

Where does the difference between PIRLS 2006 and PISA 2009 results come from

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Studies compared

PIRLS 2006

(Progress in International Reading Literacy Study)
organized by
IEA (International Association for the Evaluation of Educational Achievement)
Target group - 4th grade students

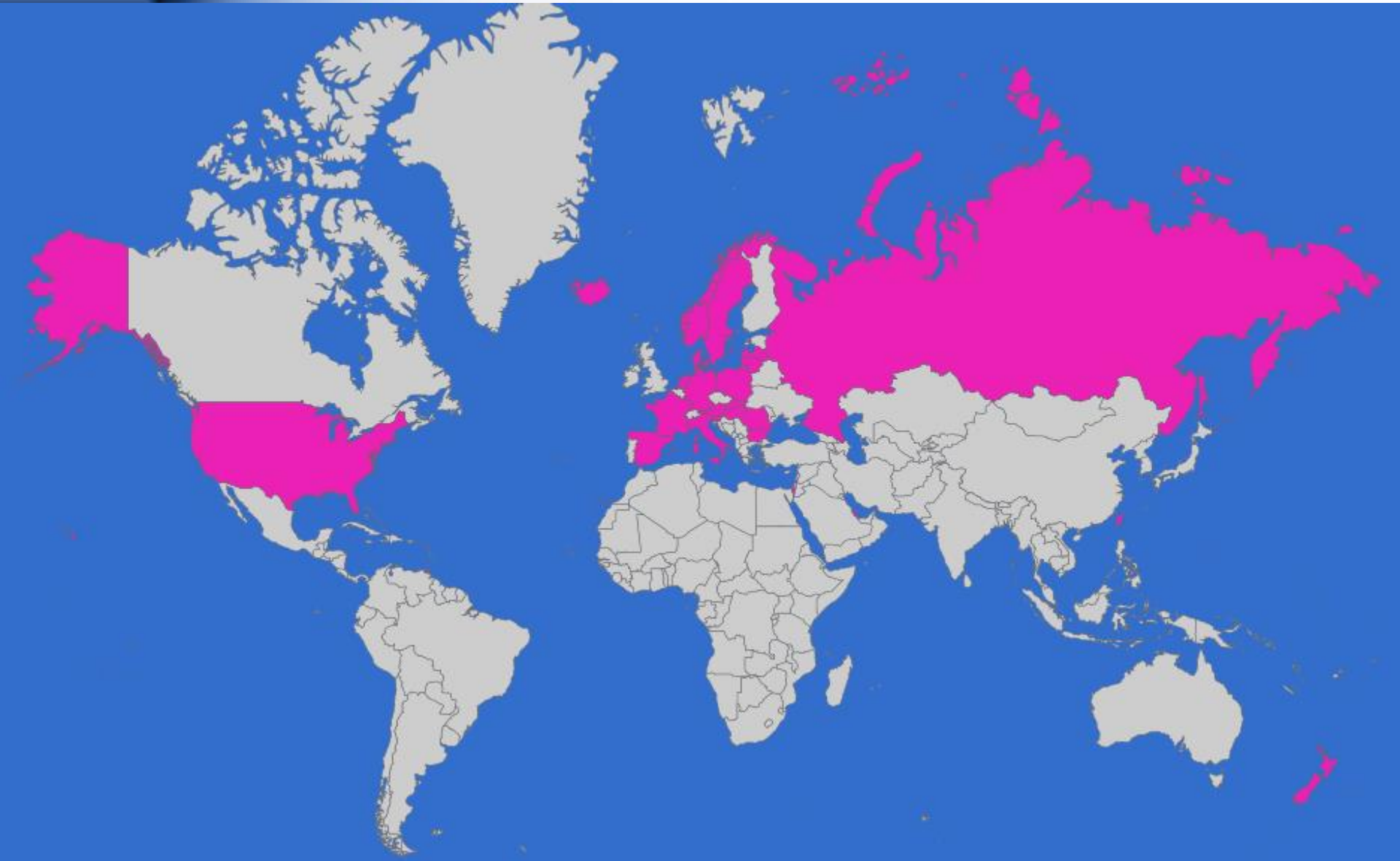
PISA 2009

(Programme for International Student Assessment) organized by
OECD (Organisation for Economic Co-operation and Development)
Target group - 15 year-olds

Research problem

- Comparing PISA 2009 and PIRLS 2006 results for some countries there is a relative rise of an average **reading literacy** performance and for some countries there is a drop in average achievement.
- The purpose of the study is to find how can these **changes** in reading achievement scores be **explained**.

Countries which participated in both studies



Data analysis

- Ranks of countries have been analyzed.
- The 28 countries were ranked according to their results.
- Two ranks were created – one for each of the studies.
- The rank 1 was assigned to a country with the highest average achievement score, and rank 28 to a country with the lowest average result.
- Mainly Spearman's rank correlation has been exploited on country-level data.

Country	PIRLS 2006 score points	PIRLS 2006 Country rank	PISA 2009 score points	PISA 2009 Country rank	Ranks difference	Human Development Index	PISA 2009 Index of memorization strategies	PISA 2009 Agreement with statement "I read only to get information that I need" (%)
Austria	538	14	470	22	8	0,944	0,45	53
Bulgaria	547	10	429	25	16	0,816	0,38	57
Chinese Taipei	535	16	495	12	-4	0,91	-0,13	45
Denmark	546	11	495	13	2	0,943	-0,18	47
France	522	19	496	11	-9	0,942	-0,11	44
Germany	548	8	497	10	2	0,932	0,22	45
Hong Kong-China	564	2	533	1	-1	0,927	0,13	38
Hungary	551	5	494	14	9	0,869	0,74	47
Iceland	511	24	500	7	-17	0,96	-0,34	42
Israel	512	23	474	20	-3	0,927	0,22	47
Italy	551	6	486	15	10	0,94	-0,17	48
Latvia	541	12	484	16	4	0,845	0,13	55
Lithuania	537	15	468	23	8	0,857	0,19	56
Luxembourg	557	4	472	21	17	0,945	0,23	49
Netherlands	547	9	508	4	-6	0,947	-0,25	49
New Zealand	532	17	521	3	-14	0,936	0,05	40
Norway	498	25	503	5	-20	0,965	-0,44	50
Poland	519	21	500	6	-15	0,862	0,42	54
Qatar	353	28	372	28	0	0,844	0,59	51
Romania	489	26	424	26	0	0,805	0,22	61
Russian Federation	565	1	459	24	23	0,797	0,20	60
Singapore	558	3	526	2	-1	0,916	0,06	41
Slovak Republic	531	18	477	19	1	0,856	-0,33	56
Slovenia	522	20	483	17	-3	0,91	0,06	53
Spain	513	22	481	18	-4	0,938	0,34	46
Sweden	549	7	497	9	2	0,951	0,19	42
Trinidad and Tobago	436	27	416	27	0	0,809	0,38	45
United States	540	13	500	8	-5	0,948	-0,04	47

Main factors

It was found that achievement gap between PISA 2009 and PIRLS 2006 average reading literacy scores was significantly correlating with three main factors:

- 1) national wealth,
- 2) rote learning,
- 3) reading engagement.

National wealth

- Student achievement is closely correlating with socioeconomical factors in all levels – individual, school, territorial and country level.
- In PISA 2009 study 6% of average student achievement can be explained with differences in gross domestic product (GDP) per capita.

National wealth

- For economically weaker countries correlation between achievement and GDP is stronger.
- When a certain level of welfare is reached the further increase of prosperity is not that significant.
- The average achievement level of Latvian students is a little higher than can be expected from our economical situation.
- Although Latvian average achievement is below the OECD average, it can still be rated as good.

National wealth

- In this particular study Human Development Index (HDI) is chosen as a measure of welfare, it includes not only GDP but also education and health indicators. The results of PISA 2009 study correlate with HDI very highly but the PIRLS 2006 results do not.
- For countries with high HDI values also the average achievement level in PISA 2009 will be high regardless of their achievement in PIRLS 2006. And for countries which have had high achievement in PIRLS 2006 but low HDI a drop in achievement level in PISA 2009 study can be expected.

National wealth

- This could be explained with differences between goals and content of education in primary school and upper secondary grades. In many countries as students grow older so does learning intensity along with complexity. To provide it at a high level of quality country needs appropriate resources.
- Differences in educational levels of PIRLS and PISA target populations can also be characterized with differences in reading literacy definitions applied in these studies.

Rote learning

- It was found that the negative difference between PIRLS 2006 and PISA 2009 results was significantly correlating with the index of memorization strategies used in PISA 2009 study. There was also a strong negative correlation between the index of memorization strategies and the PISA2009 results.
- A title of the index might sound misleading since it represents a very narrow aspect of memorization processes in learning. In the context of PISA 2009 study memorization strategies refer to the memorization of texts and contents in all their details and repeated reading.

Rote learning

- Learning can happen both – as rote learning or as learning by understanding, where the second is much more successful because where an understanding takes place the new knowledge is linked with the already existing knowledge.
- So what to do to prevent the relative drop in the reading achievement? Simply restricting the use of rote learning would not help since memorization is what we resort to when what we are learning makes no sense.
- So a key to a success in this case could be raising the level of students' understanding of the content in other school subjects.

Reading engagement

- Reading only if in a need for information was found to be another factor significantly correlating with widening of the gap between PIRLS 2006 and PISA 2009 results.
- And there was also a strong negative correlation between the agreement to the statement “I read only to get information that I need” and the PISA 2009 results.
- The statement is also one of the components the PISA index of engagement in reading.

Reading engagement

- Engagement has been found to be a critical variable in reading achievement.
- Better readers tend to read more because they are more motivated to read, which, in turn, leads to improved vocabulary and comprehension skills.
- The amount of time spent reading predicts reading achievement.

Reading engagement

- It has been noted that the reading motivation decreases not only by students' age but also for the same age students as time goes by and generations change. As found in PISA 2009 study, fifteen-year-old students in 2009 tended to be less enthusiastic about reading than students in 2000.
- If a students' engagement in voluntary reading activities could at least be kept consistent that would be the first step towards preventing an achievement drop in reading achievement studies in the future.

Conclusions

- It was found that achievement gap between PISA 2009 and PIRLS 2006 average reading literacy scores was significantly correlating with three main factors: national wealth, rote learning, and reading engagement.
- If changes in national wealth cannot be performed by teachers then changes in learning strategies and students' reading engagement are in hands of teachers.

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Thank you for your attention!

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