

Development of the NO-GAP Educational Analytics Tool: Evaluating Disparities in Academic Achievements among Lithuanian Students

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GOAL

Develop a student data analytics methodology to analyze:

- student achievements, its disparities and factors at school, municipality and national level;
- The relationship between different achievement indicators in a school;
- School profiles by achievement level and achievement gap;
- Changes of achievements and gaps over time at different levels.

DATASET

- The methodological framework for data analysis and visualization was created using a data set consisting of 773 schools and 25,976 students in Lithuania, which includes data on the academic achievements of students from 2017 to 2022.
- Visualizations are based on a demo school created using data examples from real schools.

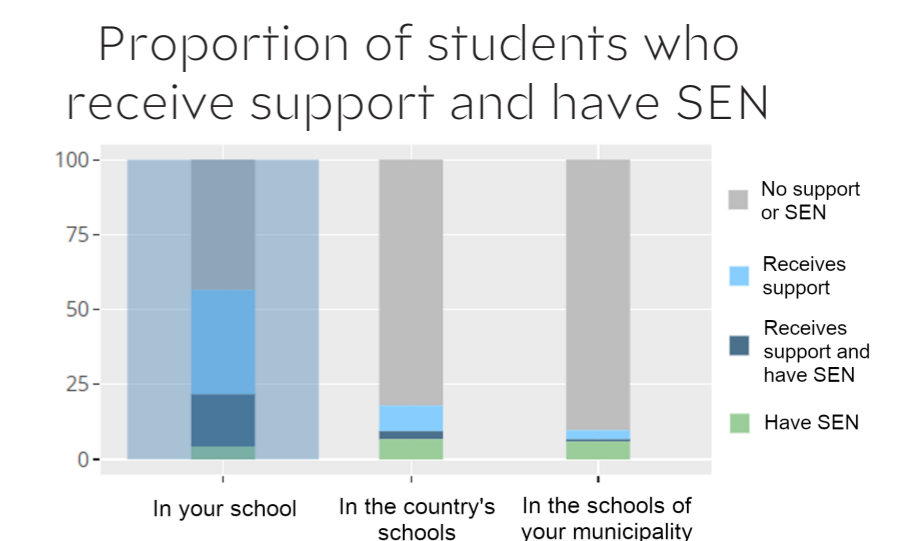
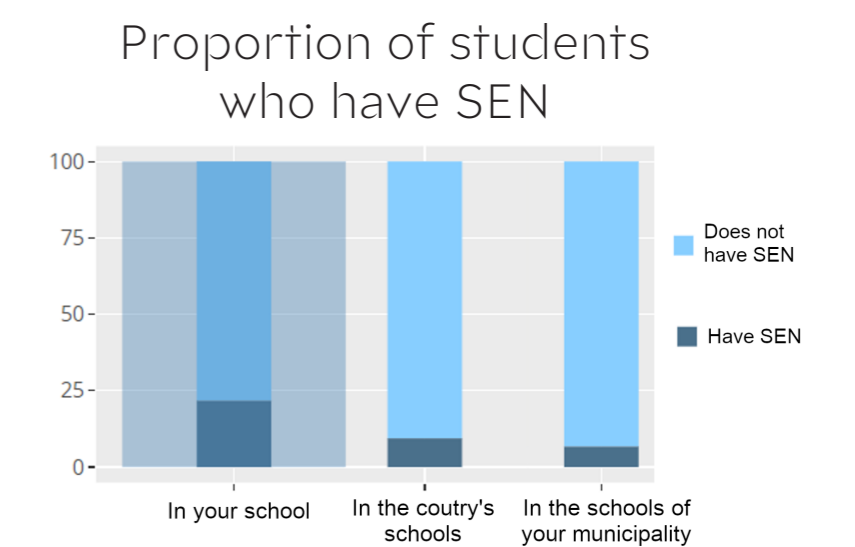
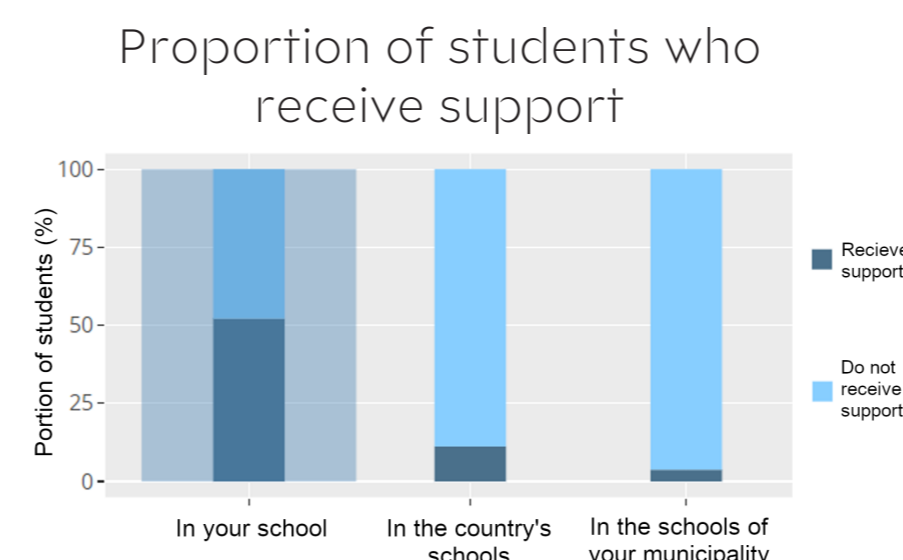
STRUCTURE

Analytical tool consists of 4 modules:

- I. STUDENTS**
Reveal the social, economic and cultural situation of 8th grade students in different Lithuanian schools.
- II. STUDENTS ACHIEVEMENTS**
Reveal various achievement indicators and their interrelation with each other.
- III. DISPARITIES OF ACADEMIC ACHIEVEMENTS**
Using social, economic and cultural status reveal the academic achievement gap for 8th grade students at different school levels.
- IV. CHANGES IN THE DISPARITIES OF ACADEMIC ACHIEVEMENTS**
Using social, economic and cultural status reveal achievement gaps over time for 8th grade students.

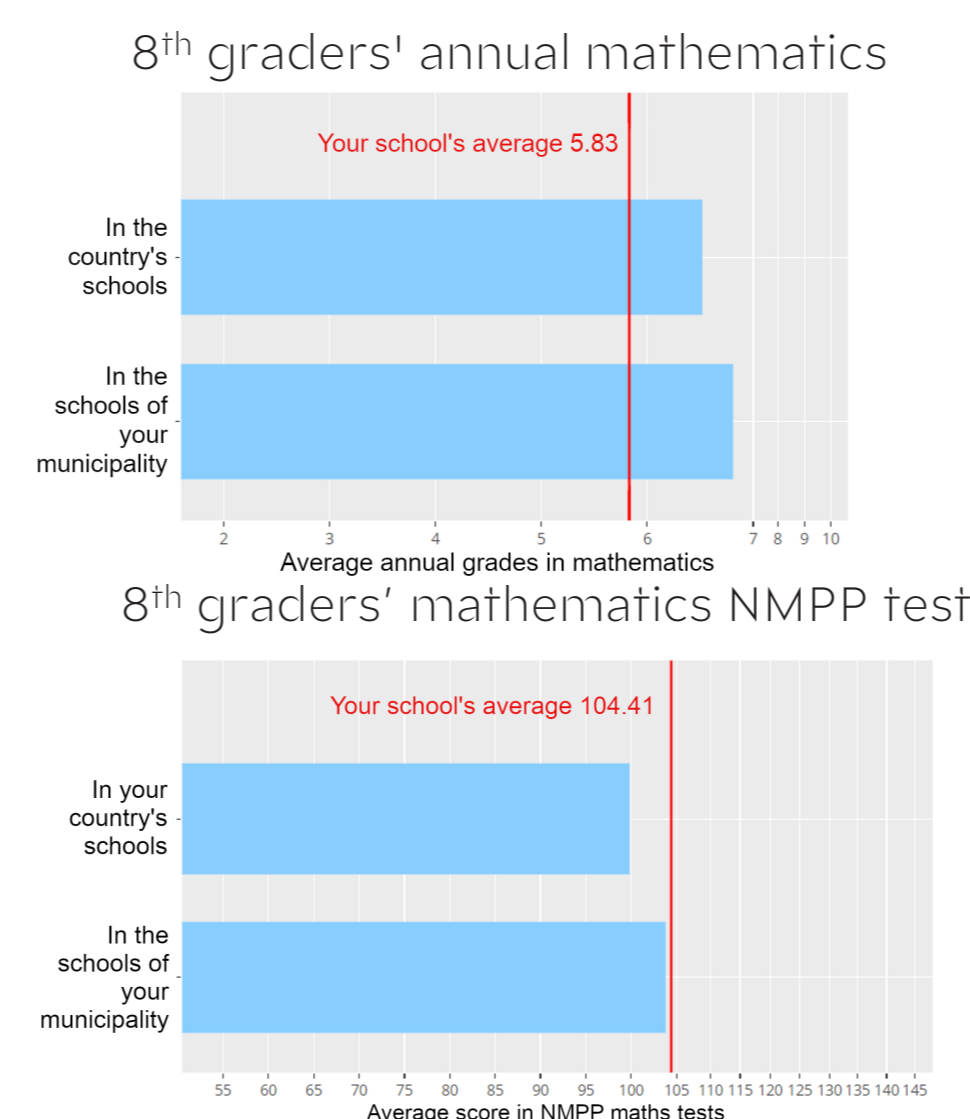
I. STUDENTS

- A student receiving free meals is referred to as a **student receiving support**.
- SEN - Special Educational Needs.



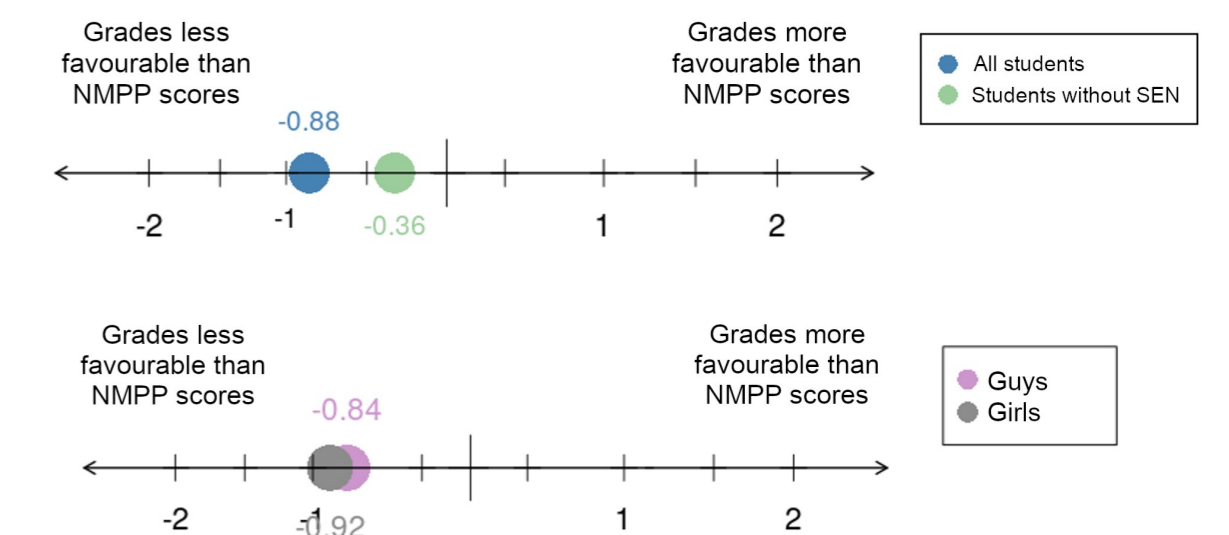
II. STUDENTS ACHIEVEMENTS

- NMPP test - National Student Achievement Assessment test.



8th graders' annual grades compared to the NMPP test scores in mathematics (using Assessment Concordance Indicator ACI)

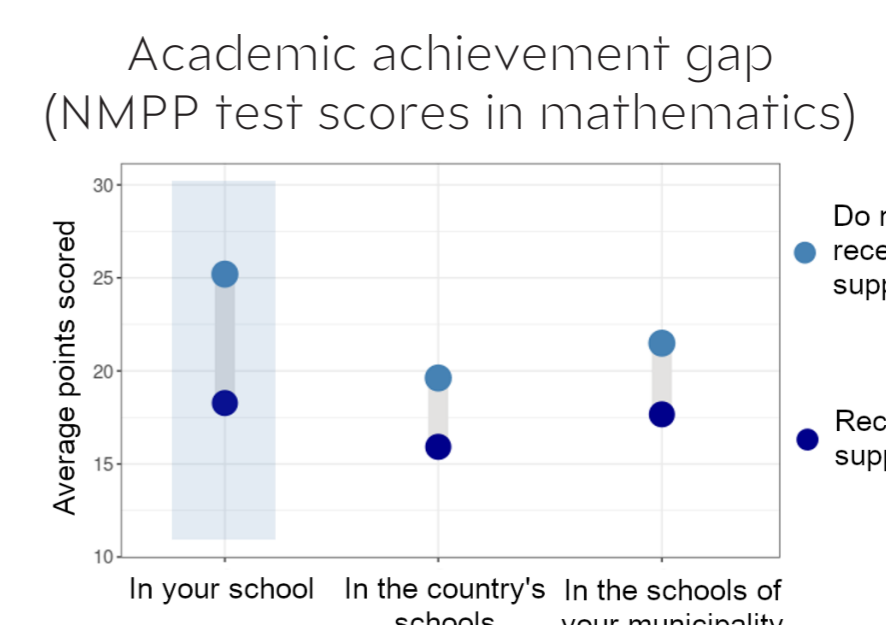
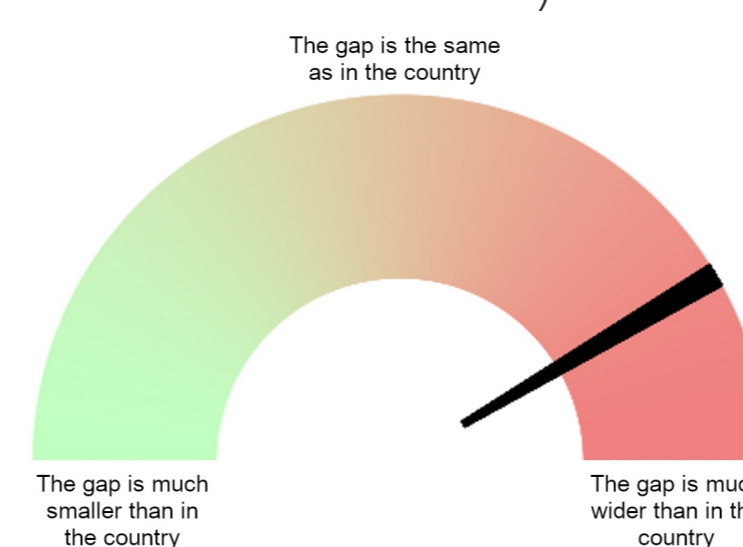
- If $ACI < -0.5$ grades are underestimated
- If $-0.5 < ACI < 0.5$ grades are appropriate
- If $ACI > 0.5$ grades are overestimated



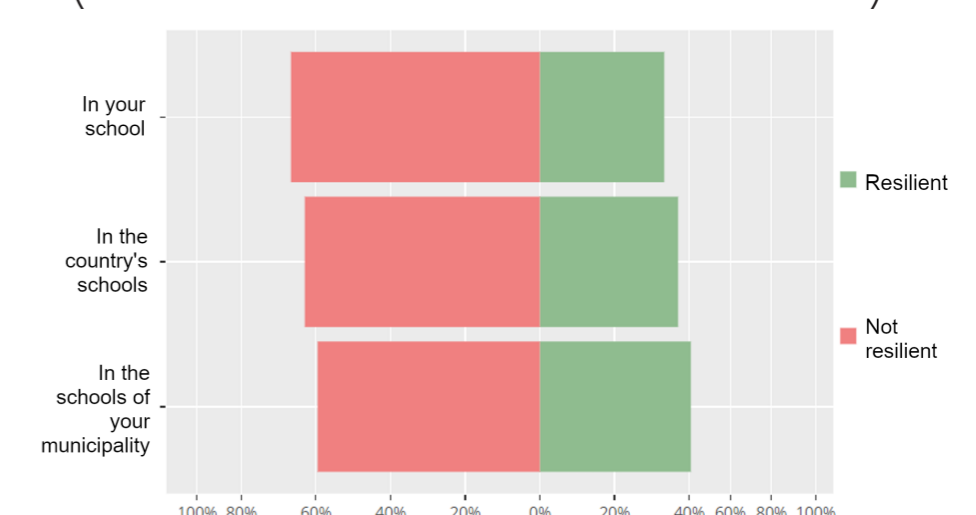
III. DISPARITIES OF ACADEMIC ACHIEVEMENTS

- **Academic achievement gap** - difference in academic achievement between a student receiving support and a student not receiving support.
- **Academically resilient students** - students receiving support who score higher than the average student not receiving support.

How significant is the achievement gap in your school compared to the national situation? (NMPP test scores in mathematics)

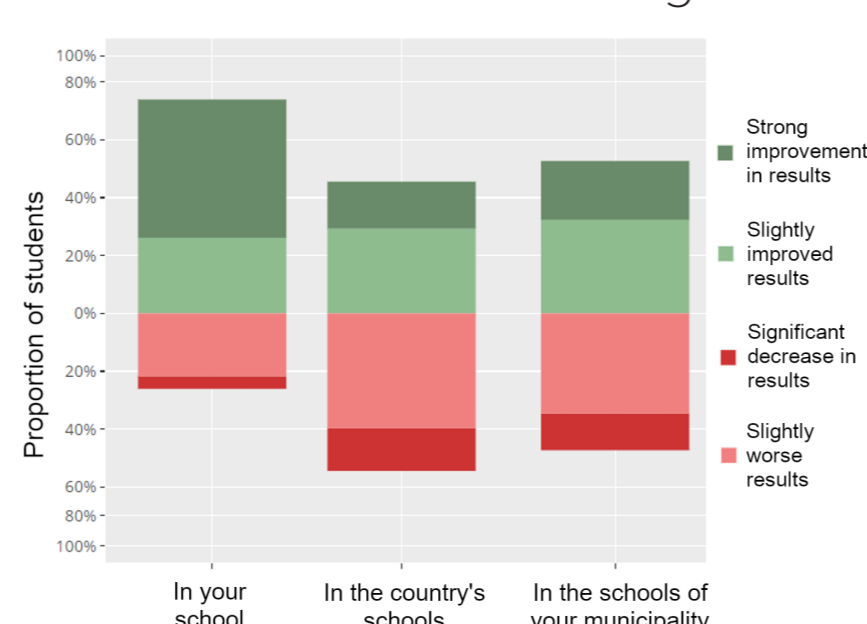


Proportion of academically resilient students (NMPP test scores in mathematics)

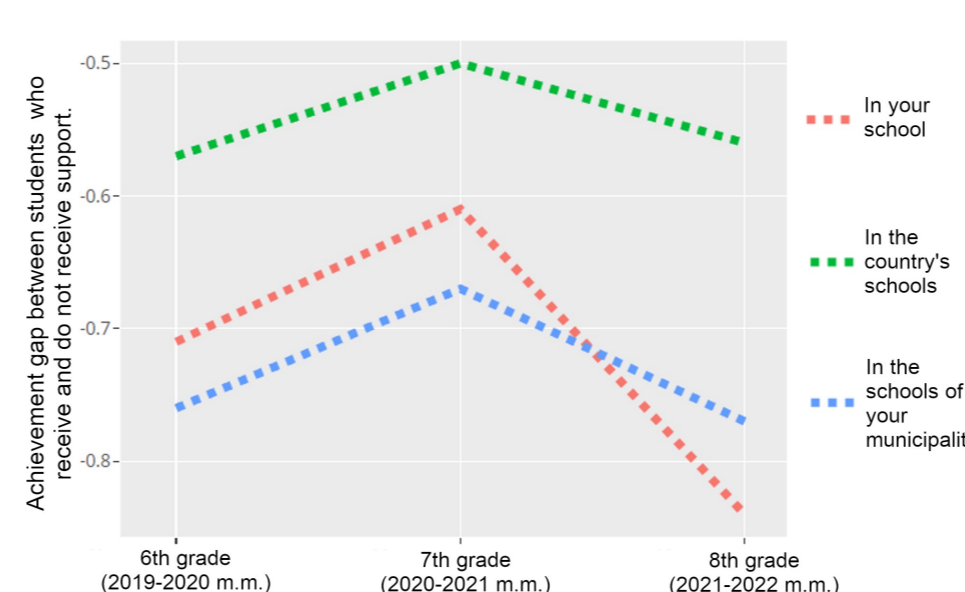


IV. CHANGES IN THE DISPARITIES OF ACADEMIC ACHIEVEMENTS

Changes in mathematics NMPP test scores from 4th to 8th grade



Changes in the mathematics achievement gap in grades 6-8



Changes in NMPP test scores from 4th to 8th grade

