In today’s world, education is turning into a major factor of economic growth, social stability, and promotion of civil society institutions. Many documents adopted in various countries emphasize the importance of educational systems to promote social intellect. Quality education and quality intellectual resources are turning into a key geopolitical factor. In these conditions, the establishment of a system for assessing the quality of education, which provides to society reliable information on the status of the education system becomes an objective requirement to improve education quality management, and adjust the content of education, improve the educational process, and, if required, change education policy.

A key priority in the national education policy is to set up a National education quality assessment system (NEQAS), integrating independent objective assessment methods and monitoring approaches. In order to successfully manage the system of education, it is vital to collect objective current and prospective data for various levels of the country’s educational system.

NEQAS structure is presented in the following chart
Under the project to set up NEQAS, a critical task is to improve the rating system of children’s education results.

At present, assessment of educational results of schoolchildren is performed in the process of:
- State high school graduates final attestation (11th grade), in the form of a Uniform State School Graduation Test, USGT;
- State basic school graduate attestation (9 grades) in a new, independent format (BSGA-9);
- International comparative surveys;
- Federal and regional-level monitoring surveys;
- Accreditation of educational institutions;

### Chronology of Russia’s participation in international high school education quality assessment surveys

<table>
<thead>
<tr>
<th>Survey</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIRLS</td>
<td>2001</td>
<td>2006</td>
<td>2003</td>
<td>2009</td>
</tr>
<tr>
<td>USGT</td>
<td>2001 test project</td>
<td>2009 operational</td>
<td>2003 test project</td>
<td>2009 operational</td>
</tr>
</tbody>
</table>
Second-generation general education standards

Pic. 2. Russian independent education level assessment introduction history

Uniform state test

The key element in a comprehensive reform of Russia's educational system is focused on increased accessibility, quality and effectiveness of education is the Uniform State Graduation Test (USGT), which was test-run in 2001.

As of 2009, USGT are held in a centralized way across Russia. Based on USGT results, graduates receive general secondary education certificates and are admitted to national universities. USGT promotes:

- Creation and development of education quality monitoring based on external independent assessment;
- Introduction of educational standards aimed at better educational results;
- Introduction of target training programs in senior high school grades;
- Transfer to regulated budget finance;
- Public involvement in education management process.

In April-June 2009, USGT was held in 83 administrative entities of the Russian federation and in 52 countries (Russian embassy schools, military bases, etc.). In Russia, USGT is held by the federal testing Center. In April-June 2009, a total of 995,295 students passed ESGT, including 3,258,606 individual tests. In 2009, the federal Institute of
Pedagogic Research developed 470 versions of tests in 14 training subjects. Six tests were converted to Braille type for children with impaired vision, and blind children.

Tests for 11th year high school graduates are developed on the basis of educational standards (2004 general and full high school education standards) with a focus on children’s ability to use knowledge under various situations, and in order to assess general education and intellectual skills of analysis, interpretation and summarizing information, and provision of judgment and argumentation.

USGT 2009 results are widely discussed at federal, regional and municipal levels, as well as in each high school and higher educational institution. That discussion also involves politicians, professional community (scholars, instructors, professors, methodologists and education managers) and public at large. USGT results are analyzed on the national and regional levels. USGT test results are instrumental in understanding area and subject specific achievements of high school graduates. The results are used to generate analytical reports and methodology papers for a wide range of educational professionals (instructors, methodologists, textbook authors, etc.).

Russian regions have started to use USGT results in regional education quality assessment and government decision-making.

**New format state (final) attestation of high school 9th grade graduates новой форме**

A second innovation in the system of education is the new format of state (final) attestation of 9th grade graduates (externally developed tests). The tests are held by municipal, territorial and district examination commissions, and not by high schools, as it used to be in the past. The system of independent assessment of general school graduates (nine-graders) was test-run in 2003, under a specialized education program.

In 2009, state (final) attestation of 9th year graduates were held in 9 general education subjects. Test materials were developed on the basis of 2004 general education standards by the federal Institute of pedagogic research. Practically all RF administrative entities (80 out of a total of 83) held 2009 general school tests in a new format. The new test was passed by over 1,487,000 students, which accounted for 95% of all general school graduates.
The test run showed that the new system of assessment of general school students is objective and reliable, which helps in professional orientation of students going over to the higher level of high school training. The new format of 9th-grader tests is turning into an integral part of regional-level education quality assessment systems set up under a comprehensive education modernization project.

**International comparative surveys**

As of 1088, the Russian Academy of Education and the Ministry of Education and science have performed joint comparative surveys to assess education results of Russian high school students under international projects and Russian national research programs based on international survey representative sample data.

Several international studies (PIRLS, TIMSS and PISA)¹, held by International Association International Association for the Evaluation of Educational Achievement (IEA) and Organization for Economic Co-operation and Development (OECD), make it possible to assess the status and trends of general education in various countries, determine specific aspects of training in reading, mathematics and natural sciences at primary, general and full high school levels and assess the quality of general education in Russia as per internationally developed training parameters. In 2006-2009, over 60 countries participated in international education research.

According to PIRLS study, in 2006, Russia’s 4th-graders (primary school graduates) scored the highest results among their age-mates in 40 countries in reading literacy and text comprehension skills (See Table 1). Russia’s 2006 results have improved in comparison to average international results and Russia’s 2001 results. By 2006, 61% of Russia’s 4th-graders displayed high and higher-than-average levels in text comprehension. There have been positive trends in other skills of Russian schoolchildren. It must be noted, that significantly better results were scored regarding the skills of finding most critical information in texts, conclusion making, interpretation, integration and analysis, and overall text assessment. The high results of Russian schoolchildren can be explained if we take into account the entire range

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of comprehensive changes which have taken place in the system of national primary education.

Table 1

<table>
<thead>
<tr>
<th>Countries</th>
<th>Average score</th>
<th>Tested Grade</th>
<th>Average age</th>
<th>Skill index **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>565</td>
<td>4</td>
<td>10.8</td>
<td>0.797</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>564</td>
<td>4</td>
<td>10</td>
<td>0.827</td>
</tr>
<tr>
<td>Alberta, Canada</td>
<td>560</td>
<td>4</td>
<td>9.9</td>
<td>0.950</td>
</tr>
<tr>
<td>Singapore</td>
<td>558</td>
<td>4</td>
<td>10</td>
<td>0.916</td>
</tr>
<tr>
<td>British Columbia, Canada</td>
<td>558</td>
<td>4</td>
<td>9.8</td>
<td>0.950</td>
</tr>
<tr>
<td>Luxemburg</td>
<td>557</td>
<td>5</td>
<td>11</td>
<td>0.945</td>
</tr>
<tr>
<td>Ontario, Canada</td>
<td>555</td>
<td>4</td>
<td>9.8</td>
<td>0.950</td>
</tr>
<tr>
<td>Italy</td>
<td>551</td>
<td>4</td>
<td>10</td>
<td>0.940</td>
</tr>
<tr>
<td>Hungary</td>
<td>551</td>
<td>4</td>
<td>10.7</td>
<td>0.869</td>
</tr>
<tr>
<td>Sweden</td>
<td>549</td>
<td>4</td>
<td>11</td>
<td>0.951</td>
</tr>
<tr>
<td>Germany</td>
<td>548</td>
<td>4</td>
<td>10.5</td>
<td>0.932</td>
</tr>
<tr>
<td>Netherlands</td>
<td>547</td>
<td>4</td>
<td>10</td>
<td>0.947</td>
</tr>
<tr>
<td>Belgium (Fl.)</td>
<td>547</td>
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<td>10</td>
<td>0.945</td>
</tr>
<tr>
<td>Bulgaria</td>
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<td>4</td>
<td>11</td>
<td>0.816</td>
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<tr>
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<td>10.9</td>
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<tr>
<td>Nova Scotia, Canada</td>
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<td>10</td>
<td>0.950</td>
</tr>
<tr>
<td>Latvia</td>
<td>541</td>
<td>4</td>
<td>11</td>
<td>0.845</td>
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<td>U.S.</td>
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<tr>
<td>Britain</td>
<td>539</td>
<td>5</td>
<td>10.3</td>
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<td>0.944</td>
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<td>4</td>
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</tr>
<tr>
<td>Chinese Taipei</td>
<td>535</td>
<td>4</td>
<td>10</td>
<td>0.910</td>
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<tr>
<td>Quebec, Canada</td>
<td>533</td>
<td>4</td>
<td>10.1</td>
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<td>New Zealand</td>
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<td>4.5 - 5.5</td>
<td>10</td>
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<td>Slovakia</td>
<td>531</td>
<td>4</td>
<td>10.4</td>
<td>0.856</td>
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<tr>
<td>Scotland</td>
<td>527</td>
<td>5</td>
<td>10</td>
<td>0.940</td>
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<td>France</td>
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<td>4</td>
<td>10</td>
<td>0.942</td>
</tr>
<tr>
<td>Slovenia</td>
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<td>3 or 4</td>
<td>10</td>
<td>0.910</td>
</tr>
<tr>
<td>Poland</td>
<td>519</td>
<td>4</td>
<td>9.9</td>
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<tr>
<td>Spain</td>
<td>513</td>
<td>4</td>
<td>10</td>
<td>0.938</td>
</tr>
<tr>
<td>Israel</td>
<td>512</td>
<td>4</td>
<td>10.1</td>
<td>0.927</td>
</tr>
<tr>
<td>Iceland</td>
<td>511</td>
<td>4</td>
<td>10</td>
<td>0.960</td>
</tr>
<tr>
<td><strong>PIRLS average international score</strong></td>
<td>500</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

According to TIMSS mathematical and science study (TIMSS 1995, 1999, 2003 & 2007), the level of 4th and 8th graders in mathematics and sciences is higher than the level displayed by all other countries. Russian schoolchildren do not have not displayed significant difference in general education results, compared to their age mates in a majority of economically developed countries, with the exception of the world’s leading Asia-Pacific countries (Japan, South Korea and Singapore).

At the same time, the studies showed that despite a sufficiently high level of area-specific knowledge and skills, Russian schoolchildren
experience difficulty in the application of those skills under circumstances similar to everyday life, and while processing data presented in various formats.

Significant changes of priorities in world school education (focus on competence approach continuous self-education, new information technologies, etc.) are reflected in PISA international program. PISA study provides assessment of the ability of general school graduates (15-year old students) to apply knowledge and skills obtained at school in socially and personally meaningful situations, going beyond purely academic environment (reading literacy and reading comprehension, mathematics and science literacy).

2006 study results showed that in all areas recognized to be critical for functional literacy, Russian 15 year-old students graduating general schools were significantly behind their age-mates in a majority of developed countries.

Conclusions regarding insufficient level of integrity of general education and communicative skills of Russian schoolchildren is confirmed by domestic experts working in the areas of general education modernization and reform (2001-2004), USGT, and the new system of final attestation of 9th graders.

If Russia’s results are compared with other countries, it becomes clear that domestic general education priorities differ from the priorities set out in many other countries. TIMMS results showed that the level of area-specific knowledge and skills of Russian 8th graders is on a par, or is higher than the level of students in many other countries, who, according to PISA studies, showed a significantly higher level of skills to apply their knowledge under situations outside training environment (for example, students in Finland, the Netherlands, Canada, Australia, Czech Republic, Hungary, New Zealand, Sweden, etc.). This suggests that at present, although a sufficient scope of subject-specific knowledge is provided to school students, Russian education system is not focused on development of their skills to go beyond the training environment where this knowledge was gained, or use creative approach in resolving problems.

That situation can be explained by the unnecessarily strong shift toward academic approach in Russian high schools, redundancy of information provided in school textbooks and heavy training curricula, and excessive focus in the training process on a few major areas.
Modern society requires a new understanding of quality education. Trainable persons are in higher demand than trained persons. People need the learner has become more than people trained. As opposed to passive encyclopedic knowledge, a person's ability to apply his knowledge for innovation is a key factor of success. The quality of education is viewed as a resource of socialization and self-realization of students. Increased attention is paid to assessment of the level of training and health of the younger generation.

Current 2004 general education standards focus on development of general skills and use of acquired knowledge and skills in practical work and everyday life. However, this is not enough. It is necessary to preserve best practice of Russian education, but. At the same time, re-target it at new educational results that would reflect absorption of substantive content (knowledge and skills, creative experience, etc.) but also metasubject skills (techniques applied in training and in addressing problems under real life situations), which would also include personal results (system of values, interests, student motivation, etc.). Russian Academy of Education is pursuing those goals in development of second-generation educational standards.

It will be possible to improve the quality of education and resolve all outstanding tasks through a comprehensive approach, including selection of optimal training processes and improvement of education system and quality assessment.
New Russian general education standards planned for introduction in 2010 are meant to help find the shortest ways for resolution of those issues. They specify requirements to results of new educational programs and provide for distribution of responsibility for achieved results among the education system, educational institutions and students. The standards:

- Set out educational system development targets, which determine principal trends in education policy, which the educational system participants are primarily responsible for (at federal, regional and municipal levels);
- Establish framework requirements to the content and set up of educational process, which must be met by educational institutions;
- Provide a general outline of expected individual results of school students, which may, or may not undergo final assessment.

Therefore, major assessment approaches under a new result assessment approach must be applied with regard to:

- Educational systems (national, regional and municipal);
- Educational institutions and instructors;
- School students.

The assessment system, reflecting diverse approaches implemented in the new standards, may be viewed as a framework for federal-level general education system. It performs the function of feedback and regulation of the education system and is meant to target the educational process at implementation and achievement of planned results of inter-disciplinary curricula (primarily including universal training activity programs) and subject-specific curricula.

The proposed system contains the following special features:

- Comprehensive approach to assessment of education results (assessment or subject-specific, metasubject and personal results of general education);
- Application of planned targets of educational programs in criteria-based and content-specific assessment;
- Assessment of successful training results as per specific training subject on the basis of a systemic/activity approach, manifested in the capability to fulfill practical training tasks;
- Assessment of trainees' positive educational dynamics;
- Combination of external and internal assessment as a mechanism to promote educational process quality;
• Comprehensive application of final assessment procedures and attestation approaches and results of educational system trend monitoring;
• Breakdown of target results, applied approaches and data presentation into various levels;
• Application of a cumulative assessment system (portfolio), specifying positive individual training dynamics;
• In addition to standard written and oral tests, use of test projects, practical, creative, self-assessment, observation, and other tests;
• Application of contextual information about curriculum terms and specificity and interpretation of pedagogic test results.

The final grade received in preliminary school required for decision on the possibility/impossibility of taking up higher-level education, is exclusively based on subject-specific and metasubject results, outlined in “Graduates will learn” Section.

The subject of final assessment is the student’s capability to resolve training/cognitive and hands-on tasks based on basic knowledge system resources and training subject techniques, including those which are based on formulated metasubject actions.

The ability to resolve other tasks is the subject of all kinds of monitoring surveys.

At early stages of training, especially critical is the student’s ability to absorb basic knowledge in Russian language and mathematics, and master speech metasubject actions, including conscious reading and data handling skills.

**Federal and regional-level monitoring programs**

A totally new set of school education studies was jointly implemented by the Russian Academy of Education and the Federal Institute of Pedagogic Research in 2007-2009, including *start-up diagnostics of student preparedness for training at various educational stages and assessment of positive educational dynamics.*

One survey dealt with assessment of first-grader preparedness for school education. The project covered over 36,000 first-graders at primary schools in eight Russian regions. Collected data dealt with
children’s cognition levels, completeness of required prerequisites for language and math training, overall training skills, etc.

The goal of a follow-up project was to study preparedness of preliminary school graduates to continue their general education. Over 11 thousand 5th grade students were surveyed at the early stage of general school, with a focus on knowledge and skills in mathematics and Russian language), which ensure successful continued education in general school. General training skills were simultaneously assessed including the child’s ability to set up educational process, motivation, subject-specific communicative skills, etc.

Both projects dealt with children’s families (family social and economic status, family-level support of school training), children’s health, and some other parameters.

Data obtained in the course of the studies will help the regions in taking decisions on individual support of every child and instructors in optimization of student-focused training process. Survey results have started to be used in instructor and school effectiveness assessment.

In addition to academic and research efforts, several institutions have used the experience of Federal Institute of pedagogic research to perform education quality assessment under the terms of services provided to the regions.

The goals of that activity include:

- Assistance in setting up an independent education quality assessment system in Russia;
- Support of education authorities of RF administrative entities in resolving administrative and training/methodology tasks in education quality management;
- Development of education test concepts and procedures;
- Promotion of various aspects of education quality assessment.

In 2007, three programs were launched in 20 Russian regions, including:

1. Student performance monitoring. The program monitors general education and cognitive skills as per specific training areas. Monitoring in primary, general and senior high schools is performed as per four areas: mathematics, Russian language, natural, social and humanitarian science.
2. **Assessment of student education level in the process of state accreditation of high schools**, with the test framework used for assessment of 2004 general education standard compliance.

3. **Assessment of preparedness for final state attestation**, including the following to areas:
   - Preparation for state (final) attestation of general school graduates in accordance with the new format;
   - Preparation for the Uniform State Graduation Test.

Tests developed in accordance with newly-accepted training models and focused on subject-specific tests, represent a logical conclusion of major subject-matter blocks, ensure effective instructor monitoring and, if required, make it possible to activate the system of compensatory pedagogic activities.

Results of education quality assessment activities may be used to assess regional educational institutions and instructor advanced training systems, as well as in the efforts to optimize the systems and education quality control; education quality management; instructor attestation and accreditation of educational institutions.

In addition to the above-mentioned programs, other prospective research projects are under way in Russia to assess training potential of children in primary schools, and in-depth analysis of results of comparative surveys covering Russian school students.

**Primary school training subject competence monitoring**

An urgent task in modern efforts to measure school performance is to merge assessment with educational practice. A group of Russian experts is developing a feedback system for school instructors, including the framework for training subject competence monitoring in primary schools.

That framework is based on the findings of Russian pedagogic psychology associated with the scientific school of L.S. Vygotsky. In accordance with that method, educational process is understood as a “cultural development” process.”

The authors of the system focus on the process of absorption of cultural values, ways of thinking and behavior patterns, forming the backbone of school education.
The developed benchmark materials will help in assessment of several types of “literacy” among junior school children, related to mastering activity-specific content of training disciplines (math, language, natural science, as well as fiction and general information text reading literacy.

The set of benchmark materials includes lists of questions to collect additional education process data during surveys of school students, instructors, parents and school officials.

As of 2006, the program has been tested in 12 administrative entities of the Russian Federation and covered close to 2,500 primary school students. The program’s international expert assessment will soon be completed. The effort is continuing under the programs of the International education development center.

Results of monitoring efforts will help to assess performance of individual students and groups of school children. At the same time, the above-outlined techniques will be help school instructors in assessment of their performance required for their efficient professional growth.

**In-depth analysis of PIRLS and PISA international education quality assessment projects**

PIRLS and PISA international comparative quality assessment studies conducted in 2006 have identified an important feature of training of Russian schoolchildren in reading literacy. Under PIRLS-2006 Russian 4th graders demonstrated high results in reading. Russia was placed at the top of the list of lead PIRLS participants.

PISA-2006 tests of functional literacy among 15-year-old students put Russia far below the average level for OECD countries in reading literacy, while in math and natural science literacy Russia was rated 37th and 40th among the 57 participant countries. Therefore, we can talk about a visible decrease in the level of school students’ performance following their transfer from primary school to general school level. In order to raise the quality of education and provide equal access to education for all children, we must provide the answers to the following questions: “What’s the explanation of the fact that the reading literacy of Russian 8th-graders is lower than the reading literacy of 4th graders?” and “Why did various schools have displayed various results under PIRLS and PISA surveys?”
The answers to these questions were to be provided under a project of in-depth analysis of PIRLS and PISA survey results implemented by the International education development center and State University-Higher School of Economics. An in-depth analysis of PIRLS and PISA surveys and associated additional data assessment will determine the main aspects of national education system compared with most effective education systems in other countries, as well as in the context of countries with a similar social and economic potential; determine reading literacy dynamics at various educational stages; establish the reasons for gaps in reading literacy results among various education institutions; describe best pedagogic practice; and develop strategies and assistance programs for schools and school instructors.

Research inputs include PISA and PIRLS data array, results of additional tests at different education stages and qualitative research in various regional schools.

Project recommendations and findings are addressed to instructors in Russia and other countries going through the process of reforms of national education systems, as well as to educational authority officials, and education policy-makers.

_Institutional potential of Russian education quality assessment system_

Efforts to develop elements of Russia’s national education quality assessment system are implemented under federal programs and the national comprehensive educational project. Over half of Russia’s regions are setting up education assessment centers, participating in the system of federal-level comparative educational quality assessment, and launching independent mentoring projects.

NEQAS requires active involvement of current institutions, mechanisms and procedures: Uniform Graduation Test, expert assessment and certification, accreditation, monitoring and diagnostics projects, statistical projects, if these elements are improved in accordance with the overall strategy for the Russian education quality assessment system, and if new institutions and mechanisms are set up. Below is the current NEQAS diagram.
RF Ministry of Education and Science формирует приоритеты в области образования посредством государственного образовательного стандарта.

The Federal education and science supervision agency supports the regions in providing access to quality education and performs college licensing and accreditation activities.

The agency includes four subdivisions, each performing specific education quality assessment tasks:

Federal pedagogic research institute is developing standard test materials and trains education assessment experts who develop and carry out education tests.
Federal test center provides technical and information support of Uniform Graduation Tests.

Education quality assessment center, at the Institute of training content and methods of the Russian Education Academy is supporting development and implementation of international education quality assessment studies (PIRLS, TIMSS, PISA, CIVIC, SITES) in Russia, and participates in development of USGT support materials and development of a system of second-generation education standards.

In addition to the above-mentioned institutions, NEQAS is supported by federal and regional scientific research institutes and regional education supervision authorities and education quality centers.

The national education quality assessment system is established to improve education quality control and monitoring, and provide information to the public and professionals working in the area of education.

After the national education quality assessment system is set up, it will help to resolve the following comprehensive and urgent goals:

- Objective and fair conditions of admission to education institutions;
- Establishment of a single general education environment;
- Efficient provision of information to the end user of education services required for making vital decisions (on continued education or employment);
- Adoption of justified management decisions by education authorities at all levels;
- Establishment of national expert potential;
- Creation of a system providing training and advanced training of experts in pedagogic research and education quality assessment.