

Development of inductive reasoning between kindergarten and fourth grade

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Inductive reasoning is one of our basic thinking processes and it plays a central role in acquiring and transferring knowledge (Klauer & Phye, 2008; Molnár, Greiff & Csapó, 2013). In order to design and implement efficient developmental programs to foster inductive reasoning as early as possible in educational context a detailed understanding of its nature and development is essential (Csapó, 2003). The aim of our study is to examine the development of inductive reasoning from kindergarten to fourth grade.

The samples were drawn from kindergarten (N=275), first grade (N=6013) and from fourth grade (N=5009). The computerized test for inductive reasoning consisted of figural and number series, figural and number analogies and classification tasks (altogether 67 items). Number series and analogies were only administered among the fourth graders while classification tasks were only used in kindergarten and first grade. 18 fat anchors and further anchor items were used to connect the three tests. All tests administered via the eDia platform (Molnár, 2015).

Reliabilities for all tests were good: 0,87 in kindergarten, 0,89 in first grade and 0,93 in fourth grade. Analyses based on the anchor items showed that classification develops the most during kindergarten and first grade followed by figural series. Figural analogies are developing somewhat slower but in fourth grade it reaches the same level as figural series. The results of the IRT analyses are in line with our previous findings and confirmed that rapid development takes place in inductive reasoning from kindergarten to first grade. Analyses of the skill levels' distributions revealed the large individual differences and showed that the curves are not disjunctive. For instance many fourth grade students' skill level are similar to a first grade student.

Our study provided empirical bases for planning developmental programs in kindergarten and early school years. However, in order to gain more detailed picture about the development of inductive reasoning further research is necessary in second and third grade as well.

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