EARLY DETECTION OF MATHEMATICAL LEARNING DIFFICULTIES IN THE CONTEXT OF INTERNAL SCHOOL ENTRY TESTS IN GERMAN PRIMARY SCHOOLS

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Aim: The development of mathematical competencies (*Fritz*, *Ehlert* & *Balzer*, 2013) indicates that children start their mathematical school career on different levels. Children with few mathematical pre-knowledge develop much slower than children who are more capable in this area (e.g. *Weißhaupt*, *Peucker* & *Wirtz*, 2006). A basic requirement for an effective and professional prevention of mathematical learning difficulties is the installation of a well-functioning detection system for potential maldevelopments (*Reschley* & *Bergstrom*, 2009).

In order to develop such a detection system the following research questions are investigated within the recent study:

- How common are entry tests within German primary schools in general?
- What kinds of tests (informal or standardized) are used and how many mathematical tasks do these tests contain?
- What mathematical concepts are captured and do they correspond to the age-appropriate development level?

The results shall indicate whether the school entry tests are suitable for identifying children who are at risk to develop mathematical learning difficulties.

Methods: 238 primary schools in 3 federal states of Germany – Berlin (N=92), Brandenburg (N=69) and North Rhine-Westphalia (N=77) – were consulted within a survey. They were given a short questionnaire about their school entry test procedure and were asked to provide their test material when conducting internal entry tests. A total of 88 schools followed our inquiry. We first systematically recorded all mathematical test items. Then we assigned each item (if possible) to one of the levels of the model of mathematical development by *Fritz*, *Ehlert* & *Balzer* (2013). This assignment was performed by 5 experts to ensure a high inter-rater reliability.

Results: First results show that most of the schools in Brandenburg conduct internal entry tests with their future pupils whereas most schools in Berlin don't. In North Rhine-Westphalia the ratio is balanced. However, hardly any school in all three federal states used standardized test. Nearly all the schools relied on self-created experience based test material. A first insight into the analysis of the test material shows that the mathematical tasks are consistently too easy. They seem to test mathematical concepts which children already acquire much earlier within their mathematical development, e.g. citing the number word line. Importance and future implications: If the findings can be confirmed during further analysis, it can be assumed that the sensitivity of the school entry tests might not be sufficient to detect children who are at risk to develop mathematical learning difficulties. However, assuming that an early detection system is essentially important for preventing these difficulties, the development of more appropriate tests should be considered.