## ONLINE ASSESSMENT OF INDUCTIVE REASONING AT PRIMARY SCHOOL ENTRANCE

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Inductive reasoning plays a central role in knowledge acquisition and in the transfer of knowledge (Klauer & Phye, 2008; Molnár, Greiff & Csapó, 2013). Many researches claim the importance of fostering thinking skills in school context (e.g. Adey et al., 2007) and it is also argued that the earlier the intervention happens the greater its effectiveness can be (Molnár, 2011). Therefore there is a growing need for easy-to-use assessment instruments in early childhood. However, paper-based and face-to-face testing at this age is expensive and time consuming. These traditional assessment methods can be replaced by more efficient technology-based assessment (Csapó, Molnár & Nagy, 2014). The aim of our research is to develop an easy-to-use online assessment tool to assess inductive reasoning processes at the beginning of schooling and to analyse the psychometric properties of the test and its usability in classroom context. The participants in the study were students beginning school in September 2015 (N=6013, age mean=7.08 sd=.48). In the representative sample altogether 178 primary schools with 292 classes were involved. The test comprised three subtests: figural series, figural analogies and classification tasks. All subtests included 13 items. Before the inductive reasoning tasks an ICT familiarity test was also administered in order to test and practice basic mouse use skills. The online data collection was carried out via the eDia (Electronic Diagnostic Assessment) platform in the schools' ICT rooms. Instructions were given online, using headsets. Students completed the inductive reasoning tasks by moving objects on the screen by drag-and-drop function. Automatic scoring was used and instant feedback was provided at the end of the test. The reliability coefficient of the test (Cronbach's alpha) was .90. The reliability indexes were .79 for figural series and for figural analogies, and .86 for the classifications tasks. The test was moderately difficult for the students at this age: m=42.53% sd=21.15%. Confirmatory factor analyses were conducted to examine the construct validity of the test. The fit for the 3-dimensional model was acceptable (x<sup>2</sup>=13136.65; df=699, CFI=.906, TLI=.905, RMSEA=.055), and it was significantly better compared to the 1-dimensional model ( $\chi^2$ =3770.69; df=3; p<.001). Students were able to complete both the ICT familiarity and the inductive reasoning tests within one 45 minute school lesson (m=25.17 min, sd=11.13 min). Only 41 students didn't reach the end of the test. Our online inductive reasoning test proved to be reliable and valid in terms of construct validity. The advantages of technology-based assessment made our assessment tool suitable for everyday school practice and for large-scale assessments as well even in early school years. Further research is necessary to analyse the log file data in order to gain deeper knowledge of the nature of inductive reasoning processes.

D1

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