INTERVENTION FOR MATHEMATICAL INITIAL TUITION

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Keywords: inclusion; RTI-approach; arithmetical competencies

In international comparison, a quarter of the German fourth-graders won't achieve a sufficient level of competence in mathematics instruction (Wendt et al., 2016). Thereby pupils have at best simple mathematical skills. These alarming results reinforce the claim for measures for the development of mathematical instruction in the primary grades and the support of teachers through an effective system (Wendt et al., 2016). A prominent example is the 'Response to Intervention' (RTI)-approach (Fairbanks et al., 2007). The Brandenburg Model of Inclusion aims to combine the RTI-approach with four transfer strategies: Top-down Strategy, Evidence-based Strategy, Participative Strategy and Transfer through design-research (Gräsel, 2010). Theoretically well-founded progress accompanied by positive and measurable results (improved student performance) shall be achieved. Furthermore, planned actions will be adjusted to the conditions and existing resources on site. Through preceding and accompanying professionalization at the level of school management, teachers, special needs teachers and further personnel, a higher acceptance and identification, a minimization of the initial problems (Gräsel & Parchmann, 2004), practicability and sustainable cooperation structure as well as a continuous implementation following the closure of research will be attained. By first consideration of the data of the student's performance in the first project year, the question 'can beneficial effects regarding the arithmetic competence growth for experimental classes compared to control classes of experimental schools and compared to classes of control schools be shown' was addressed. The study design is an experimental-control group-design (2x2 schools per project year). In every experimental school, a control class has been implemented (N=71 students in experimental group, N=30 students in control group). Additionally, N=55 students attended a control school. This design ran for three years. The study presented here focusses on the arithmetic initial tuition of the first year of this project. The students of the experimental groups attending the experimental schools received math lessons following the RTI-approach. Teachers of the experimental classes have been closely and continuously accompanied while implementing internally differentiated math lessons. Regarding their arithmetic skills, every first grader has been tested in a pre-post-design using the MARKO-D (Ricken, et al. 2013) and the MARKO-D1+ (Fritz, Ehlert, Ricken & Balzer, 2017). Scales measuring basic intelligence and language skills have been used as control variables. The first results show that a part of the boys in the experimental group benefits from the funding measure (principal effect for measurement: $F_{(1, 36)}=138.35$, $p<.001$, principal effect for group allocation: $F_{(1, 36)}=13.06$, $p<.01$, interaction effect (measurement x group allocation): $F_{(1, 36)}=5.66$, $p<.05$). The boys who perform highest (40%) do not benefit.