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# Is a Decline in Reading Achievement Due to a Low Level of SES? Is It (Im)Possible?

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The Progress in International Reading Literacy Study (PIRLS) is an international assessment and research project designed to measure reading achievement at the fourth-grade level. In addition, questionnaires are given to students' teachers, school principals, and parents to gather information about students' experiences in developing reading literacy. Researchers seek to explain the reading achievements of students in PIRLS by various factors, including socioeconomic status (SES). The construction of the SES index for PIRLS is based on the approach used in PISA (Programme for International Student Assessment). Students are scored according to their parents' reports regarding the four indicators (number of books in the home; number of children's books in the home; highest level of education of either parent; highest level of occupation of either parent) on the Home Socioeconomic Status scale. The scale is divided into three categories (levels): high, medium, and low [1].

The study aims to determine whether lower reading achievement can be explained by a low level of SES. The data set consisted of 12 countries from the EU that participated in all five cycles of PIRLS (covering the period 2001-2021). For the analysis, 5 plausible values of reading achievement were used. There were no missing values for reading achievement, but this was not the case for SES. All statistical analyses were performed with each plausible value separately and averaged afterwards.

The results showed that the mean reading by SES levels was lower for the low-SES group. For example, in Lithuania, the average reading score for the low-SES group of students ranged from 503 (international avg. 443) in 2001 to 430 (international avg. 456) in 2021. This indicates a decrease in the reading skills of the low-SES group of students. Meanwhile, the average reading achievement of the high-SES group of students increased from 588 (international avg. 548) in 2001 to 604 (international avg. 542) in 2021).

However, the results show that most of the data came from the medium SES group. The proportion of students in the medium SES group ranges from 23.9% to 86.2% in the analyzed countries. Meanwhile, the proportion of low-SES groups of students varies from 0.05% to 17.2%.

Also, after analysing the data collected from the parents, it turned out that in some countries a large share of the data was omitted in each cycle. For example, omitted SES entries in England vary from 45% to 100% in each cycle, in Germany from 15.6% to 44.4%, in the Netherlands from 33.2% to 53%, and in Sweden from 7.8% to 43.9%. Only in Bulgaria did the percentage of low SES students exceed 10% at each level. The question then arises: can we interpret the data correctly if we don't have enough data for all three levels of SES?

The analysis of the PIRLS data on reading achievement by SES revealed that conclusions should be drawn very cautiously.

[1] <https://pirls2021.org/results>