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Longitudinal study of low and high achievers in early mathematics.

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Summary: Background: Longitudinal studies allow us to identify, which specific maths skills are weak in young children, and whether there is a continuing weakness in these areas throughout their school years. Aims: This 2-year study investigated whether certain socio-demographic variables affect early mathematical competency in children aged 5-7 years. Sample: A randomly selected sample of 127 students (64 female; 63 male) participated. At the start of the study, the students were approximately 5 years old ($M = 5.2$; $SD = 0.28$; range = 4.5-5.8). Method: The students were assessed using the Early Numeracy Test and then allocated to a high ($n = 26$), middle ($n = 76$), or low ($n = 25$) achievers group. The same children were assessed again with the early numeracy test at 6 and 7 years old, respectively. Eight socio-demographic characteristics were also evaluated: family model, education of the parent(s), job of the parent(s), number of family members, birth order, number of computers at home, frequency of teacher visits, and hours watching television. Results: early numeracy test scores were more consistent for the high-achievers group than for the low-achievers group. Approximately 5.5% of low achievers obtained low scores throughout the study. A link between specific socio-demographic characteristics and early achievement in mathematics was only found for number of computers at home. Conclusions: The level of mathematical ability among students aged 5–7 years remains relatively stable regardless of the initial level of achievement. However, early screening for mathematics learning disabilities could be useful in helping low-achieving students overcome learning obstacles.

Classification: D72

Keywords: educational diagnosis; learning disabilities; achievement; low achievement; numeracy; older adults; birth order; longitudinal studies; elementary school mathematics; young children; parent education; access to computers; television viewing; educational psychology
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