

# ONLINE DIAGNOSTIC ASSESSMENT OF CLASSIFICATION IN THE BEGINNING OF SCHOOLING

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The ability of classification has long been recognized as one of the fundamental building blocks for mathematics and science learning and for formal reasoning (Piaget and Inhelder, 1958). Due to the face-to-face nature of assessment methods in early childhood carrying out regular diagnostic assessments is often hard to realize. Technology-based assessment may provide solutions for developing efficient, reliable and easy-to-use instruments even in early ages (Csapó et al, 2014). The purpose of this study is to develop an online assessment tool for classification and to examine the psychometric properties and the usability of the test.

Participants were students beginning school in September 2015 who were selected for a new sample of the Hungarian Educational Longitudinal Program (N=6013, age Mean=7.10, SD=.49). The 8 computerized tasks to assess classification were part of an inductive reasoning test. In the first four classification tasks students had to classify five figural elements into two sets. After this their task was to classify eight figures into two, and again two (applying a different rule), then three and four sets. Students could listen to the instructions via headphones and they could move the objects on the screen by drag-and-drop function. Instant feedback was given after test completion. Before the assessment an ICT familiarity test was also administered to provide opportunity for practicing basic mouse use skills. The data collection was carried out in schools' computer rooms by the eDia system.

The reliability of the test was acceptable Cronbach alfa=.75. Our test proved to be moderately difficult (M=45%) and there were large differences between the children at school entry (SD=29%). The most difficult task was when students had to classify the 8 figures in a different way into two sets (M=21%). More detailed picture can be gained about students thinking by the analyses of the content of the responses. IRT analyses revealed the need for further item development for low and high achievers as well.

Our study demonstrated that the innovative features of technology-based assessment such as pre-recorded instructions, manipulative items and automatic scoring made our tool an easy-to-use diagnostic instrument in everyday classroom context.

## References

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- Inhelder, B. & Piaget, J. (1958). *The growth of logical thinking*. Routledge and Kegan Paul. London.