

# E-Assessment

Valerie Shute and Yoon Jeon Kim, Florida State University

## Contents

- [1 Definition](#)
- [2 Comments on the history](#)
- [3 Related terms](#)
- [4 Translation issues](#)
- [5 Disciplinary issues](#)
- [6 Key references](#)

### Definition

e-assessment refers to assessment methods and practices that emphasize the role of information technology relative to measuring students' learning.

### Comments on the history

The use of computer technology in educational assessment has a decades-long history. Computers were initially adopted for assessment in the 1970s in order to reduce human raters' scoring workload. Since then, assessment has progressed in conjunction with technological advancements. Computer-based assessment has become widespread in large-scale assessments, such as language testing and college entrance examinations, due to its convenience and accuracy. The terms "computer-adaptive testing" and "web-based assessment" are used interchangeably with "computer-based assessment", but they are in fact two special cases of computer-based assessment. That is, computer-adaptive testing has a stronger emphasis on nonlinear item selection by rapidly estimating the examinee's ability based on his/her previous responses. Web-based assessment refers to computer-based assessment that is typically delivered via online learning management systems.

Although advancements in computer-based assessment provide the technological foundation for e-assessment, the current focus in e-assessment is in exploring the possibilities of the increasingly popular rich digital media, such as web 2.0 tools and video games. In addition, mobile and tablet devices are providing new opportunities for e-assessment. For example, the introduction of personal response systems (also known as clickers) has greatly simplified formative assessment in large classroom environments. We should note that the primary focus of e-assessment is not developing new assessment tools but improving learning by using new assessment technologies. Thus, pedagogical benefits and pitfalls of e-assessment technologies need to be carefully considered. A widely circulated report by the Joint Information Systems

Committee [JISC] (2007) similarly emphasizes that “e-assessment in fact is much more than just an alternative way of doing what we already do... Assessment is perhaps the best way of identifying the support needs of learners and can instill a desire to progress further if linked to appropriate resources, good quality, timely feedback, and to challenging but stimulating ways of demonstrating understanding and skills.”

### **Related terms**

Computer-based assessment (CBA), computer-assisted assessment (CAA), computer-aided assessment (CAA), computer adaptive assessment (CAA), computer adaptive testing (CAT), online assessment, technology-enabled assessment, technology-enhanced assessment, technology-embedded assessments, technology-based assessment, Internet-based testing, web-based assessment

### **Translation issues**

.../...

### **Disciplinary issues**

Traditionally, e-assessment uses computer and information technology to make the assessment process more efficient by automating functions that would otherwise require human assessors. These functions include item construction and selection, assessment delivery, item analysis, interpretation, scoring, and score presentation (Baker & O'Neil, 1995). More recently, however, e-assessment refers to current efforts within the educational community to take advantage of technological advancements. These efforts are motivated by the need to go beyond “fill-in the bubble” tests and move forward to authentic assessments of complex skills and knowledge (Pellegrino, Chudowsky, & Glaser, 2001). The “e” in e-assessment involves making choices from a wide range of computer and information technologies that can be used as components of assessment development, implementation, and delivery. These choices should be aligned with the purpose and goal of the assessment. These choices should address the following considerations:

- Which platform is most suitable for the assessment (e.g., web-based, computer-based, simulation- and game-based)?
- Does the assessment need to be linear or adaptive (e.g., scoring rules, item selection algorithms)?
- How will the assessment materials be presented (e.g., static vs. interactive)?
- What is the format of the expected student response (e.g., clicking the right answer, multimedia input)?

The word “assessment” in e-assessment relates to the purpose and features of the assessment. In general, the purpose of assessment can be categorized as formative, diagnostic, or summative. In addition, e-assessment must maintain the features of traditional assessment such as validity, reliability, fairness, and accessibility (Baker, O'Neil, & Linn, 1993; Shute, 2009)

## **Key references**

Baker, E. L., O'Neil, H. F., & Linn, R. L. (1993). Policy and validity prospects for performance-based assessment. *American Psychologist*, 48(12), 1210-1218. doi: 10.1037/0003-066x.48.12.1210

Baker, E. L., & O'Neil, H. F., Jr. (1995). Computer technology futures for the improvement of assessment. *Journal of Science Education and Technology*, 4(1), 37-45.

Joint Information Systems Committee. (2007). Effective practice with e-assessment: an overview of technologies, policies and practice in further and higher education. Retrieved from [\[1\]](#)

Pellegrino, J., Chudowsky, N., & Glaser, R. (2001). *Knowing what students know*. Washington, DC: National Academy Press.

Shute, V. J. (2009). Simply assessment. *International Journal of Learning, and Media*, 1(2), 1-11.