

**G1 – USING THE ADVANTAGES OF ONLINE ASSESSMENT:  
LARGE-SCALE MEASUREMENTS OF 4 TO 12 YEAR OLD STUDENTS'  
COGNITIVE SKILLS**

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**Symposium Presentations****Possibilities of technology-based assessment in kindergarten and early school age**

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**Feasibility of computer-based assessment at the initial stage of formal schooling: the developmental level of keyboarding and mouse skills in Year One**

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**G1****Large-scale measurement of 10-11 year old students' word reading skills**

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**Online large-scale assessment of divergent thinking and its relation to mathematical achievement**

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## SYMPOSIUM ABSTRACT

Computer-based tests in educational assessment provide great opportunities to explore new types of skills and abilities as well as to improve the motivating level of the text context by applying colorful, varied design (e.g. audio or video files, dynamic items). In addition, they insure more reliable registration and more objective evaluation of the data and offer immediate feedback about the achievement. Beside convenient data management, the resources consumed to collect and process data can also be dramatically reduced, which is a particularly great advantage in the case of large-scale assessments (Csapó, Ainley, Bennett, Latour & Law, 2012; Csapó, Lőrincz & Molnár, 2012). The studies presented in this symposium were all constructed to explore the advantages technology-based assessment offers. They aimed to measure different cognitive skills of children sampled from a very broad spectrum of age, 4 to 12 years. All the tests applied in the assessment were delivered online via eDia (Electronic Diagnostic Assessment System, Molnár & Csapó, 2013) investigating large-scale samples.

The first study aimed to measure 4- to 8-year-old children's phoneme and syllable identification skills utilizing the advantage of being able to test even non-readers by applying audio files and headphones. Children could give their answers by using the touchscreen of tablet PC-s, which is a more familiar and comfortable way of computer use at this age. The second research targeted to measure a skill which is directly connected to technology, so its assessment would also be not executable with paper-based methods: it explored the developmental level of 6- to 7-year-old students' keyboarding and mouse skills. In the third study 10- to 11-year-old students' word reading skills were assessed with the method of adaptive testing, which can be considered as the most developed and sensitive way of measuring skills and abilities by adaptively fitting to one's actual performance. In the case of assessment types which provide open-ended items, technology is also a reasonable choice, mainly in large-scale measurements. The last study explores the challenge of switching the media of divergent thinking assessment. It investigates its development level and its relation with mathematical achievement at the age of 11 to 12.

All the instruments assessed the aimed construct with great level of reliability, demonstrating the usability of online assessment methods for examining different cognitive skills in large-scale conditions at a wide range of age. Through the results and the several further research questions they induce, the studies contribute to the development of the field of computer-based assessment in education, which is highly necessary to meet the 21<sup>st</sup> century expectations.

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The research was supported by the European Union and the State of Hungary, co-financed by the European Social Fund in the framework of TÁMOP 3.1.9-11/1-2012-001 'Developing Diagnostic Assessments' project.