WHY DO RUSSIAN SCHOOLCHILDREN HAVE A LOWER READING LITERACY LEVEL IN GRADE 8 AS COMPARED TO GRADE 4?
(In-depth Analysis of PIRLS and PISA Results)
Yulia Tyumeneva

Problem Definition

Russia has been participating in a number of international studies on school education quality since 1991 and thus obtained a unique opportunity to “identify itself among others” in that area. International comparative studies of education quality such as PIRLS\(^1\) and PISA\(^2\) conducted in 2006 helped discover an important feature characterizing reading literacy development among Russian schoolchildren. As demonstrated by PIRLS-2006, Russian Grade 4 pupils had high reading achievement (Russia led the group of the top performing countries). However, Russia’s results in PISA-2006 tests that targeted functional literacy among 15-year-olds were well below the OECD average level not only in reading but also in mathematical and scientific literacy (Russia placed 37-40th among 57 participating countries). Therefore, it may be stated that the quality of learning achievement deteriorates after transition from primary to basic school. It is not a typical situation for all school systems; however, it is quite evident in Russian schools.

It is essential that PISA data for 2003-2006 show an increase in the gap between Russia and most other participating countries in terms of functional literacy development in basic school. At the same time, learning quality in primary school significantly improved over the same period enabling Russia to rise from the 12\(^{th}\) place among the PIRLS participants in 2001 to the first place in 2006.

PISA data demonstrate a number of other adverse features. Thus, the share of Russian school graduates with the highest functional literacy level, as tested by PISA, differs markedly from that in all top performing countries: it is 0.5-1.7\% both in reading and mathematical/scientific literacy while in Finland, the Program’s leader in almost all areas, it is 3.9–16.7\%, which means that, compared to other countries, Russia has a very low share of most competent pupils\(^3\). Moreover, there has been a statistically significant reduction of the share since 2000.

Much fewer Russian pupils achieved basic functional literacy when they have skills allowing an intensive use of acquired school knowledge: 77.8\% in science, 73\% in mathematics and 64.3\% in reading vs. 90-97\% in all subjects in the top performing countries.

---

\(^1\) The Progress in International Reading Literacy Study (PIRLS) organized by the International Association for the Evaluation of Educational Achievement (IEA). The study covers pupils finishing their fourth year in primary school.

\(^2\) The Programme for International Student Assessment (PISA) implemented by the Organization for Economic Cooperation and Development (OECD). The Program covers 15-year-old students.

\(^3\) Pupils who can use knowledge acquired at school in various difficult situations; give explanations and reasons based on a critical analysis of the problem under consideration; link information and explanations from different sources; and use them in support of various decisions.
It should be also noted that a relatively large share of Russian pupils did not achieve basic functional literacy (e.g., 22.2% in science). It means that, after graduation from basic school, they have limited scientific knowledge which they can use only under familiar circumstances and give self-evident explanations clearly resulting from available data. The share of such pupils is 4.1% in Finland and 12% in Japan.

27% of Russian 15-year-olds failed to achieve a basic level in mathematics as defined by the professional community and reflected in international tests (35.7% in reading). It means that many basic school graduates in Russia are incapable of using reading for further education. Moreover, their number increased in 2006 compared to 2000 (see Fig. 1).

![Graph showing PISA-2000 and PISA-2006 outcomes for reading literacy in Russia and OECD countries.](image)

**Fig. 1. PISA-2000 Outcomes vs. PISA-2006 Outcomes: Reading Literacy**

The share of 15-year-old schoolchildren (%) who demonstrated a low, medium and high reading literacy level in the test. The Russian sample is compared with average data for the OECD countries which participated in the surveys (27 countries in 2000, and 30 countries in 2006. These data do not include figures for Russia.)

At the same time, PIRLS shows that graduates from Russian primary schools demonstrate a much higher level of attainment in reading literacy: 61% of pupils covered by PIRLS-2006 showed a high level of reading literacy by the three-level scale, which was sufficient for reading to become a learning tool in basic school. It was a significant improvement compared to 2001 (a 22% growth). The number of children with a low reading literacy level reduced by half.

---

In other words, the number of children with good reading skills increases in primary school, and the number of children with poor reading skills increases in basic school.

Despite Russia’s obvious success in PIRLS-2006, it should be noted that though the average test score of Russian schoolchildren (565 points) was above the mean international level (500 points) there was a large gap between the ‘extreme’ results: the lowest average achievement score among schools was 424 points while the highest one was 649 points. It means that there is a group of Russian schools where primary schoolchildren have a very low reading literacy level, which will undoubtedly affect their achievement at next learning stages.

A similar situation is observed in basic school, as shown by PISA.

Therefore, in order to improve education quality and provide for equal access to education by all children it is necessary to answer the following questions: Why do Grade 8 pupils in Russia have a lower reading literacy level than Grade 4 pupils? Why do different schools have different results in PIRLS and PISA?

The objective to answer these questions was formulated under a project involving an in-depth analysis of PIRLS and PISA results which is implemented by CICED in collaboration with U-HSE. Project Stage I (2008-2009) focused on the analysis of PIRLS-2006 outcomes. Ongoing Stage II has started in 2009, and the study has been expanded and is covering Russian schoolchildren’s achievement in PISA-2009.

---

5 Ibid.
Description of the PIRLS and PISA In-depth Analysis Project: Causes of Different Results

PIRLS and PISA give a huge amount of information on the educational environment at school and in the family, and this data source has been practically untapped in Russia.

The in-depth analysis of the aforementioned international studies would: identify the specific features of national education against the background of the most efficient education systems and in the context of countries with a similar socioeconomic potential; establish the dynamics of reading literacy at various education stages, and causes of the reading achievement gap between different education institutions; discover the most efficient teaching practices; and develop school/teacher assistance strategies and programs.

Intermediate Results

An in-depth statistical analysis was conducted at project Stage I, and factors affecting reading achievement in primary school were identified (Fig. 4).

![Chart showing factors affecting reading achievement](image)

**Fig. 4. PIRLS: Factors Affecting Reading Achievement of Russian Schoolchildren (as shown by the secondary analysis of PIRLS-2006 questionnaires)**

Standardized Beta Regression Coefficients
As indicated by the regression analysis of PIRLS-2006 data, the family had the most significant impact on children’s reading literacy in Russia. The more active position the parents took in teaching the child, the higher their own education status and interest in reading was and the better financial educational resources the family had, the higher result the child had in PIRLS. When children come from families with a low educational resource index, their achievement is dependent on the adequacy of school resources. At the same time, factors associated with school education strategies and teachers did not have a significant impact on children’s achievement in PIRLS-2006. It may be accounted for, among other things, by limited contextual information collected through the survey of school administrators, teachers, children and parents conducted parallel to PIRLS-2006.

![Pie chart](image)

Fig. 5. Identified Impact of Various Factors on PIRLS-2006 Results (as shown by the secondary analysis)

---


7 The questionnaires in Russian can be found on the website of the RAE Education Quality Assessment Center at: http://centeroko.ru
Establishing the school’s impact on PIRLS results requires other analytical tools, and therefore, the project team designed and piloted a methodology to identify strategies enabling the school and teachers to work efficiently in a difficult socioeconomic context and provide for reading literacy development. These strategies include:

- High mutual expectations of all educational process participants;
- An emphasis on academic achievement, and support of motivation to learn and reading activity;
- Targeting individual progress of all pupils irrespective of their academic capacity (‘enhancing life chances’);
- Creating a rich educational environment at school (a competent use of available resources);
- A high level of teaching skills; and
- Encouraging pupil’s activity and self-reliance in class, and providing opportunities for out of class learning.

Implementation of such strategies is a necessary prerequisite for schools which should address the issue of teaching quality improvement and enable pupils to raise their educational achievement.

The team also identified the types of tests that are most difficult for Russian schoolchildren. In literature, it was information interpretation and integration assignments. In general information tests, it was search for explicit information and formulation of direct conclusions based on available facts.

The team identified primary school textbooks that are most and least oriented to the development of reading literacy tested in PIRLS-2006. It was noted that 6 out of 7 most popular instructional sets in reading aloud provide for the development of both simple and complex reading skills, to a varying degree. Three of them are most efficient in that. However, textbooks in the Okruzhauschiy Mir series (the principal source of information texts for junior pupils) were not oriented to reading literacy development, except 1 textbook by Elkonin-Davydov issued under the development learning program and covering about 7% of Grade 4 audience.

Russia was considered in the project against the background of other PIRLS participants, which allowed identifying various specific features such as: weaker dependence of Russian schoolchildren on the school climate and adequacy of school resources; a negative impact of computer-based work on reading skill development; and a large amount of homework (several times larger than in other top performing countries) that has no influence on pupils’ reading achievement.

Materials have been prepared for publication in peer reviewed journals\(^8\). A publication entitled *The Impact of PIRLS-2006 in Russia* will be included in *Progress in Reading Literacy – The Impact*

---

of PIRLS-2006 in XX countries, an international edition issued under the auspices of the International Association for the Evaluation of Educational Achievement. A book entitled Russia in PIRLS: Factors of Success will be published at the end of 2009 in Russian.

The project allowed formulating preliminary conclusions on actions that may be taken by education authorities at different levels to ensure competitiveness of Russian education and equal opportunities for learning to read at school:

- To design programs and strategies for schools dealing with children who have to start their learning process in an unfavorable environment (lack of preschool training, migration, etc.);
- To develop a school education policy that would allow teaching children with different abilities: an additional set of actions for high- and low-performing pupils;
- To target teacher training/professional development programs to the acquisition of instructional skills required for reading literacy development;
- To design special programs for teachers of Russian as a Second Language (to teach migrant children in general schools);
- To design assistance programs for low-performing schools operating in a difficult socioeconomic context; and
- To change textbooks (e.g., the Environment textbooks for primary school) with due regard to the identified problems (insufficient work with information texts or dropout of specific reading skills).

In future, the project shall address the following issues:

- Establishing school clusters based on socioeconomic characteristics using the PISA-2009 database);
- Studying efficient and inefficient school practices in each cluster as related to the transition from primary to basic school;


It should be noted that, unlike research teams in other countries, we use an approach to the in-depth analysis of PIRLS and PISA results which features the establishment of school clusters on socioeconomic grounds and implementation of an additional qualitative study within the clusters.
• Preparing tools for self-diagnosis to be conducted by schools to assess the efficiency of their own strategies, including reading literacy development (at the initial and basic stages);
• Developing a creative methodology for in-depth analysis of data collected by large-scale education quality benchmarking studies to be applied in various country-specific contexts; and
• Determination of support strategies for school and teachers that need assistance more than others, and developing requisite recommendations.

Project recommendations and developments are addressed to education policy makers, management of education authorities at all levels as well as teachers both in Russia and other countries at the stage of national education system transition. It is only a set of joint efforts that would allow improving schoolchildren’s reading literacy and make progress in addressing the task of better education service provision to every child on a daily basis. 