

# **Estonian experience of implementing «value added» model in school efficiency analysis. Role of the centralised exams in school assessment.**

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- **Estonian language:** essay 60% and functional reading 40%. Based on 4 texts. Or Estonian language as a second language, 4 parts.
- **Mathematics:** „narrow“ and „broad“ course, shift of scales a bit less than one standard deviation
- **Foreign language** (English) or accepted International exams in English, French, German, Russian
- *school exam and research work*



Centrally prepared tests and marking schemes, centrally marked. Early language immersion students write essay and do functional reading tasks.

# Lower secondary exams



- **Estonian language** and **mathematics** are compulsory
- One more from list, chosen by student: **Foreign languages, History, Civic studies, Geography, Biology, Chemistry, Physics.**
- Creative work

Centrally are prepared test and marking schemes, marked in schools, often by own teacher, marking is moderated. We use points and grades. For older exams only grades are available. Only sample was collected back earlier.





# Value added



„Päevaleht“ headlines  
10.10.2016

„Figuratively speaking new formula means, does school developed children with grade „four“ to „fives“ or to „threes“. But it exists only in three subjects..“



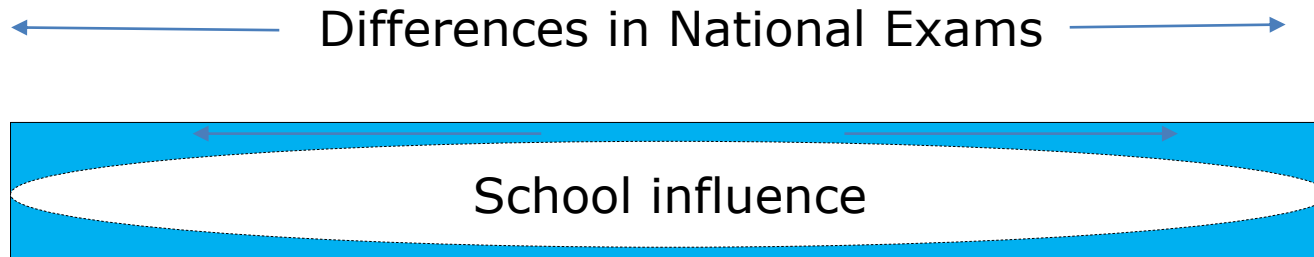
- Model AA – pure value added – only students' basic school result is additionally taken into account
- **Model A** – students' gender and age are also taken into account
- Model B – school average basic school grade is taken into account
- Model P – different aspects of learning process are taken into account
- **Model X (A+B) – school effectiveness** - number of students in school, ethnical composition, regional development level



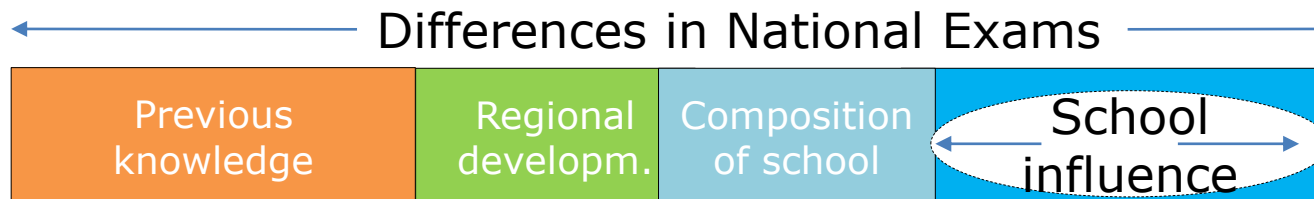
The largest influence have students' basic school end exam results and school average basic school exam result independently. It is calculated on the basis of students who did gymnasium exam.

## School influence

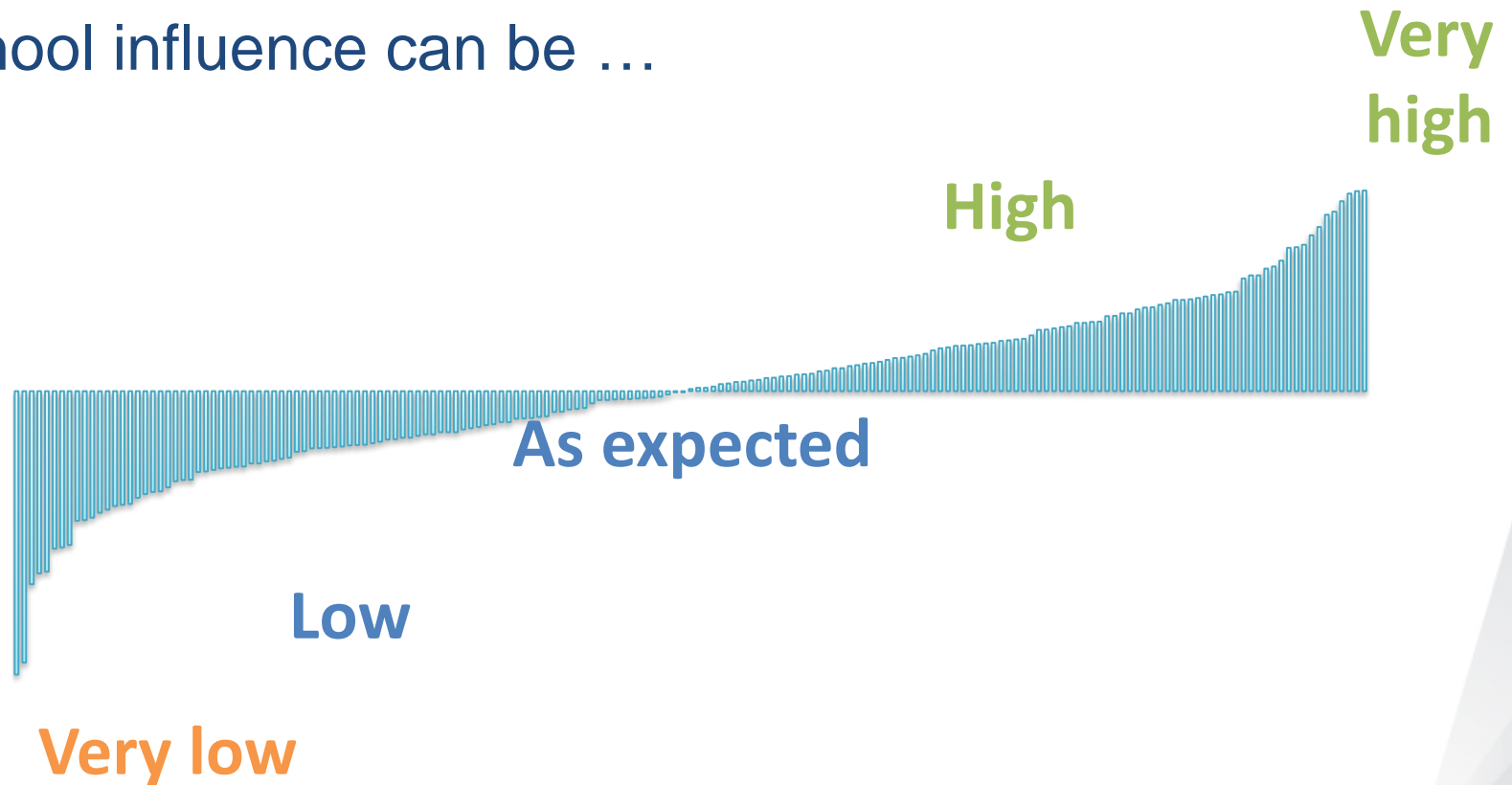
1. Results of National exams as a school influence



2. School influence as a tiny part of National Exams



School influence can be ...



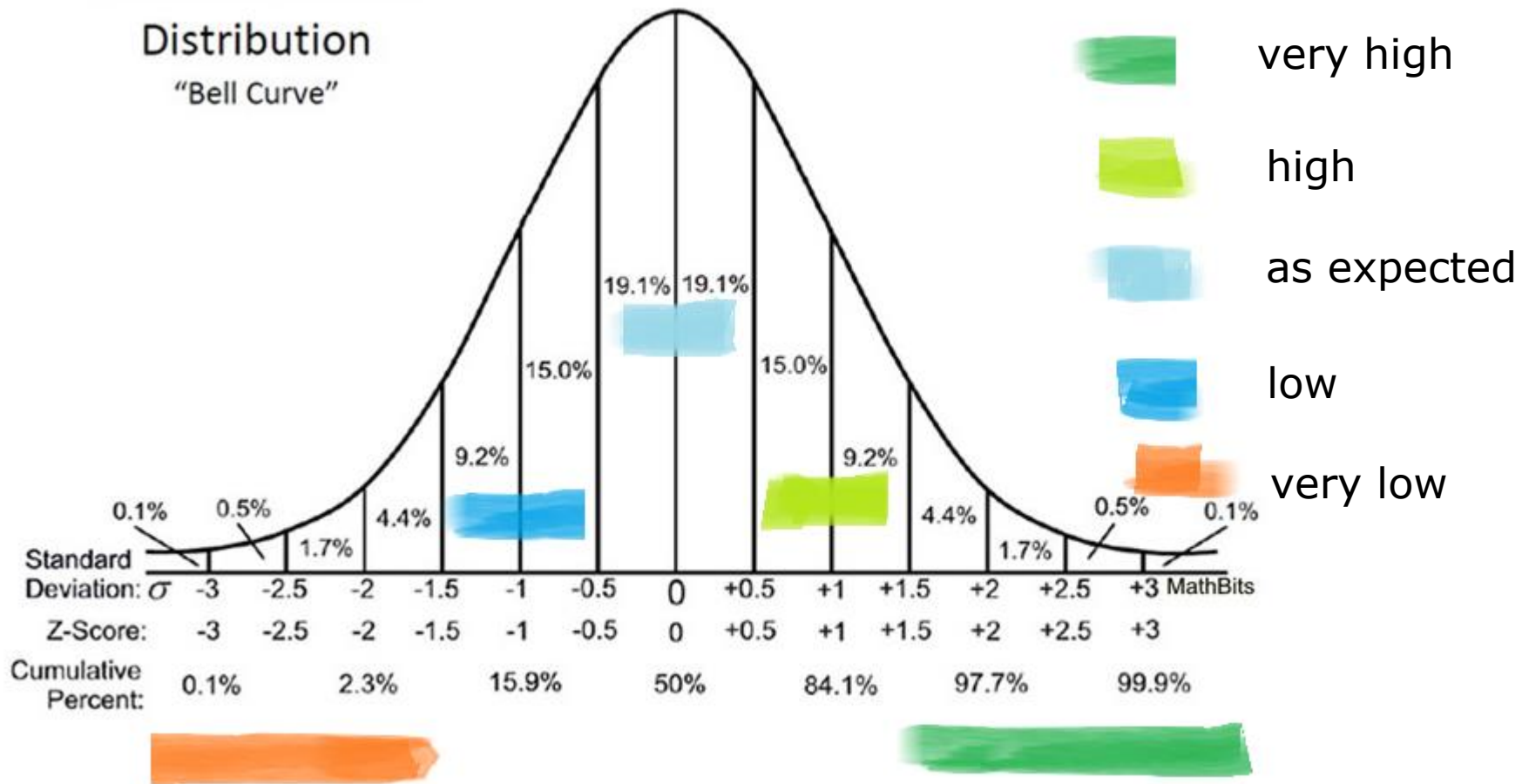
+ 95% statistical confidence limits



# Labels „-2“, „-1“, „0“, „1“, „2“



Standard Normal Distribution  
"Bell Curve"

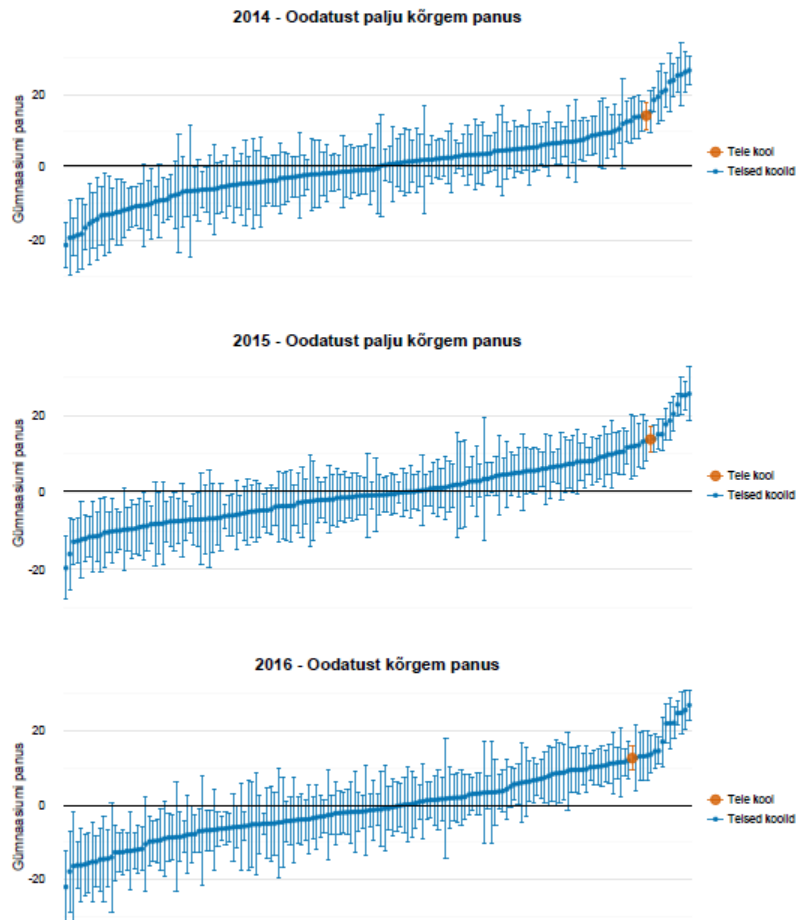


|                              |      |      |       |      |       |       |       |      |    |      |    |      |    |          |
|------------------------------|------|------|-------|------|-------|-------|-------|------|----|------|----|------|----|----------|
| Standard Deviation: $\sigma$ | -3   | -2.5 | -2    | -1.5 | -1    | -0.5  | 0     | +0.5 | +1 | +1.5 | +2 | +2.5 | +3 | MathBits |
| Z-Score:                     | -3   | -2.5 | -2    | -1.5 | -1    | -0.5  | 0     | +0.5 | +1 | +1.5 | +2 | +2.5 | +3 |          |
| Cumulative Percent:          | 0.1% | 2.3% | 15.9% | 50%  | 84.1% | 97.7% | 99.9% |      |    |      |    |      |    |          |

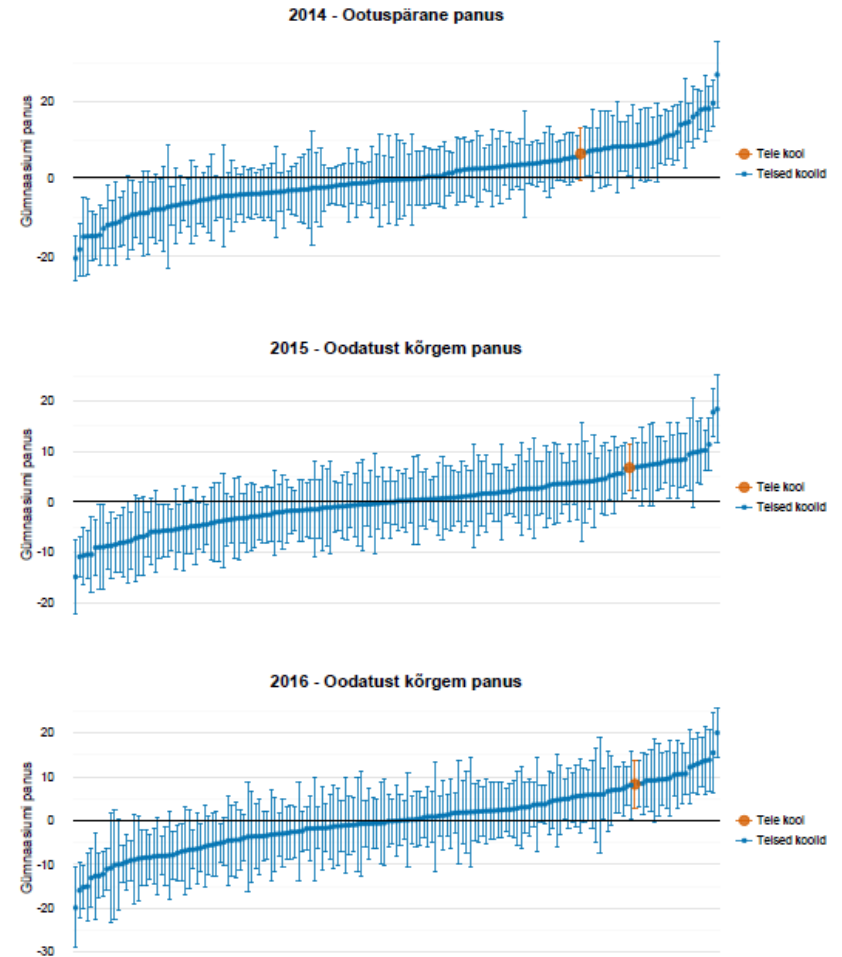
# Comparison of models A and X



Gümnaasiumi panus õpilaste edasijõudmisesse matemaatikas - mudel A



Gümnaasiumi panus õpilaste edasijõudmisesse matemaatikas - mudel X

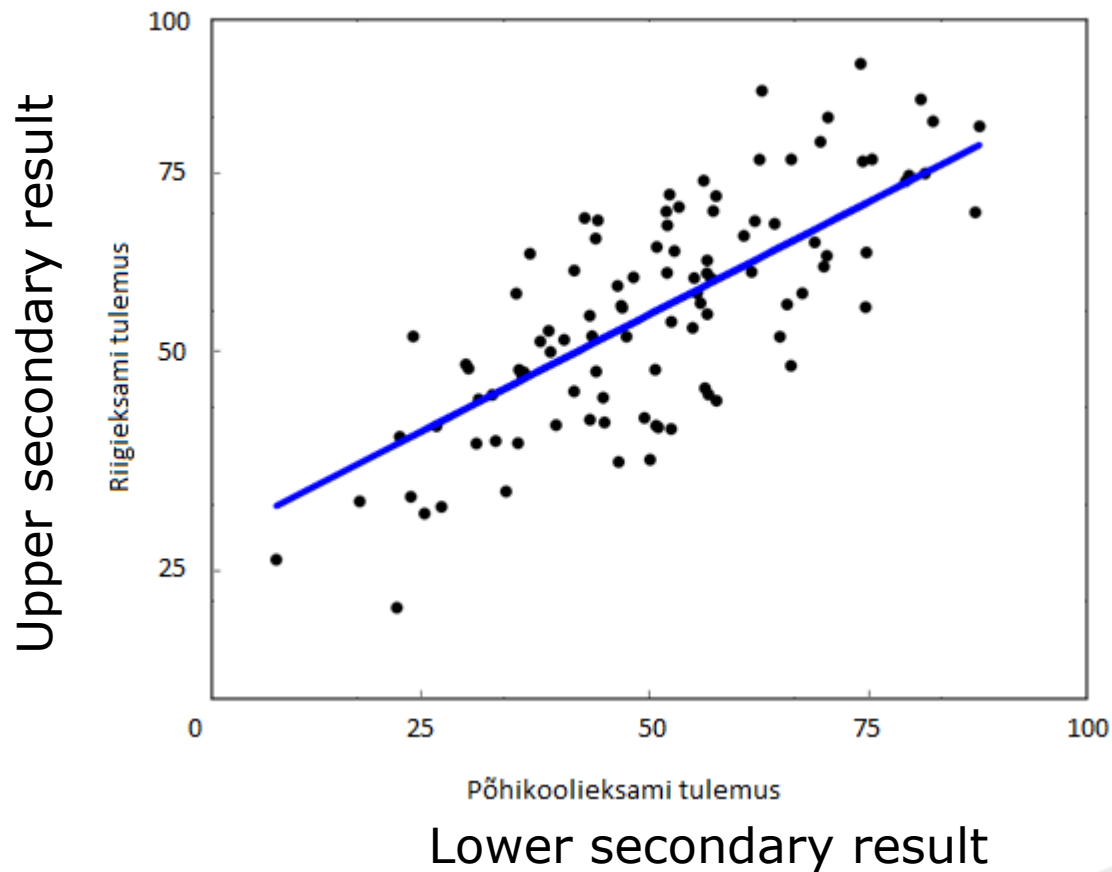


**If student gets an average result in basic school ...**

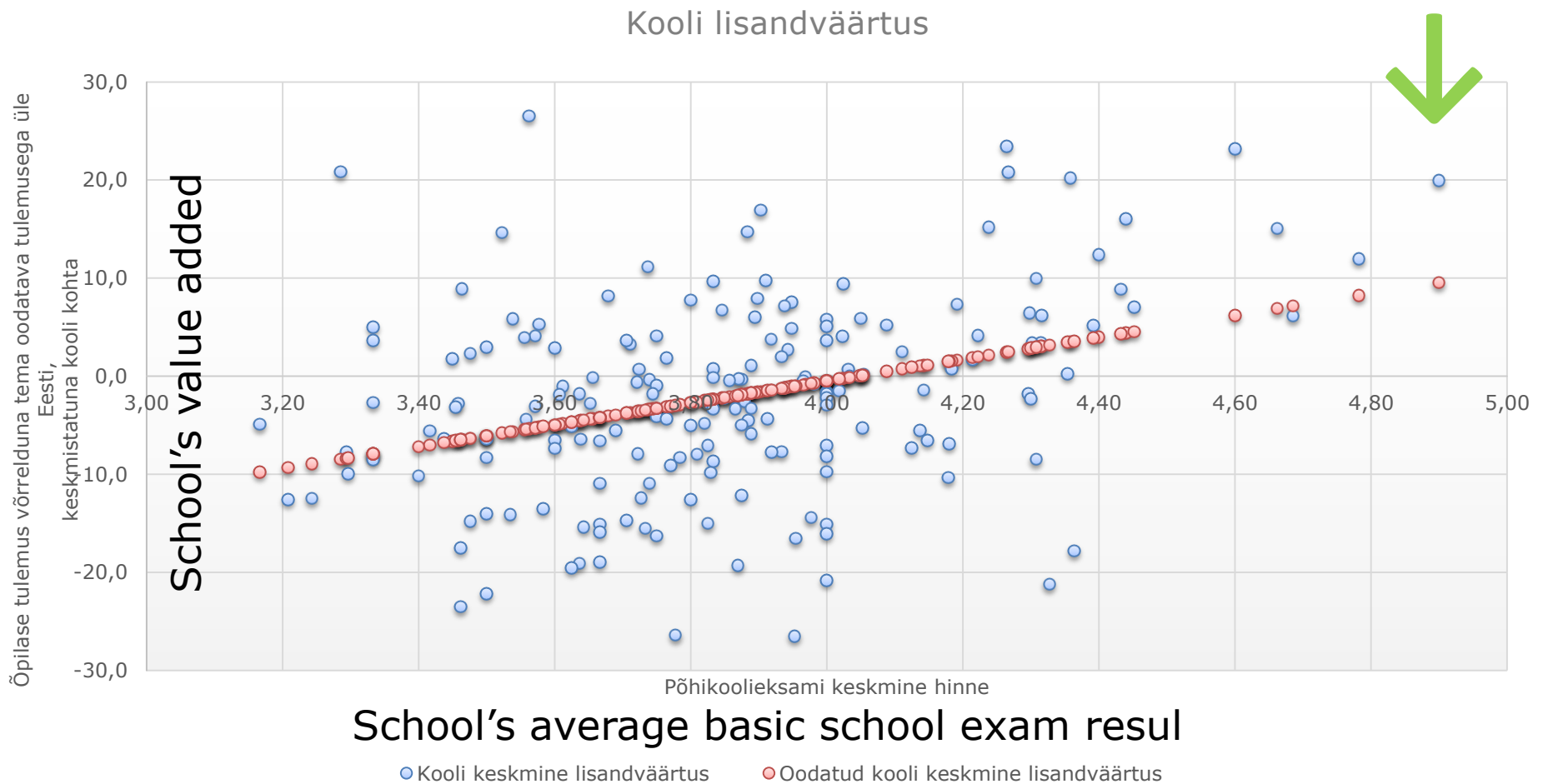
**... he is expected to get an average result in gymnasium.**

**If gets more, it is value added in examination points.**

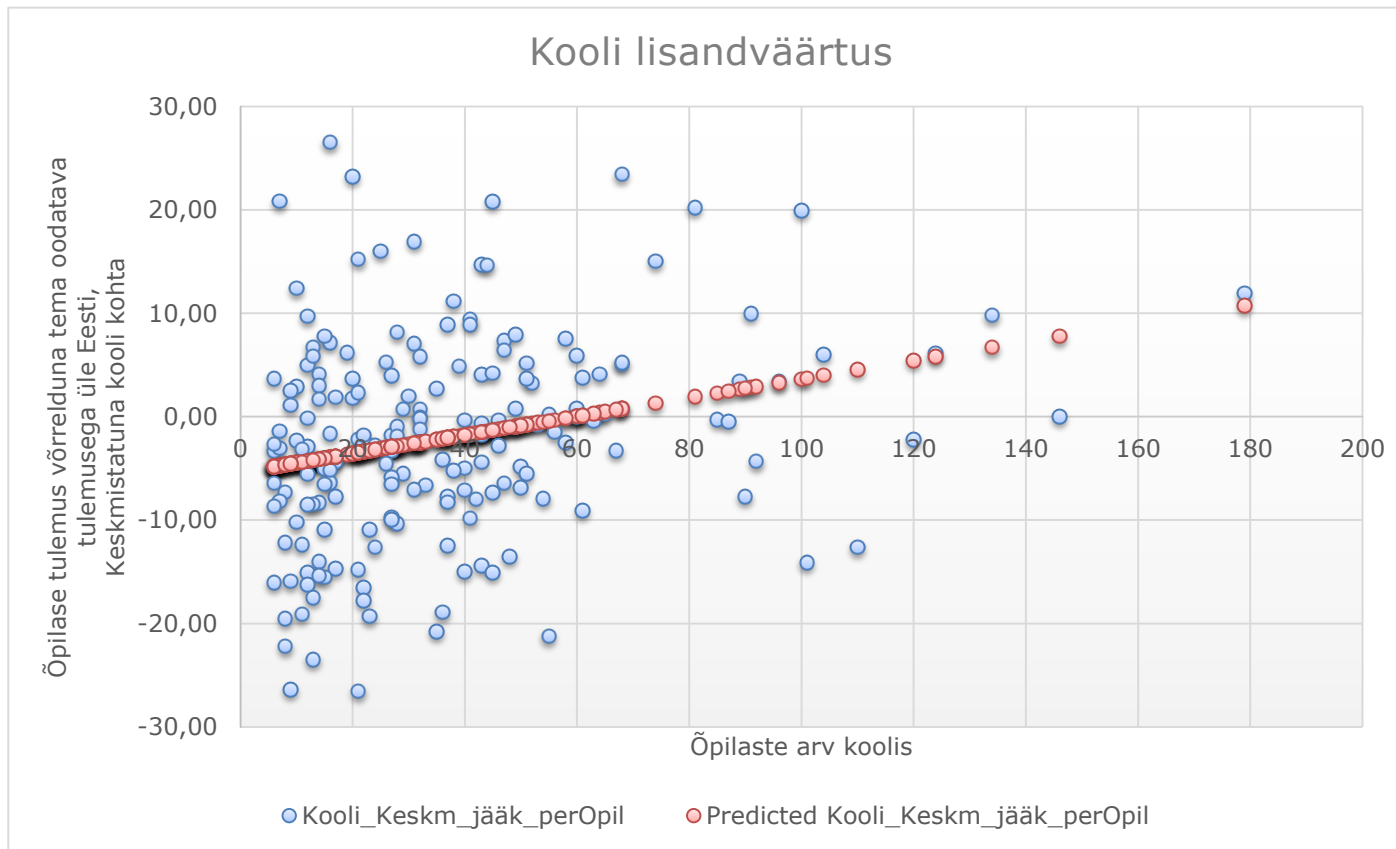
If basic school result is not an average result ...



# Schools value added in Mathematics 2014



# Value added, 2014 Mathematics dependent on number of students in school

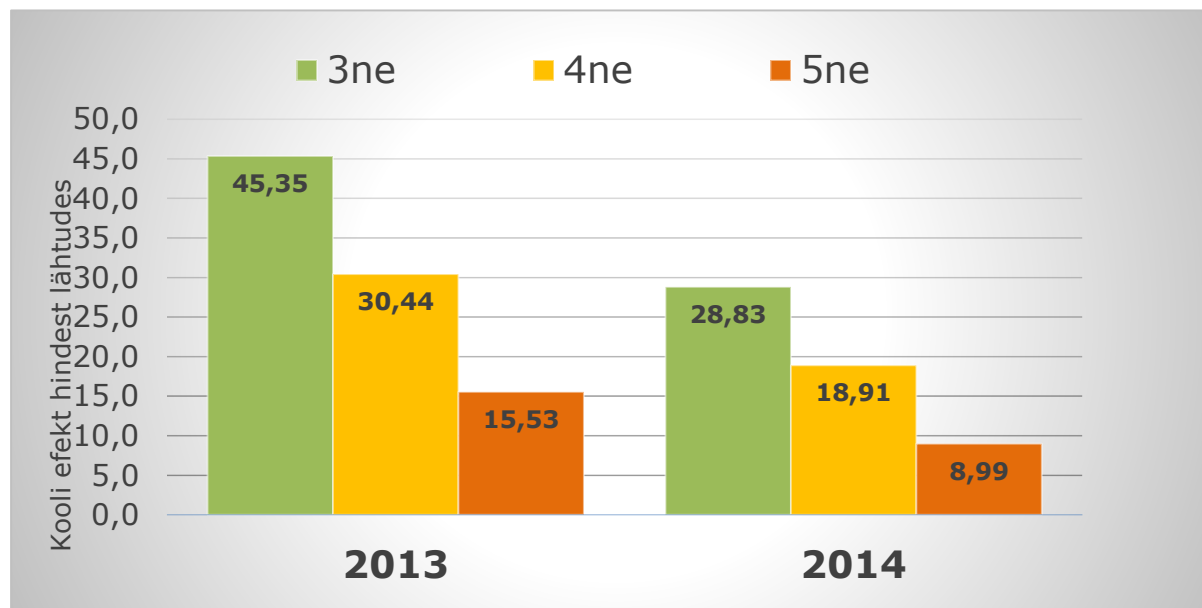


# Value added of students with different grades in one school

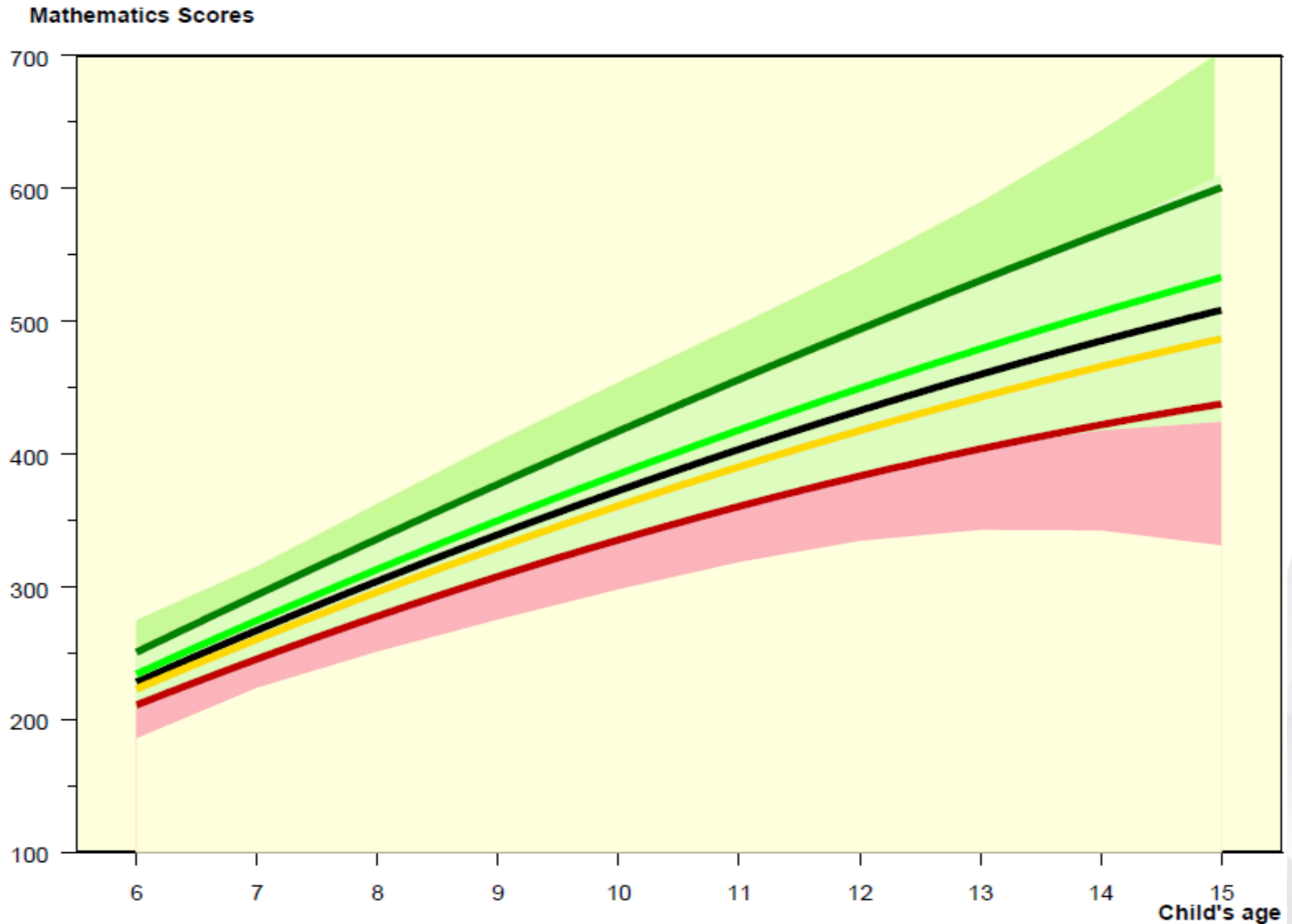


- green „3”
- yellow „4”
- red „5”

Year 2013 – Math was optional  
Year 2014 – Math was compulsory



# Weak students go backward Mathematics, Canada





# What to do to rise value added?



- pay attention also to **gifted students**
- improve teaching practices of **young teachers**
- follow **research evidence**, read John Hattie and OECD rapports

**One example:** randomised controlled trials in UK:

In NFER Education trials unit under leadership of Ben Styles are massively doing randomised controlled trials

- have separated from Hattie studies this part which were made in UK
- retesing vigorously all other studies like drugs
- results appear in

<https://educationendowmentfoundation.org.uk/resources/teaching-learning-toolkit/digital-technology/>



**Thank you! Questions please!**



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vocational education

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exams and tests

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language immersion

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structural assistance

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rajaleidja