

Innovative measurement of the young child's cognition

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Standardized, traditional tests of cognitive ability are well-known and widely used to understand the cognitive abilities and development, for example Cito-tests, standardized observations or executive functioning tests. However, it is not easy to measure the skills of very young children such as kindergartners using said tests. These children are still highly playful and administration takes a lot of time and energy from the examiner. The more prominent role and use of technology in daily life and the classroom may provide solutions to this problem. In this talk, I will elaborate on three studies that explore this idea. Instead of traditional tests, such as pencil-and-paper tests or tests on a laptop, we used a programmable robot and a toy we designed ourselves called Clever Maze. In the first study, we tested the relation between kindergartners' ability to program a small robot to their performance on standardized tests using structural equation modeling. For the two following studies we developed Clever Maze, which is a toy with screen technology embedded into it. Clever Maze is able to collect data on its own on the behavior of the child. Using this toy, we tested whether meaningful correlations could be found between Clever Maze, performance on traditional tests and a parental questionnaire while children either deliberately solve mazes or play freely with Clever Maze. In all three studies, interesting relations with specific executive functions could be found. These findings therefore allow us to elaborate on the question whether it is possible to test children while letting them play with toys, i.e. testing without testing.