to be used by some courses at the higher education level. They are particularly relevant to students on more vocational courses, where essay writing or written tests are rarely used.

E-portfolios can be highly cost-effective, as they can reduce material costs. They can also make it easier for students to keep a record of their work in a secure environment, where they are able to draw on it at a later date.

From a staff perspective, e-portfolios allow for easier monitoring of student progress throughout a course or module. Additionally, having a large collection of students’ work from the same course helps lecturers to identify areas which may need greater attention.

There is a growing number of e-portfolio software applications available. The most popular ones are listed below.

- **Paperfree**
  
  Paperfree is the leading vocational e-portfolio provider, established in 1996.
  
  www.paperfree.co.uk

- **Eportfolio**
  
  This application allows instructors, groups, departments or institutions to design portfolio assignments for class, institutional and/or programmatic assessment. Projects can encourage reflection and a holistic view of work. Rubrics can be created to provide guidance on quality and expectations.
  
  www.eportfolio.org

- **PebblePad**
  
  PebblePad describes itself as a personal learning system which is designed for personal and professional development and also for learning, teaching and assessment.
  
  www.pebblepad.com

- **Questionmark Perception™**
  
  Questionmark Perception operates primarily as e-assessment software. Many UK higher education institutions use the software, including Dundee, Ulster, Southampton, Plymouth and Loughborough Universities.

  “The Questionmark Perception assessment management system enables trainers, educators and testing professionals to author, schedule, deliver, and report on surveys, quizzes, tests and exams.”

  (www.questionmark.co.uk)

  Questionmark supports all forms of assessment including diagnostic, formative and summative. The software has high-level security which is suitable for high-stake or final assessment.

  The security feature of this software (Questionmark Secure) reduces the possibility of students cheating during assessment. It prevents students from ‘copying or printing exam material, ‘accidentally’ exiting a test, or gaining access to materials on their computers or the Internet that could give an unfair advantage. When a participant takes an online assessment using Questionmark Secure, the secure browser displays the HTML content of the assessment but disables key functions such as task-switching, right click options, screen captures, menus and printing.”


  www.questionmark.com

**Why E-assessment?**

E-assessment has the potential to improve the entire assessment process. Primarily, e-assessment enables greater personalisation and increased effectiveness for an increasingly diverse student population, and significantly improves the student learning experience.

- **Formative and summative assessment**
  
  The applicability of e-assessment to all levels of assessment varies. The area where e-assessment holds the greatest potential is with more informal, formative assessment. Here, shorter and quicker (even instant) e-assessment can provide students with
more continuous support through instant or more regular feedback and guidance on their performance.

For formal, summative assessment there are admittedly more obstacles to overcome before implementing widespread e-assessment. However, the potential of ICT for summative assessment is very real. As explained below, software enabling secure assessment is ever-expanding. Institutions should be looking for serious alternatives to traditional essays and exams for summative assessment.

**Personalisation**

Being given greater control over when, where and how assessment takes place allows for a significant shift in assessment control from the institution to the student. The traditional system of assessment in the majority of institutions consists of on-campus exams, physical essay and assignment submissions and lab tests. The applicability of e-assessment for some subjects is questionable, but for others, e-assessment means that exams and essays could all become paper-free and take place off campus.

For many students, traditional assessment is impractical and undesirable. It demands a visit to campus, which may pose a problem. For students who study part-time, distance learners or those with other responsibilities outside of the institution, being able to be assessed remotely from a home computer would make life significantly easier, and has the potential to stimulate improved learning.

“E-assessment can support personalisation. Any time, anywhere assessments benefit learners for whom a traditional assessment regime presents difficulties due to distance, disability, illness or work commitments. On-demand, summative assessments, when available, increase participation in learning by enabling learners to progress at a pace, and in a way, appropriate to them.”

*Effective Practice with e-Assessment. Joint Information Systems Committee (JISC), 2007*

Having the freedom to decide when to undertake their assessment within a specific timeframe allows students to be at their very best and most prepared.

E-assessment can also allow for much greater flexibility in the way students can choose to be assessed, reflecting the fact that ways of learning vary from student to student. For formative assessment, courses could give students the option to complete a short quiz online or on paper, submit a presentation or complete an online task. The flexibility of e-assessment widens the possibility of giving students greater ownership of their assessment, and therefore potentially improving their achievements.

**Improving the learning experience**

Technology has tremendous potential, particularly for formative assessment. Assessment methods such as weekly quizzes, end- or start-of-module multiple-choice questions or online tests allow for instant feedback. These assessment methods enable learners to monitor their own progress, with the primary emphasis shifted from one-time-only final feedback when the course has already been completed, when it is arguably too late.

Getting regular feedback throughout a module through informal, formative e-assessment enables students to identify areas of weakness within their understanding, prior to undertaking more final summative assessment.

E-assessment therefore has an important role to play in the continuous improvement of learners.

Research has shown that formative, computer-based assessment improves performance among learners (Charman and Elmes, 1998 and Sly and Rennie, 1999). This may be partly because it provides “rapid formative feedback to students, reduced marking load for staff… [and] a closer match between assessment and learning environments” (Ricketts and Wilks, 2002). The technological world we live in means that many students beginning undergraduate courses are already comfortable using ICT.
Obviously this is not the case for all students, and training is a realistic requirement when introducing e-assessment. However, based on the direction in which both the working and social worlds are headed, computer-based assessment and the skills it teaches make sense for students.

**Allows for anonymous assessment**

As explained in the anonymous marking briefing, it is vital that students submit work without fearing prejudice or discrimination. Anonymous marking ensures fairness and equality for all students throughout their studies. NUS has long campaigned for anonymous marking to be introduced sector-wide, and e-assessment can be an easy step towards ensuring fairer marking systems.

Much of the e-assessment and e-submission software available allows students to submit work by student number, or other numerical coding system.

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**E-submission**

With an increase in mature, distance and part-time learners, the UK student body is more diverse than ever before. This, combined with the increased personal cost of completing a course in higher education, means the demand by students for more efficient and practical means of assessment and feedback is at the forefront of NUS’ campaigns.

**Why e-submission?**

Similar to e-assessment, e-submission can greatly enhance the student learning experience. Importantly, e-submission also provides options that support 21st-century students.

Many students’ unions have found from internal research and text comments in the National Student Survey that e-submission is in demand. It allows for easy submission accessibility for all students, saving them both time and money.

Additionally, e-submission can be of huge benefit to academic and administrative staff. It allows staff to tell quickly and easily which students have not submitted work, as well as check word counts, assignment lengths and run plagiarism checks. E-submission also enables academics to mark assignments remotely, off campus.

Importantly, e-submission allows for paper-free assessment, saving both money (printing costs) and reducing the environmental impact of the institution.

Allowing the e-submission of assignments greatly increases the possibility of providing online feedback, as many software programs such as Turnitin (discussed below) allow for staff to send e-feedback to students. National Student Survey scores consistently show that feedback is an issue for many students, and e-submission has the potential to go some way to combat this dissatisfaction.

**E-submission software**

There are a number of existing software programs available which enable easy e-submission. Some of the main systems currently in use are listed below.

- **Turnitin**

  Turnitin is now widely used across the higher education sector. It is primarily plagiarism detection software, but it also supports online submission and has more extensive uses.

  This extremely sophisticated software is based online. Universities pay a subscription fee, which enables them or their students to submit assignments to be checked for plagiarism against an extensive content database, including web content, proprietary content from subscription-based publications, and assignments previously submitted to Turnitin.
The software can then produce ‘originality reports’, which highlight areas of plagiarism or incorrect citation.

The Turnitin brand has also expanded into paperless and online marking and online peer reviewing through new software called GradeMark and PeerMark.

Together with Turnitin, these new programs allow for a complete online and paperfree assessment process from e-submission to peer review and e-feedback.

www.turnitin.com

- Virtual learning environments.

  The VLEs listed below all have e-submission capabilities.

- Blackboard: Blackboard’s assignment feature enables e-submission of assessments via the Blackboard interface.

- Moodle: Institutions set up the use of Turnitin via Moodle.

- PebblePad: The e-portfolio aspect of PebblePad allows students to submit a collection of work in a portfolio format.

- Email.

  Submitting assessments via email is probably one of the simplest ways to send assessments to tutors electronically. If this method is used it is important that emails containing work for assessment are receipted, so that students and tutors can record submissions.

  Although email does work as an e-submission method, other existing software is much more sophisticated and more appropriate to handle large numbers of assessments such as those outlined above. E-mails are often harder to organise, and don’t guarantee the safe submission of assessment.

Counter-arguments - dealing with critics

"We can’t afford to invest in e-assessment"

A greater incorporation of e-assessment into higher education will mean that some institutions may need to make initial investment in ensuring IT facilities are sufficient. However, e-assessment also provides opportunities for great savings. Printing costs, exam invigilator expenses and the extra opening hours of administration offices to receive assignments can all be reduced or eliminated by adopting e-assessment.

Many institutions will already have appropriate IT facilities and the capability to introduce e-assessment immediately. Students’ unions should check the current IT situation in their institution and then plan their arguments for e-assessment from there.

Fundamentally, the improvement of the assessment and feedback aspect of the student experience, and ensuring that assessment is part of the process of learning, is critical to students and institutions. Therefore, it makes sense for students’ unions to demand the necessary investments in e-assessment to deliver improvements for their student members.

"E-assessment is too insecure and vulnerable to network failures or hardware breakdowns”

Network failures or problems with computer hardware can happen, so provision for this should be incorporated into submission guidelines for student and staff.

If there is a network failure and e-assessment and e-submission software cannot be accessed, then assignment deadlines should be extended until the following day, or the nearest available submission/assessment time.

In terms of computer hardware problems, if a university computer is affected then the deadline could be extended. However, as with many traditional assessment policies, if a student’s personal computer has broken
this is not a satisfactory reason to extend a deadline.

It must be reiterated that the likelihood of a network failure is low. The available software is tried and tested, and widely used.

“What about students without access to computers or the Internet – e-assessment doesn’t benefit those students”

Access to a computer is obviously a necessity for e-assessment and e-submission. Using a computer to submit an essay online helps to save on printing costs, but does not make it any easier for those who have difficulties accessing computers.

For students who are unable to submit work online, computers should be made available on campus or traditional methods of submission should be allowed.

“There are security issues around e-assessment – how do we know students are not cheating?”

When summative assessment is conducted electronically it would be appropriate to conduct this on-campus, in designated computer labs.

However, for formative assessment which can be completed off campus, there should be greater trust in students. Additionally, many assessment software tools disable certain computer features during assessment, meaning you cannot move away from the browser.

“E-assessment means more work for academics”

As administrators usually organise the collection of assignments, some institutions fear that e-assessment will place more responsibilities on the shoulders of academic staff. If anything, the use of e-assessment makes life easier for tutors. Once the initial assessment has been created, and invitations sent, many formative assessment tools require no further action from the tutor. For short online tests the results and feedback can be instantaneous and computer-generated, resulting in a reduced workload for many tutors.

Useful Resources


JISC (2007) *Effective Practice with e-Assessment: An overview of technologies, polices and practice in further and higher education*. JISC.


www.jisc.ac.uk
www.heacademy.ac.uk
www.turnitin.com
www.questionmark.com
www.blackboard.com
www.moodle.org
www.paperfree.co.uk
www.eportfolio.org
www.pebblepad.com