e-Assessment

Knowledge assessment

What is e-Assessment?

e-Assessment or ***electronic assessment*** is one of the domains of e-Learning,[1] and usually refers to an electronically delivered assessment.[2)3)]

The Joint Information Systems Committee (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.*"[4], or
- "*… a range of activities in which **digital technologies are used in assessment**. Such activities include the designing and delivery of assessments, marking – by computers, or humans assisted by scanners and online tools – and all processes of reporting, storing and transferring of data associated with public and internal assessments.*"

e-Assessment types

e-Assessment is usually divided into divided into:

- **computer-assisted assessment or computer-aided assessment** (CAA) - "*practice that relies in part on computers – for example, use of online discussion forums for peer-assessment*"
- **computer-mediated assessment** (CMA)
- **computer-based assessment** (CBA) - "*assessments delivered and marked by computer*"
- **online assessment**.

Advantages of e-assessment

As learning is nowadays more and more facilitated by electronic technologies, it is expected that they will prove to be central in the assessment process too. Technology is expected to facilitate testing and enable authentic assessment.[5)]

- "*The variety of applications of e-assessment reported and their innovation and general effectiveness indicate the potential of e-assessment to significantly enhance the learning environment and the outcomes for students in a wide range of disciplines and applications.*"[6)]

The advantages of e-Assessment can roughly be divided into following categories:[7)]

- **Interface richness.** Interface richness enables for example dynamic presentation of the test content, adaptive level (*tailored testing*) and speed of the assessment or innovative item

formats.[8)]

- **Accessibility.** An e-assessment can be accessed using just a personal computer, and Internet connection. In case of a survey, this also allows a much more diverse sample of population to take the test.[9)]
- **Standardization.** The test is presented at the same time (if desired) in the same format to everyone.
- **Results processing.** Even if automatic correction and grading is implemented just partly, it saves time and human resources, is cheaper and enables faster and richer feedback. It also enables easier results processing to get feedback on the test items and overall result of all attendants. Also, test responses do not contain handwriting, an element prone to subjective judgements of the evaluator.
- **Measuring additional parameters.** Computers enable measuring parameters like time required for making a response[10)], or record when an answer previously answered question was changed.

Disadvantages of e-assessment

Disadvantages of e-assessment include:

- **Computer proficiency and typing skills requirement.** Participants with less computer proficiency or typing skills will require more time or help.[11)12)]
- **Computer screen properties and limitations.** Although the characteristics of display devices have improved drastically during the last years, "*the amount of information comfortably presented in a computer display is only about one third of that presented by a standard piece of paper*"[13)], reading from a computer screen is still slower and more tiring than reading from a sheet of paper[14)], and some studies suggest students who read texts from a computer screen find those texts "*significantly more difficult to understand, less interesting, and the authors less credible.*"[15)]
- **Computer hardware and software characteristics.** A malfunction, need for a restart or software failure can all affect the course of an assessment.
- **Costs related to the start-up and maintenance**. These costs include hardware, software, networking, and wiring costs, and the development and maintenance of item pools.[16)]

e-Assessment system architecture

Features of an e-assessment system

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