Keynote

Technology-based assessment: Challenges and Promises

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In the world, almost everywhere one looks technology abounds. Within the last few years, these tools and applications have fundamentally changed the way people live, learn and communicate. There is no longer doubt that multimedia application design offers new insights into the learning process, gives possibilities to represent information and knowledge in a new and innovative way and have the potential to transform education. However, technology is not the issue; it is a catalyst and provides new opportunities to improve the quality of education including educational assessment.

Technology-based assessment (TBA) has many advantages (Bridgeman, 2008) and possibilities. According to the international tendencies (e.g. OECD, ETS, NCES) in educational assessment the use of TBA is increasing. Major international projects focus on implementing TBA (see e.g. Assessment and Teaching of 21st Century Skills by Intel, Microsoft, and Cisco Education Taskforce, 2008; PISA 2012 Complex Problem Solving by OECD). It is without doubt that TBA will replace paper-based testing, and extend business and substance (Bennett, 2001) of assessment in education.

TBA (1) opens new areas (e.g. dynamic assessment), enables measuring new constructs (e.g. problem solving in rich technology environments, Bennett, Persky, Weiss & Jenkins, 2007) and assessing dynamic, where testee faces a dynamically changing environment. TBA (2) rises new issues in assessment (e.g. educational data mining – log file analyses; eye and face tracking) and (3) offers new assessment methods (e.g. adaptive testing), that cannot be realized otherwise. In case of an adaptive test the difficulty of the test tailors dynamically to the student's ability level so that subsequent items are selected from an item bank dependent at a difficulty appropriate for the student. This provides more time-efficient and accurate assessments. TBA (4) increases motivation (e.g. task adapts to the examinee's ability level) and (5) changes the whole assessment process including item generation, scoring, data-processing, information flow, feedback and the speed of assessment. It provides rapid and precise feedback for the participants and stakeholders that cannot be achieved by paper-based testing. Finally TBA (6) poses new questions and problems, for example validity issues regarding media effect studies when TBA is applied to replace traditional paper-based assessment and when skills related to the digital world are assessed.

Despite of the advantages the implementation of TBA in large-scale national and international assessment still faces several technological challenges. Several technological means are available in schools, but their diversity, compatibility, connectivity require further considerations.