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**Salaschek, Martin; Zeuch, Nina; Souvignier, Elmar**

**Mathematics growth trajectories in first grade: cumulative vs. compensatory patterns and the role of number sense.**

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Summary: We examined mathematics growth trajectories in first grade for overall achievement and three separate competences (basic precursors, advanced precursors, computation). 153 German students computed seven web-based progress monitoring tests during the school year. Latent class growth analysis (LCGA) provided evidence for mainly cumulative patterns of performance development: In all competences, we found groups of initially high-performing students with the highest end scores and groups of initially low-performing students with little or no growth. In contrast to this general pattern, compensatory trajectories with groups of initially lower-performing students and steep growth were found. For precursor competences, these catch-up groups did not have increased odds of belonging to low-end outcome groups in higher competences. The findings demonstrate the added value of repeatedly assessing both precursor and grade-level skills for identifying students who follow favorable or unfavorable learning trajectories.

*Classification:* C32 F22 F32

*Keywords:* growth trajectories; number sense; progress monitoring

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