

NAZARBAYEV INTELLECTUAL SCHOOLS AEO

# ANNUAL REPORT

FOR 2016



## PART 2

SHARING NIS EXPERIENCE  
in 2016



## LIST OF ABBREVIATIONS

<b>NIS</b>	Nazarbayev Intellectual Schools Autonomous Educational Organization
<b>HEI</b>	Higher educational institution
<b>WKO</b>	West Kazakhstan Oblast
<b>SCES</b>	State Compulsory Education Standard
<b>IAC</b>	Information-analytical centre
<b>LEA</b>	Local executive authority
<b>MES</b>	Ministry of Education and Science of the Republic of Kazakhstan
<b>MD</b>	Ministry of Defense of the Republic of Kazakhstan
<b>MS</b>	Multigraded school
<b>NAE</b>	Altynsarin National Academy of Education
<b>NDU</b>	National Defense University of the Republic of Kazakhstan
<b>Orleu</b>	Orleu National Center for Professional Development
<b>NTC</b>	National Testing Center
<b>NDU</b>	First President National Defense University
<b>ERC</b>	Educational Resource Center
<b>DE</b>	Department of education
<b>ATS</b>	Academic and teaching staff
<b>RK</b>	Republic of Kazakhstan
<b>RPhMS</b>	Republican Physics and Mathematics School
<b>SCP</b>	Standard course plan
<b>LEA</b>	Local education authority
<b>DER</b>	Digital educational resources
<b>CEP</b>	Center for Educational Programs
<b>CPM</b>	Center of Pedagogical Measurements
<b>CE</b>	Center of Excellence
<b>Zhas Ulan School</b>	MD General Nurmagambetov Zhas Ulan Republican School
<b>SKO</b>	Southern Kazakhstan Oblast



**«By 2020 all schools will have shifted to 12-year education.**

**All that has been successfully piloted in Intellectual Schools should be integrated around the country over three or at most four years ...”**

*Speech of President of Kazakhstan N. Nazarbayev in  
the opening the Parliament's first session  
of the sixth call  
March 25, 2016*

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## THE LIST OF ORGANISATIONS, INVOLVED IN THE DISSEMINATION OF THE NIS EXPERIENCE

Ministry of Education and Science of the Republic of Kazakhstan

Altynsarin National Academy of Education

Orleu National Centre for Professional Development (MES)

National Testing Centre (MES)

Dopolnitelnoye Obrazovanie National Training and Methodological Centre (MES)

Uchebnik National Science and Practice Centre (MES)

Doshkolnoe Detstvo Centre (MES)

Centre for Information and Analytics (MES)

Republican Physics and Mathematics School in Almaty and Astana

19 universities (that prepare pedagogy staff)

25 regional colleges

First President National Defense University

4 MD Nurmagambetov Zhas Ulan national schools

16 local education authorities

201 district and city departments of education

211 methodology departments

30 pilot schools

35 basic schools

45 Kyzylorda Oblast Innovative schools

12 Astana comprehensive schools

18 multigraded schools in Arshaly district and Akmola oblast

Over 7000 comprehensive schools



## INTRODUCTION

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One of the main strategic areas for Nazarbayev Intellectual Schools Autonomous Educational Organization is sharing its experience with the country's system of education.

Expanding the scale of interaction and its influence as a leading educational organisation in Kazakhstan, NIS recognises the significance of reinforcing the interaction with educational organisations on the national level and in the regions, which is why this annual report focuses on cooperation.

Modernisation in education is rarely conducted simultaneously in the entire educational space of the country. In many countries in order to innovate the system of education the experimental platform or leading school method is applied. For example, in the UK, Singapore, China there are leading schools that serve as a scientific base for implementing innovations; In Kazakhstan, this role is fulfilled by Intellectual schools.

This approach implies a serious work on transforming education through a comprehensive and system integration of the content of education, pedagogy and assessment with the learners' needs and teachers' development.

The comparative advantage of NIS is the ability to solve difficult tasks by providing a combination of the analytical depth at the national level and the scope of reach in the global educational space, multi-area knowledge and the ability to attract and efficiently use resources.

Upon the request of the Ministry of Education and Science of the Republic of Kazakhstan NIS jointly with Altynsarin NAE analysed and combined the international experience and national practice to develop, adapt, and pilot a new content of education

in 30 pilot comprehensive schools in the country.

The new standard was widely discussed on the country-level with various stakeholders: educational executive bodies, methodologists, scientists, college representatives, state bodies and business structures, pedagogic and parents communities.

The Parliament and the Mazhilis of the Republic of Kazakhstan were of great help in implementing the new State Compulsory Standard of Education, providing feedback from regions, approaching issues at committee meetings and on the government level.

Opinions shared at a number of meetings helped change many people's and the local communities' way of thinking. The country supports the updating of the content of education, which is evident from the feedback on forums and blogs.

The 25th anniversary of the Republic of Kazakhstan was a special year for the education system.

**September 1, 2016, a large-scale introduction of the renewed content of education in Grade 1 of all schools in the country** was launched.

Intellectual schools in all 16 regions became resource centers for the introduction of innovations in the educational process.

In parallel with the development of the standard and training programs, advanced teacher training in teaching methods and technologies is organized, in the context of the introduction of the renewed content of education.

In 2016, a lot of effort has been made to link public awareness campaign, local activities and cooperation with stakeholders at the national level.

The culmination point of NIS public awareness campaign was the 2016 Republican August conference when all educational materials and educational resources were multiplied at the request of local executive bodies for regional August meetings, which enabled to reach every teacher in the country.

Thus, NIS translated experience in a complex way: the content of education – the system of assessment – the system of pastoral work – professional development of teachers.

The main result of the translation of the experience of 2016 was:

- ▶ **More than 85 000 teachers** underwent training on renewed content of education, where **41 909 teachers** were trained at the premises of Centre of Excellence (**7 192 coordinators** on criteria-based assessment and **8 737 school** trainers on teaching methods and technologies), 44,014 people at the premises of Orleu.
- ▶ Open access to the developed resources through the system-methodical complex for all teachers in the country;
- ▶ **The large-scale integration of the renewed content of education to the system of secondary education of the Republic in Grade 1 among 7 160 compulsory schools** since **September 1, 2016.**

The determination of the Ministry of Education and Science of the Republic of Kazakhstan, and the support of the Government of the Republic of Kazakhstan in the process of the renewal of the content of education are encouraging: together we shall cope with the challenges of the times and build a strong education system.

In parallel with the large-scale renewal of the content of education, Ministry of Defense of the Republic of Kazakhstan and akims of Kyzylorda, Akmola regions and Astana initiated memoranda on the targeted in-advance preparation of a number of regions and educational organizations.

Thus, this report presents the materials of the comprehensive work on the translation of experience by NIS.

All NIS experience translation efforts have one common task of finishing the introduction of the renewed content of education in Kazakhstan by 2019 and performing continuous professional development of teachers.





## VISITS

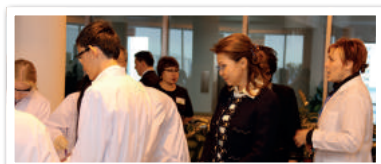
Head of State Nazarbayev N, State Secretary of the Republic of Kazakhstan Abdykalikova G, Deputy Prime Minister of the Republic of Kazakhstan Nazarbayeva D visited Intellectual schools in 2016. 5 official visits of international delegations took place.



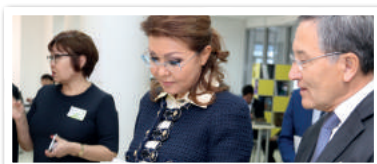
Visit of the Secretary of State of the Republic of Kazakhstan Abdykalikova G.N. to Aktobe PhM NIS



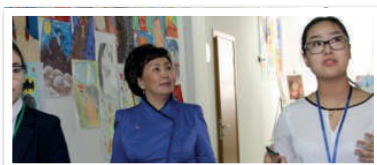
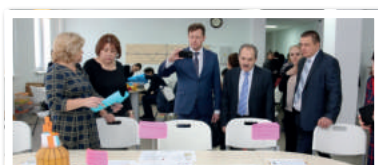
Visit of the Head of the State Nazarbaev N.A. to Aktobe PhM NIS



Official visit of Tatarstan's delegation to Astana PhM NIS



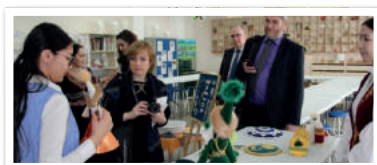
Visit of the Deputy Prime Minister of the RK Nazarbayeva D.N. to Astana PhM NIS



Official visit of Yakutia's delegation (the Republic of Sakha) to Astana IB NIS



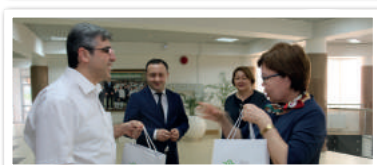
Visit of Moscow Schools' Principals to Astana IB NIS



Visit of the UNESCO delegation to Astana PhM NIS



Visit of Azerbaijan Embassy to Astana PhM NIS



Visit of Olympic Champions – Gold medalists of the Summer Olympic Games 2012 Serik Sapiyev and Alexander Vinokurov to Shymkent ChB NIS



## UNIT 1.

### EDUCATIONAL CONTENT DEVELOPMENT



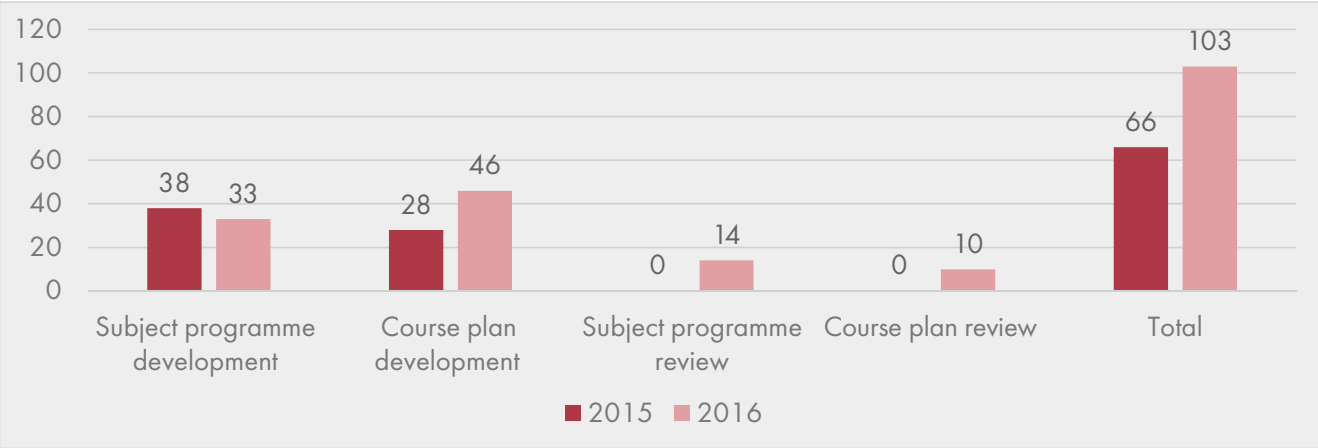


# UNIT 1. EDUCATIONAL CONTENT DEVELOPMENT

In 2016, NIS continued developing projects of State Compulsory Education Standard, subject programmes and medium-term plans for subjects

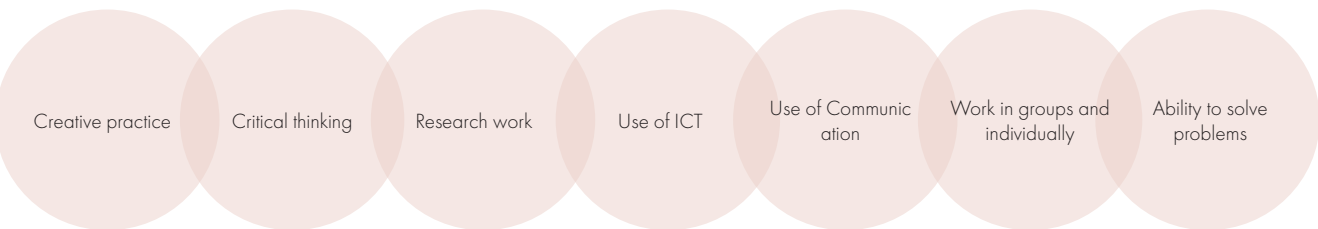
of secondary and senior schools. 79 subject programmes and plans have been developed, and 24 have been revised.

*Diagram. Development and follow-on revision of subject programmes and plans in the framework of the education content renewal of 2015 and 2016*



The standards contain fundamental approaches to determining the content of the Integrated Educational Programme, a conceptual framework document that establishes long-term values and goals for education.

The established learning objectives are achievable and measurable, they determine the cognitive activity of learners and are aimed both at forming academic knowledge and developing universal **skills**:



NIS involved scientists, educators, and teachers of compulsory schools in the development and follow-on revision of subject programmes and course plans. This approach allows the formation and development of human capital, capable of designing innovative subject programmes and plans.

Working groups prepared **the following standard subject programmes and course plans:**

**At the level of primary education:**

1. The subject programmes such as «Kazakh language (L1)», «Russian language (L1)», «Literature reading» have been developed;
2. «Visual arts» and «Crafts» have been integrated in Grades 1-4. As a result, the subject programmes and medium-term plans on «Arts» have been developed.
3. In Grade 1, the workload in «English language» per week was increased from 1 hour to 2 hours, and on «Kazakh language» in non-kazakh speaking classes was increased by 1 hour. In this regard, the subject programmes and medium-term plans on these subjects were revised.

**At the level of lower secondary education,** in Grades 5-9 such subjects as «Visual arts» and «Technologies» were integrated into «Arts».

**At the level of upper secondary education:**

1. The Subject Programme and medium term plans on «The fundamentals of Economics and Entrepreneurship» has been developed with the participation of representatives of the Atameken National Chamber of Entrepreneurship and professors of Almaty Management University (AlmaU) as well as teachers of Intellectual schools.
2. For classes studying in Kazakh, the integrated subject «the Kazakh language and literature» has been divided into independent subjects as «the Kazakh language» and «Literature». Correspondingly, for classes studying in Russian the subject «the Russian language and literature» will be taught separately as subjects like «the Russian language» and «Literature»
3. The standard course plan for Grades 10-11 includes the subject Fundamentals of Law for the social and humanitarian strand as an optional subject at the standard level.

The outcome was:

- **approved** by the resolution of the Government of the Republic of Kazakhstan №292 dated May 13, 2016 **State Compulsory Education Standard of lower secondary and upper secondary education** that were published in national mass media.
- **approved by orders of the Minister** of Education and Science of the Republic of Kazakhstan dated July 7, 2016 and July 15, 2016 № 453 **Standard Subject Programmes and Course Plans** of primary and secondary schools.

The Curriculum Reforms in Secondary Education Initiative provides for step-by-step implementation of criteria-based assessment system of learners' academic performance for objective evaluation of progress in learning, integration of learning and assessment.

Criteria-based assessment is intended to develop learners' research skills, the ability to integrate gained knowledge and implement them in solving problems, the ability to work as a part of team and independently.

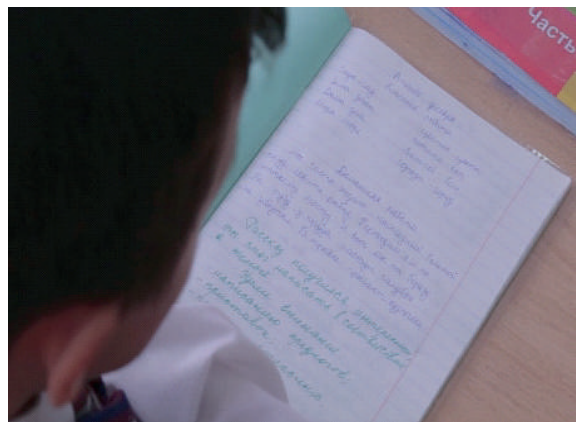
In order to provide methodological assistance in implementation of criteria-based assessment for teachers of Grade 1 in comprehensive school and of Grade 2 in pilot schools the following has been developed:

- **36 collections** of tasks on formative assessment in Kazakh and Russian languages for Grades 1 and 2;
- **36 best practices** on summative assessment in Kazakh and Russian languages for Grades 1 and 2;
- **guidance** on criteria-based assessment for teachers of primary schools in Kazakh and Russian languages;
- **guidance** on criteria-based assessment for regional and school coordinators in Kazakh and Russian languages;



- **2 information brochures** about criteria-based assessment for parents and learners studying in Kazakh and Russian languages;
- **methodology of electronic journal** and forwarded to Kundelik.kz JSC.

Besides, NIS has created a series of **videos** about criteria-based assessment of learners' academic performance to raise public awareness of the main features of implementing it within the Curriculum Reforms Initiative. It will enable better knowledge and understanding of the ongoing changes in the assessment system and raise the quality of teachers' assessment practice.



## UNIT 2.

30 PILOT SCHOOLS





## UNIT 2. 30 PILOT SCHOOLS

### 2.1. PILOTING AND IMPLEMENTATION OF EDUCATIONAL CONTENT

The educational programme was approbated in 30 pilot schools in urban (18) and rural (12) areas, including underfilled schools (4). The Ministry of Education and Science of the Republic of Kazakhstan appointed Altynsarin National Academy of Education the coordinator of the approbation process.

The normative legislative framework on the approbation of the renewed content of education was designed and approved by the Ministry of

Education and Science of the Republic of Kazakhstan during the 2014-2016 years period.

September 2015 marked the launch of the approbation of the renewed content of education SCPES according to the implementation schedule<sup>1</sup>.

<sup>1</sup> The decree of the Minister for Education and Science dated April 3, 2015, #157 «Concerning the implementation of the changes into the decree of the Minister for Education and Science dated November 4, 2014, #452 «On the Approval of the provision on the approbation of the academic programmes in primary school»

**Table. Schedule of implementing the renewed content of education MES RK**

Academic year	Pre-Prep	1	2	3	4	5	6	7	8	9	10	11
2015-2016	A+E	A+E										
2016-2017		1	A+E									
2017-2018		1	2	A+E		5(6)		7(8)				
2018-2019		1	2	3	A+E	5(6)	6(7)	7(8)	8(9)		10(11)	
2019-2020 (renumbering)	1	2(1)	3(2)	4(3)	5(4)	6		8	9	10	11	12

A – Approbation; E - Experiment;

- the academic process in the existing curricula
- the approbation of the renewed curricula
- the implementation of the renewed curricula

Before the approbation of the new content of education, a substantial work with all potential participants of the project implementation was conducted: including primary schools' teachers and pilot schools' leaders and MES workers.

During the approbation the following was conducted: gathering of information, data process and analysis, class expert monitoring, feedback, initial and final diagnostic testing, conclusions and recommendations on changing and improving curricula.



## Methodological support

To support and successfully implement the curriculum reforms in education:

- ▶ A consulting group consisting of programme, textbook, assessment systems, digital educational resources developers was created.
- ▶ SMC [www.smk.edu.kz](http://www.smk.edu.kz) website is fully functioning, which can be accessed by any teacher in the country starting from August 2016.
- ▶ a discussion platform is now in operation, which serves as a forum, where pilot schools educators can share their experience, class and resource plans, discuss professional issues with teachers and programmes developers.
- ▶ The «Experiment Library» consisting of 63 thousand exemplars of academic material in 132 items was established and is being expanded with methodological literature for teachers every 3 months.
- ▶ Every pilot school is allocated to the local Intellectual school. A plan for the cooperation of Intellectual and pilot schools was outlined, where the events aimed at methodological and resource support of school teachers and administrators were pointed out. Creative groups consisting of teachers, that had taken courses and had a great practical work experience were created, today they are the main curators of renewing the content in their respective regions.
- ▶ 32 COE trainers in their regions were attached to pilot schools, which provide practical assistance in the methodology and offer approaches to teaching on-site. Trainers apply major efforts in school: monitoring in Grade 1, joint planning of classes and events, training courses, workshops, reciprocal visiting of classes, post-course monitoring, discussions with teachers, school administration and parents.

A teachers' professional network community was established, which allows trainers to provide a extensive methodological assistance and consulting pilot, leading and partner schools teachers. Working in the network community school leaders and teachers can improve their pedagogical competence by sharing experience, discussing issues online and offline. There are 89.1 thousand registered users (23% of the total number of teachers in Kazakhstan).

## CURRICULUM REFORMS APPROBATION MONITORING

The approbation of the curriculum reforms in education in Grade 1 was monitored in accordance with the SCPES Methodology of approbation monitoring, approved by the MES on July 21, 2015.

Information was gathered with the help of:

- ▶ SMC website,
- ▶ direct phone calls and letters addressed to NIS workers.

One of the SCPES approbation monitoring stages is a diagnostic testing of grade 1 learners in pilot and control schools.

The diagnostics of Grade 1 learners was conducted at the beginning of the academic year (the third week of September 2015) and by the end of the academic year (the fourth week of April 2016).

Diagnostic testing involved Grade 1 learners **from 30 pilot and 16 control schools.**

During the diagnostic testing, the knowledge and skills of the learners were assessed on the following subjects: «World Understanding», «Science», «Literacy» and «Mathematics».

Testing at the beginning of the academic year is aimed at determining the level of learners' readiness for school in accordance with the expected outcomes of the pre-school educational program.

Testing at the end of the academic year is aimed at measuring learning progress and undertaking a comparative analysis of learners' abilities among pilot and control schools on the basis of data collected at the beginning and at the end of academic year.

According to statistical data, out of **learners** who took part in the testing, **83.6% (4,122)** had taken preschool education, **and 16.4% (810) learners did not.**

The analysis of the results in terms of attendance of pre-school institutions did not show a significant difference in the results of both groups of learners. The average score of learners in the beginning of the academic year: Learners who passed the pre-school training received 114.8 points, while those who did not pass receive 113.7 points. At the end of the



academic year, the average score among those who passed pre-school training was 134 points and 135.2 points among those who did not.

It is worth mentioning that the piloting implementation of new content in Grade 1 was successful. This is evidenced by the results of monitoring: Improvement of quality of education, a positive attitude of learners and parents towards the educational process, a change in the reflective practice of teachers.

Furthermore, a research was conducted 2016 by Cambridge University Faculty of Education, Nazarbayev University Higher school of Education and Nazarbayev Intellectual School.

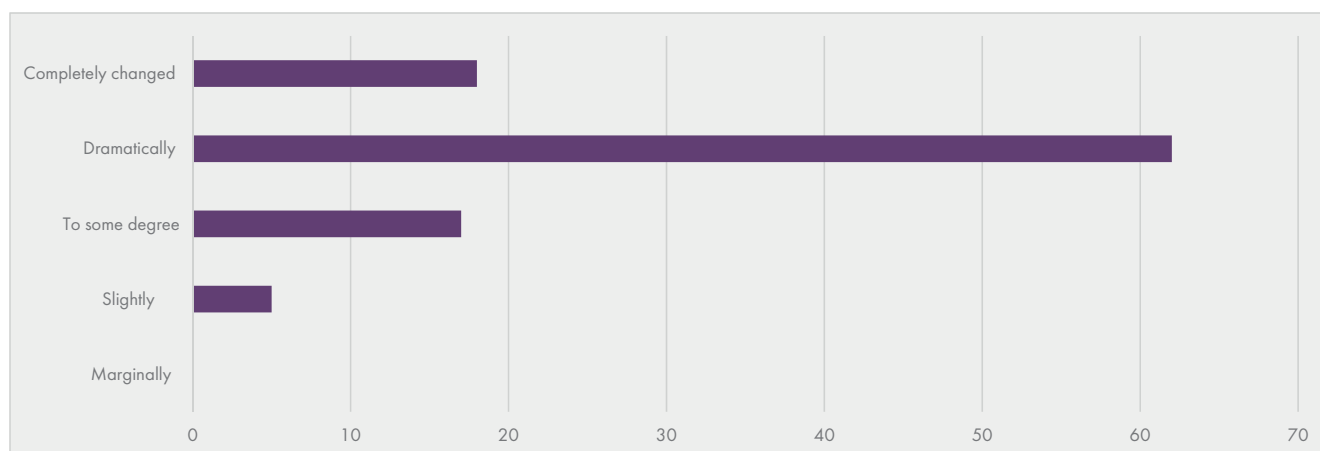
**The main outcome of the research is the fact that since the Curriculum Reforms implementation started, teachers' experience and practice changed<sup>1</sup>.**

The qualitative data has shown that many teachers and school leaders consider new programmes a significant shift in pedagogical thinking and practice, and quoting on the pilot school teacher: «We have had reforms before but this is a whole paradigm change».



<sup>1</sup> Source: Kambatyrova, A., Kurakbayev, K., McLaughlin, C., Ramazanov, A., Torrano, D., Winter, L., & Fimyar, O. (2016, November). Report on the introduction of the new curriculum, pedagogy and assessment in primary schools (Grade 1 in Kazakhstan). Fifth Report on the research collaboration between University of Cambridge Faculty of Education Nazarbayev University Graduate School of Education.

Ratio of primary school teachers in 30 pilot schools responding the question "How has your pedagogic approach to teaching changed since September, 2015?" (n – 282 teachers)



Teachers believe that new primary school curricula are aimed at developing children's functional literacy, for example, the ability to apply knowledge in real life, efficiently analyse data, give their opinions a theoretical ground, interact and resolve issues in different situations.

One of teachers commented on this saying, «Tasks encourage actions. For example, let's take a look at some tasks on «Understanding the world». For example, this topic here «Why is it warm in the flat?». Following simple rules, children compare a fireplace, furnace and heaters. Working in pairs or groups they come to certain conclusions during their reflective activities. This small activity is still a discovery for them and later with the tasks getting more difficult, they will learn to work individually.

The results show that Grade 1 teachers in 30 pilot schools (282 teachers) speak, in general, positively of the curricula reforms. Teachers agree that the subject curricula meet the ends of the new standard.

**In conclusion, in comparison with the colleagues who work according to the old curricula, teachers, working in the framework of the curricula reforms initiative, show a more positive attitude towards the new standard.**

**88% of teachers**, who work according to the new standard, partly or fully agree with the statement «the subject content is applicable to the learning objectives and the curriculum tasks». The rate of teachers who work according to the **old standard is lower, the percentage being 81%.**

Thus, **80% of Grade 1 teachers** expressed their partial or full agreement with the statement «the number of subjects in the new curriculum is acceptable in terms of achieving objectives and fulfilling the tasks of the curriculum».

**In the sphere of education, teachers point out the shift in their role, which requires them to apply new methods in their work and prepare for lessons in a more thorough fashion.**

Teachers made an observation that learners are now more eager to attend classes and find educational approaches interesting and entertaining. These observations correspond with teachers' feedback on learners' increased motivation.

Cooperation has grown and teachers interacted with colleagues in their and other schools. Teachers and assistant learners cooperated in various forms. Teachers were engaged in joint planning and teaching, reciprocal visiting of classes, workshops and group learning. This brought about fresh impressions and initial difficulties but teachers say that it was a valuable experience.



However, according to the studies, pilot schools face such difficulties such as workload on teachers, insufficient resources and need for additional support in teachers' professional development.

The report presents recommendations on implementing the Curriculum Reforms.

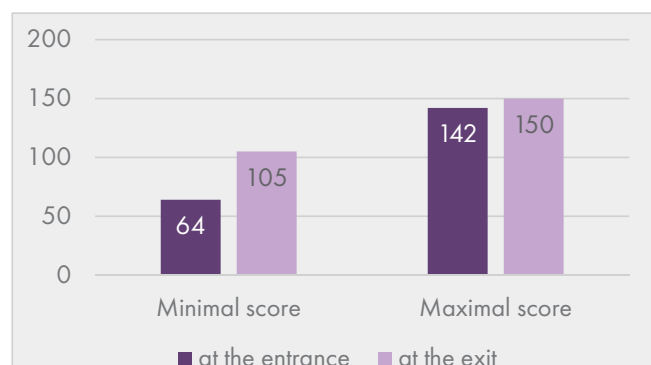
The monitoring results were used to give recommendations a solid ground in order to improve the educational process in terms of its organisation, the structure and the content of the curricula, the system of assessment, textbooks, the content of professional development courses for teachers and school leaders.

As a result of the monitoring and the subsequent analysis of the gathered data from 10 subject curricula were reviewed and necessary specifications and additions were made.

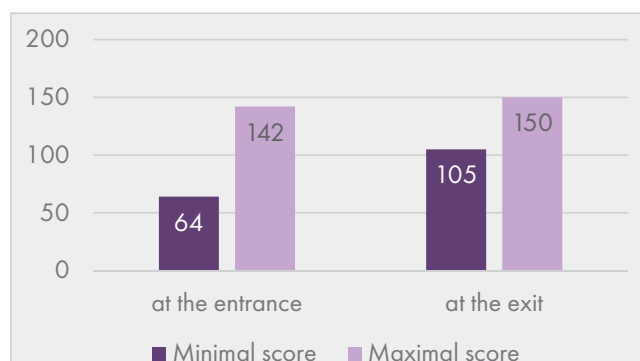
Amendments in the programmes were made in consideration of recommendations of scientists, pedagogical employees of the country and authors of textbooks, and parents.

In addition, the diagnostic testing was carried out in the beginning of academic year «**at entrance**» (the third week of September) and in the end of academic year «**at the exit**» (the fourth week of April).

*Diagram. Comparative results of capabilities «at the entrance» and «at the exit» in pilot and control schools*



The difference in pilot school «at the entrance» was 78 points, «at the exit» - 45, i.e. **decreased by 33 point.**



The difference in control school «at the entrance» was 61 points, «at the exit» - 54 points, i.e. **decreased by 7 point.**

The progress of average score +25,1	Pilot school		The progress of average score +11,9	Control school	
	By school types			By school types	
	+17,3	underfiled school		+11,5	underfiled school
	+23,7	lower secondary school		+11	lower secondary school
	+20,5	lyceums		+15,8	lyceums
	+27,6	gymnasium		+11,6	gymnasium
	by language of instruction			by language of instruction	
	+25,4	Kazakh		+10,1	Kazakh
	+24,3	Russian		+13,4	Russian
	+8,1	Uighur		+14,8	Uighur
	by location			by location	
	+22,7	village school		+6,9	village school
	+25,4	city school		+13,7	city school

The diagnostic testing showed a good performance of pilot school learners, reduction of differentiation between more able and less able learners, village and urban schools, lyceums and secondary schools, reflecting the equal access to qualitative educational services.

## TRAINING AND METHODOLOGICAL SUPPORT OF TEACHERS

*Professional development of pedagogical employees in the educational field*

21 professional development programmes in the educational field for pedagogical employees have been prepared and developed within the renewal of the republican content of education on 17 primary school subjects.

These programmes have been developed to improve teachers' pedagogical excellence in terms of updated subject curricula and to introduce the criteria-based system.

Before the approbation during the period from June to October 2015, all the participants of this process (2727 persons): teachers and administration of pilot schools, employees of the regional educational authorities, employees of district and city departments of education, departments of methodology, employees of the Ministry of Education and Science of the Republic of Kazakhstan have taken professional development courses within the programmes for renewal of content of education.



Alongside this, a range of events were held as follows:

- ▶ Based on results of 1-3 terms of the first year of approbation, workshops were held together with teachers from pilot schools and with participation of authors and subject programmes developers.
- ▶ Organization of visits of authors and developers of the programmes, methodologists of the Altynsarin National Academy of Education and methodology experts for supervising the lessons given by teachers from pilot schools and for practical assistance.
- ▶ During the period from 2015 to 2016, NIS organized travelling seminars and training sessions, master classes for rendering of methodological assistance for employees of local education authorities in terms of content of the subject programmes, work with textbooks and school management.
- ▶ Holding breakout sessions for teachers from pilot schools, with participation of the heads of regional authorities, district departments of education, city/district departments of methodology has become a tradition annually since 2015 within the Republican August sessions of educators. Breakout sections involves discussions on the first results of approbation, where teachers share their experience, determine perspective plans for the forthcoming academic year.
- ▶ Teachers and administrative staff of piloting schools take part (in 2015 and 2016) at the International Scientific and Practical Conference «Expanding the boundaries of changes in education: Approbation and Translation», which NIS holds annually, for the 8th time. This year the Conference was dedicated to approbation and translation of experience. NIS organised discussion platforms within the conference where teachers of piloting schools discussed issues of curriculum reforms with international partners.
- ▶ NIS provides a lot of information support through newspaper and magazine publications, TV programmes, internet messages, through

educational resources online. With the help of the media, NIS inform the public about the activities of the piloting and Intellectual schools.

**Methodological support of teachers, educators, employees of city and regional educational authorities,** process support

and developing the pedagogical base of tools are important areas of activity in the framework of preparation for the introduction of subject programmes and plans according to the Curriculum Reforms in Secondary Education Initiative.

NIS undertook a number of activities aimed at highlighting the features of the Reformed Curriculum of Secondary Education Initiative within the framework of the translation of experience, in particular:

**MARCH 2016** Regional practical workshops were organized for 150 teachers of pilot schools at the premises of 2 Intellectual schools in Taldykorgan (47 people) and Kokshetau (103) people.

**AUGUST 2016** the National annual educators' August conference was conducted in Astana, an exhibition of academic methodological materials of the renewed content of education was prepared (around 1000 people).

**AUGUST 2016** In the framework of the annual national educators' August conference under the Ministry of Education and Science of the Republic of Kazakhstan, NIS workers conducted an introductory workshop on the renewed content of education for 143 teachers of two grades in 30 pilot schools.

**AUGUST 2016** Workshops on «Natural science», «Mathematics», «World Understanding», «Creative labour» were conducted for 21 teachers of primary schools at the premises of 2 Intellectual schools Taldykorgan (8 people) and Kokshetau (13 people).

**OCTOBER 2016** A workshop involving guests from Kaznakovskaya comprehensive school, Kokpekty District, East Kazakhstan Oblast was conducted in Astana and following questions were considered: improving the professional competence of educators, arranging educational work and social projects for successful implementation of the updated content of education.



**NOVEMBER 2016** A regional meeting on arranging a collaborative work with Aktyubinsk Oblast local executive bodies in implementing the renewed content of education in a selective communication mode with all the district's regions involving 50 people was conducted in Aktobe.

**NOVEMBER 2016** Skype conferences were held with Aktau and the Eastern Kazakhstan district pilot schools, where educators were given practical recommendations on creating short-term lesson plans on the renewed curricula, resource selection in accordance with the age of learners.

During the period between September 2015 and December 2016 the following activities were **conducted**:

- ▶ **739** workshops;
- ▶ **377** training courses;
- ▶ **2 081** master classes on all primary school subjects (including **257** lesson of team teaching);
- ▶ **814** lessons in pilot schools were attended;
- ▶ Language courses for **423** English teachers in pilot schools were conducted;
- ▶ **46** lectures for parents;
- ▶ **511** online lessons for learners and **96** online workshops for primary schools teachers;
- ▶ **32** films about cooperation between Intellectual and pilot schools were created.

The work in this area will allow to successfully implement the renewed content of education in 2017 in grades 2, 5, and 7.



## 2.2. PILOTING AND IMPLEMENTATION OF THE CRITERIA-BASED ASSESSMENT SYSTEM

**Criteria-based assessment** is the process of comparing actual achievements and expected outcomes of learners based on certain criteria.

In accordance with the Curriculum Reforms in Secondary Education Initiative, the system of criteria-based assessment of academic achievements of learners underwent an approbation in grade 1 in 30 pilot schools in the 2015-2016 academic year. The system of criteria-based assessment uses two kinds of assessment, formative and summative.

During the reported period in order to implement the system of assessment:

- ▶ an approbation of the system of criteria-based assessment was conducted;
- ▶ instructional methodological documents were designed in order to support teachers in comprehensive schools;
- ▶ workshops on training and accompanying processes of implementing the system of criteria-based assessment were conducted;
- ▶ a resource support for teachers in implementing the system of criteria-based assessment was provided;
- ▶ cooperation between NIS and the Ministry of Defence of the Republic of Kazakhstan, Kyzylorda local administration was established.



Teachers spoke positively of the criteria-based assessment but had a difficult time in understanding and using objectives and assessment criteria, giving feedback, and pointed out the necessity of familiarising parents with the system of criteria-based assessment.

Starting from the 2016-2017 academic year a new system of criteria-based assessment in Grade 1 in comprehensive schools is being implemented in Kazakhstan.

### CRITERIA-BASED ASSESSMENT ACTIVITIES

During the reported period in order to learn and support the processes of the criteria-based assessment implementation **the following activities were conducted:**

- ▶ a workshop for **93 trainers** of the Orleu National Centre for Professional Development and Centre of Excellence (further – COE), and workers of the National Academy for Education;
- ▶ a workshop on making recommendations on assessment for **114 trainers** of the Orleu National Centre for Professional Development and NIS subject teachers;
- ▶ a training course for **115 teachers in 30 pilot schools** on applying the system of criteria-based assessment of students' academic achievements;
- ▶ a workshop for **100 CoE trainers** under the professional development program for regional and school coordinators on implementing the criteria-based assessment;
- ▶ a training workshop for **601 teachers** in 11 Astana comprehensive schools;
- ▶ a workshop for **50 teachers** in Akmola Oblast underfilled schools;
- ▶ a training workshop for **143 teachers in 30 pilot schools** in the framework of approbating the updated content of education.

Additionally, answers to the questions were given on the discussion platform of the Systematic Methodological Complex website, online workshops were conducted for comprehensive and pilot schools teachers in order to answer their questions regarding the assessment system, arrange and conduct assessment procedures, run a student's portfolio, fill soft and hard copies of a class journal, use instructional methodological documents.

In 2017 the implementation of system of criteria-based assessment will be resumed in grades 2, 5, 7 in comprehensive schools, the system of assessment will be approbated in grade 3 in 30 pilot schools, instructional methodological recommendations for Grades 3, 6, 8, 10 will be prepared, a diagnostic final testing in grade 2 in pilot and control schools will be conducted, the results of summative assessment works will be monitored on the Kundelik website.

## **UNIT 3.**

### COOPERATION WITH EDUCATIONAL ORGANIZATIONS





## UNIT 3. COOPERATION WITH EDUCATIONAL ORGANIZATIONS

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It is not enough to use traditional approaches to solving issues that occur in implementing the renewed content of education and innovations in the academic process. NIS develops new kinds of cooperation with partners, the number and the variety of which is constantly growing.

Coordinating its actions with the partners, NIS identify the priorities in different areas of the program, based on the compared advantages of our organisation and the partners' organisations. All of these areas are combined in the cooperative work with partners.

Thus, aside from the cooperation with 30 pilot schools, in the framework of the memoranda, NIS interacts with 79 educational organisations in Astana (12), Akmola (18 underfilled schools) and Kyzylorda (45) oblasts; Zhasulan Ministry of Defence Boarding schools in Almaty, Astana, Karaganda, and Shymkent (4), Republican Physics and Mathematics School in Almaty and Astana.

### 3.1. ASTANA

In the framework of NIS sharing experience in Astana schools:

- ▶ an Agreement on cooperation between NIS and the Astana department of education was signed in order to design collaborative means of improving the activities of educational organisations in renewing the content of education, managing and transforming the educational environment;
  - ▶ a plan of collaborative work between NIS and the Department of Education on updating the content of education in 2016-2017 was approved.
- ▶ School #76 was chosen as a resource centre in creating an innovational platform for Astana comprehensive schools.
  - ▶ a group of 12 leading schools in Astana was established as a methodological base, where a practical assistance in daily activities would be provided and Astana educators' experience in updating the content of education would be combined.

Provided access:

- ▶ to the Systematic Methodological Complex website ([smk.edu.kz](http://smk.edu.kz)) for all Astana schools educators;
- ▶ to the digital educational resources of [play.nis.edu.kz](http://play.nis.edu.kz) website for primary school teachers in all Astana schools.

**In order to improve comprehensive Astana schools leaders' and teachers' professional competence in** renewing the content of education over 30 methodological courses were conducted:

- ▶ 11 workshops on the criteria-based assessment of learners' educational achievements;
- ▶ 2 workshops on organising educational works;
- ▶ 4 professional developments courses for educators;
- ▶ 9 workshops on curricula in the framework of the renewed content of education.
- ▶ 5 practical training workshops and master classes on implementing innovations into the academic process via school libraries. Now there are innovational libraries in Astana schools, and in future, they will become the scientific methodological base for conducting interesting integrated lessons, developing research skills and learners' project skills.

- ▶ at the premises of Astana lyceum-school #60, a poster conference Leading school as a vector of developing the educational environment within renewing the content of education was conducted.

During the events, the content of curricula and plans, as well as questions on applying the innovational methods in school were discussed.

In order to improve Astana educators' professional competence professional development courses on the methodology and technique of teaching, training workshops on updating the content of education were conducted:

- ▶ 461 educators in level-based programmes;
- ▶ 69 school leaders (principals and vice principals);
- ▶ 118 school trainers in methodology and technologies;
- ▶ 160 school librarians.
- ▶ 76 principals and their vice principals;

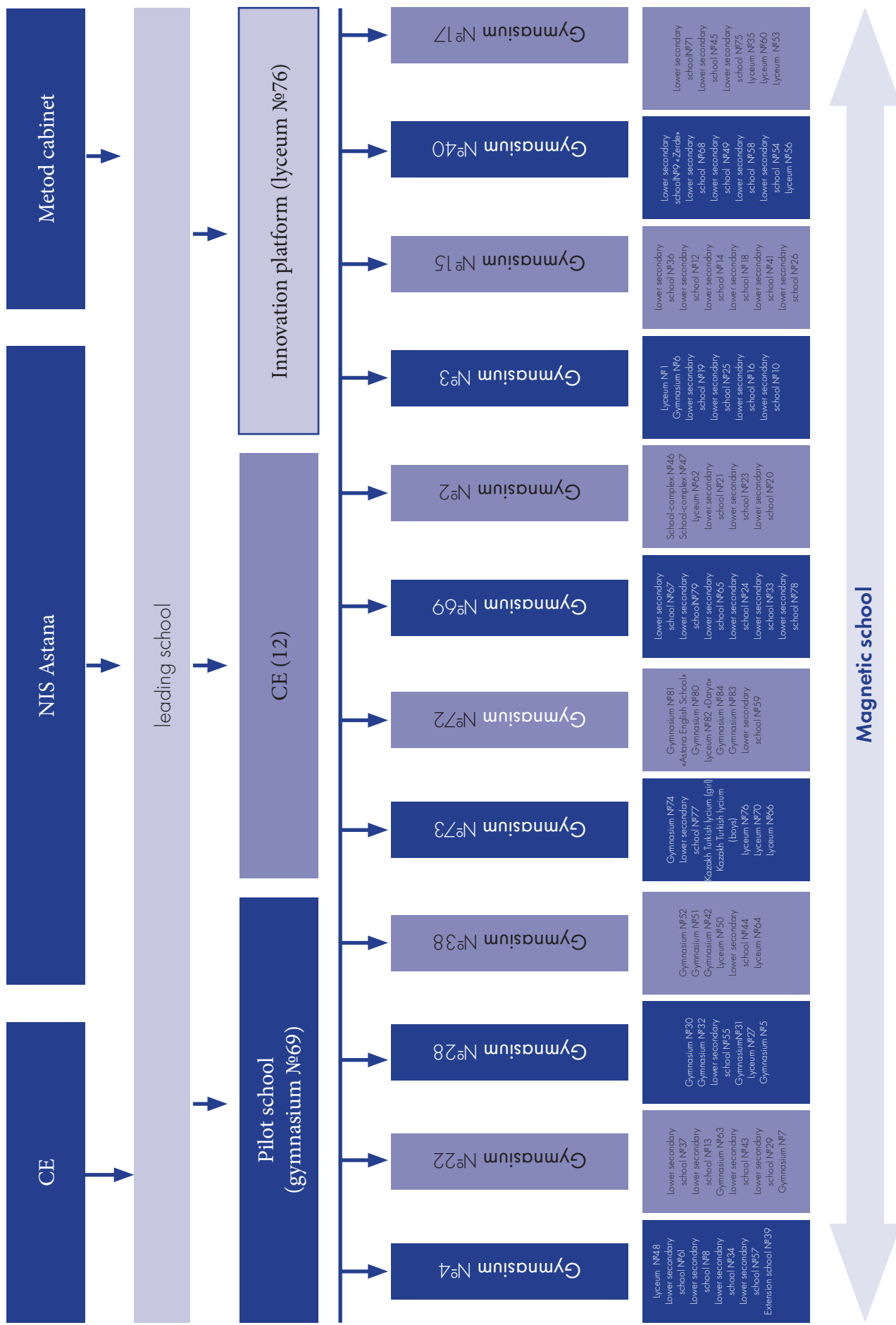
- ▶ 398 primary school teachers, subject teachers;
- ▶ 81 assessment coordinators;
- ▶ 158 Computer Science teacher in Robotics;
- ▶ 9 methodologists at the city management of education;
- ▶ 12 teachers at the liberal arts college.

Workshops and training courses, as well as professional development courses, are conducted for #76 lyceum school teachers in order to improve their professional competence, the process of organising the academic process, school management and create a favourable educational environment. In 2016 in the framework of the Curricula Reforms in Secondary Education Initiative 1827 Astana teachers received COE training.

**Table. The number of trained staff in Astana**

Strand	Category of teaching staff/ programme	Trained teachers	
		Trained in 2012 – 2016	To be trained in 2017
in the methodology and techniques of learning	Level-based programmes teachers	461	114
	Principals of comprehensive educational schools	69	21
	School trainers in the methodology and techniques of teaching	118	118
curriculum reforms in secondary education initiative	Workers of regional departments of education, district and city departments of methodology	9	10
	Principals and vice principals of comprehensive schools	76	124
	Primary school teachers	398	203
	Coordinators in implementing criteria-based assessment	81	-
	ICT teachers on Robotics	158	-
	Lower secondary education teachers	-	151
Higher-education teaching personnel of universities and colleges	Teachers of Liberal Arts College Astana	12	6

Image. Diagram of interaction of schools of Astana







More than 50 events in various areas are planned for 2017.

This diagram illustrates the interaction within the educational cluster of Astana, which includes: Centre of Excellence, NIS Astana (IB), Methodology Department Astana, 12 leading schools of the city, piloting school No. 69 within the Curriculum Reforms in Secondary Education Initiative, innovative platform of school No. 76, and 70 attached schools. This educational cluster is responsible for the timely methodological support of teachers, the introduction of contemporary techniques into the educational process. During the period from April to May 2016, NIS organised and ran workshops, trainings, case-studies for teachers of 12 leading schools in Astana (over 600 people).

### 3.2. AKMOLA OBLAST

The poorly equipped material and technical base, limited access to internet resources, lack of academic and other library resources, lack of personnel in underfilled schools do not allow to fully provide learners with profile subjects and elective courses in accordance with their career orientation. One of the feasible ways of resolving this issue is by integrating internal and external resources. Schools serving as resource centres are a possible way of attracting external resources, as they allow for an increase in the amount of learners' individual work based on the individual academic trajectories. These resource centres utilise profiled oriented unified educational programmes designed by the underfilled school development centres.

In connection with this in Akmol Oblast NIS is working on another important area in experience sharing, namely professional development of teaching staff at underfilled schools.



In August 2016 a Memorandum between NIS and the Akmol Oblast Education Authority was signed and a cooperation plan was approved.

For the 2016-2017 academic year, 11 events in different areas (workshops, training courses, master classes, case studies) are to take place. During the period between August and December, 2016, the following took place:

- ▶ 3 short-term workshops for primary school teachers, vice principals and principals of 18 underfilled schools in Arshalynskiy region, Akmol Oblast.
- ▶ a travelling workshop at the premises of Arnasay school in Arshaly district, where Arnasay school and NIS Learners and Teachers' Research Project Office shared their experience in using green technologies and building a greenhouse on the school campus;
- ▶ a series of training workshops and courses, where underfilled schools' teachers and principals learned about the NIS innovational platform.
- ▶ In November 2016, at the premises of NIS Kokshetau and the Pedagogical College a regional conference and a training workshop on sharing NIS experience in methods of immersing primary school learners in the Kazakh language for 100 teachers in 7 oblasts (teachers and principals, methodology departments methodologists) took place.

In continuation of this work, region representatives proposed implementing language immersion in comprehensive schools in the country.



The experience sharing activities will be resumed in 2017. The following is to take place:

- ▶ appointing the Arnasay school, Arshaly district, the support school for all the underfilled schools in Arshaly and Tselinograd districts;
- ▶ establishing mobile groups of methodologists for experience sharing and improving teachers' professional competence;
- ▶ resuming of experience sharing with underfilled schools in the remaining districts in Akmol Oblast.

### 3.3. KYZYLORDA OBLAST

In March 2015, in the framework of experience sharing a memorandum was signed between NIS and the akim of Kyzylorda Oblast on cooperation in sharing innovational methods and techniques of teaching in 22 innovational comprehensive schools in the region.

Experience sharing is being brought about in two areas:

- ▶ Professional development of oblast school teachers;
- ▶ Development of a professional network community of leaders and educators.

Work Plan that was approved for 2016 **stipulated 41 events**. However, NIS held 49 events of which: 4 workshops, 3 trainings, 3 master classes, 11 teacher training courses, 28 teacher support activities.



#### The participants:

- ▶ 83 members of school administration (principals and vice-principals);
- ▶ 550 primary school teachers, subject teachers;
- ▶ 29 school trainers in methodology and technologies;
- ▶ 168 assessment coordinators;
- ▶ 43 methodology experts from City and District Education Authorities.

In order to ensure the implementation of Curriculum Reforms in Secondary Education Initiative, NIS via Centre of Excellence is engaging in focused activities to improve teachers' skills in the region. For this period, the potential of teachers in the Kyzylorda Oblast seems to be quite high, a critical mass has been prepared for the successful implementation of Curriculum Reforms in Secondary Education Initiative in the schools of the region. The total number of teachers who completed the level courses is 1224. 605 of them (49%) work at 22 innovative schools. The total number of primary school teachers who completed the courses in the framework the Curriculum Reforms in Secondary Education Initiative is 1376. 550 of them (40%) work there as well.

At the same time, Centre of Excellence, in the framework of the Curriculum Reforms in Secondary Education Initiative in 2016, trained pedagogical personnel of Kyzylorda Oblast.

Table. Number of teachers trained

Strand	Category of teaching staff/ programme	Trained teachers	
		In 298 schools of oblast	In 22 innovation schools
Studying the methodology and techniques of learning	Level-based programmes teachers	1224	605
	Principals of comprehensive educational schools	171	27
	School trainers in the methodology and techniques of teaching	312	29
curriculum reforms in education initiative	Workers of regional departments of education, district and city departments of methodology	108	43
	Principals and vice principals of comprehensive schools	290	83
	Primary school teachers	1376	550
	Coordinators in implementing the criteria-based assessment	303	22
	Computer Science teachers on Robotics	167	52
Academic staff of high educational establishment and colleges	Academic staff of Kyzylorda State University named after Korkyt ata and pedagogical colleges	63	-

**In order to provide methodological support for teachers:**

- Creative team «Methodological caravan» was created among the best teachers, methodists, heads of innovative schools of Kyzylorda oblast;
- Online community was created involving pedagogic employees of innovative schools which include teachers, principals, vice-principals, heads of methodological associations of schools, methodists of district/city departments of education (1 302 persons, 54%);
- There are 17 open dialogue platforms organised for sharing best practices.

**The results of joint activity are as follows:**

- **10 schools** were granted the status of lyceums and gymnasiums;
- **24 schools** were added to the project of innovative schools;
- **12 schools** commenced implementation of the Grant innovative projects (with support of UNDP);

- **10 schools** continue implementation of NIS social projects and practices, among which **8 schools** are in the process of implementing Shanyrak school community project; **2 schools** - «Bowling to the motherland» project.

The interaction pattern of the educational cluster of Kyzylorda Oblast is provided below which includes: CPE, NIS Kyzylorda, 30 leading regional schools, 2 pilot schools on implementing renewed content of education, 22 innovative schools, 2 basic schools for translation of NIS best practices, 12 grant schools and 242 assigned magnet schools.

This educational cluster is responsible for a well-timed methodological support of teachers, implementation of modern techniques and technologies in educational process. Methodological manual and coordination on Introduction of experience is organised by the regional resource center of education authorities.



In leading schools, principals and vice-principals have taken the courses for managers, and teachers have raised their qualification on level programmes and renewed content of education. And now 298 oblast comprehensive receive support from 56 leading schools that are centers of best practice in providing further teacher training within the Curriculum Reforms in Secondary Education Initiative.

312 oblast school trainers were trained for capacity building of school teachers and providing courses on techniques and technologies of education in 2016.

287 school assessment coordinators were trained among the vice-principals from regional schools for the purpose of organising workshops and professional consultations on criterial assessment. At district level, there are 108 methodists and 16 regional assessment coordinators that provide assistance to schools.

**In November 2016 there was a roundtable** held with participation of the regional akimat, education authorities, pedagogic and parents communities following the results of translation of NIS best practices into regional schools.

At suggestion of teachers and school administration, heads of district and city education authorities and akim of the oblast, it was decided to continue this work and provide regional schools with extra financing in 2017.

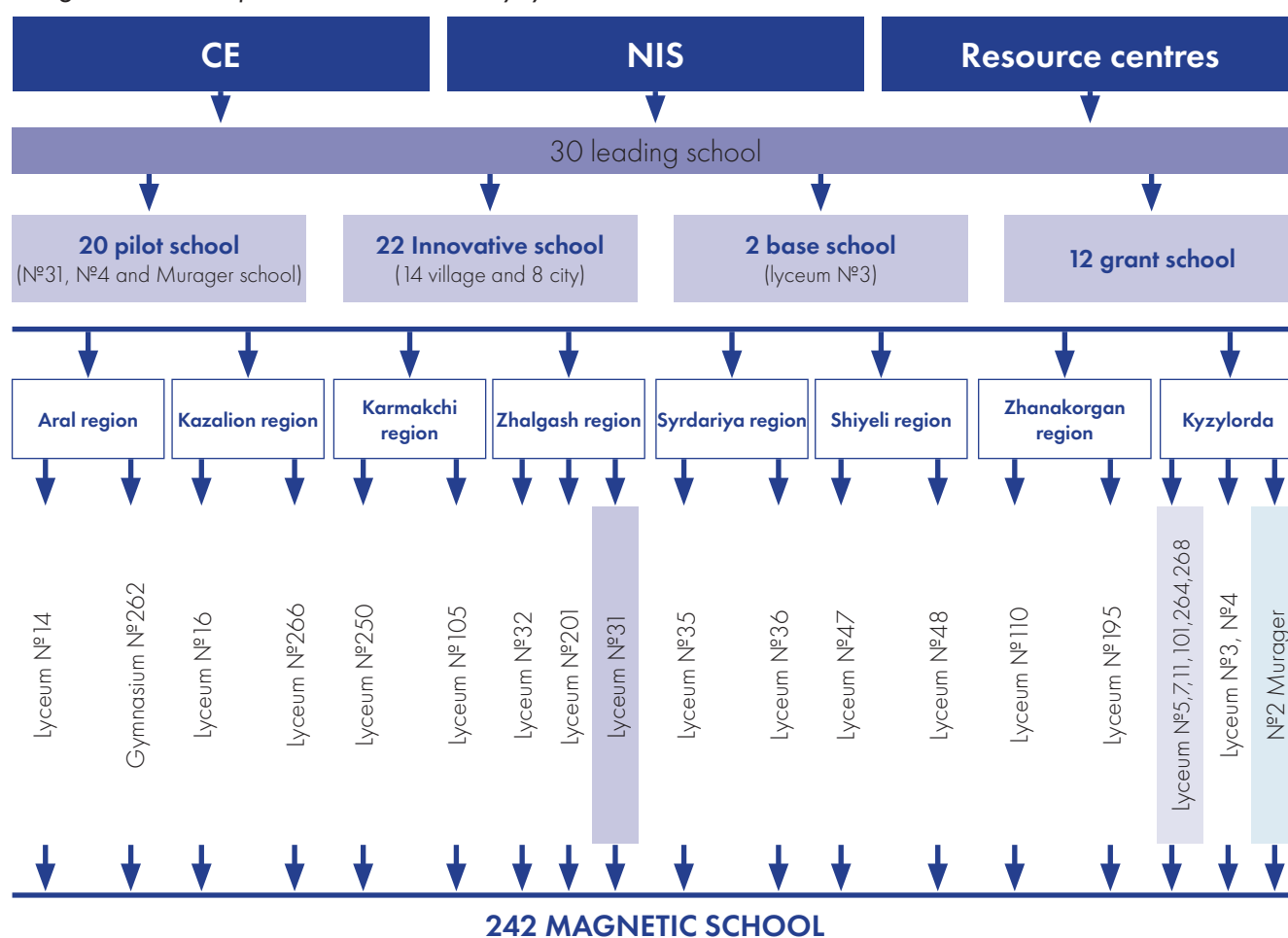


*It is expected:*

- ▶ 46 innovative schools will be like anchor points, resource centres for the remaining comprehensive schools.
- ▶ to create mobile teams working in several areas that will engage in conceptual training of teachers, curriculum reforms, innovative projects, etc;
- ▶ to create a page in SMC where teaching staff will share their experience, place their best work, develop knowledge database for teachers and methodologists;
- ▶ - libraries of innovative schools will become science and methodology centres to develop learners' research skills, to make project work, to enhance teaching competence of school teachers as well as to encourage learners for information seeking, to enhance learners' motivation to lesson preparing and development of skills for independent learning and searchinf for information that will be needed for studying additional materials.

The leading role and akimat's interest in increasing the level of education effective troubleshooting in curriculum reforms enabled to achieve positive performance in increasing the education level and creative capacity-building of teachers in Kyzylorda Oblast.

Image. Interaction pattern of schools in Kyzylorda Oblast.



### 3.4. ZHAS ULAN MINISTRY OF DEFENCE BOARDING SCHOOLS

In January 2016 a memorandum between NIS and the National University of Defence concerning sharing the experience with 4 Zhas Ulan Boarding Schools was signed and a Cooperation Plan for 2016 was approved.

**26 events (10 workshops, 6 training courses, 2 professional development courses, 8 methodological assistance courses) took place** as was stipulated by the Plan.

To explain the main provisions of the Curriculum Reforms in Secondary Education Initiative in June 2016 **a training course for 27 teachers** at Zhas Ulan Astana was conducted, the specifics of the updated curriculum programmes were considered, the following was worked out:

- Communicative Approach in Teaching Language Subjects for Kazakh, Russian and English teachers;
- Research-based Learning in Physics, Chemistry, and Biology for natural sciences teachers;
- Content Strands in Mathematics Curricula;
- Geography Curricula Peculiarities
- Developing Critical Thinking in History of Kazakhstan, World History, and Fundamentals of Law.





Trainers and participants conducted tasks concerning the main pedagogical approaches towards implementing the Curricula Reforms and considered active teaching methods. Under the guidance of the trainers, participants designed draft short-term plans, which served as a basis for microteaching, where teachers applied the gained knowledge in practice and used the new methods of teaching.

Zhas Ulan school leaders and teachers took professional developments courses and attended workshops, master classes in Astana, Karaganda, Shymkent, and Almaty and already have a clear view on developing their pedagogical activities in school.

In December 2016, a round-table meeting on implementing innovational methods of teaching for Zhas Ulan school leaders and teachers involving the National University of Defence named after the First President of the Republic of Kazakhstan – the Leader of the Nation under the Ministry of Defence of the Republic of Kazakhstan was held. During the meeting school leader and teachers shared their experience in implementing innovational methods in classes and outlined potential ways of using NIS experience in building interesting lessons, promoting research activities, projects, mathematical modelling among learners, etc.

Military schools' libraries reorganised their work by redesigning their facilities, changing the format of activities for learners and teachers. In order to improve reading and informational literacy via subject integration, promoting reading, by means of providing lessons with informational resources, conducting game activities using library resources, integrated lessons are being held in the school library, separate lesson topics that appeal to learners while preparing their homework are discussed, etc.



The following is to take place in 2017:

- ▶ Zhas Ulan Astana will be the base platform for the national military school network;
- ▶ Zhas Ulan schools in Astana, Almaty, Karaganda, and Shymkent will serve as training platforms for conducting joint field training with 20 NIS schools learners;
- ▶ A project group will be created to work in the field of conceptual learning and reforming military school teacher education;
- ▶ SMC will have a page for teachers to publish their best practices and help the pedagogical knowledge base grow;
- ▶ the library will become the place where learners can conduct their research activities and teachers can improve their competence.
- ▶ vice principals will be trained in occupational guidance for learners;
- ▶ develop ICT literacy among teachers;
- ▶ organise an internship for principals in Intellectual schools;
- ▶ organise experience sharing and master classes for Basic Military Training and Physical Education teachers.

The NIS and Zhas Ulan cooperation was successful due to the assistance of the Ministry of Defence of the Republic of Kazakhstan, the National University of Defence named after the First President of the Republic of Kazakhstan – the Leader of the Nation, in reforming the academic and educational process and improving the professional competence of teaching staff in order to achieve higher standards of education in subordinate educational organisations.



### 3.5. REPUBLICAN PHYSICS AND MATHEMATICS SCHOOL

In 2016, Republican Physics and Mathematics School took part in the translation of experience within the framework of the Memorandum on mutual cooperation between the NIS and the Republican Specialised Physics and Mathematics School dated November 2014 and the Plan of joint activities for implementation of innovative programmes.

*It should be noted that since March 2016 NIS is a shareholder of the Republican Physics and Mathematics School non-profit joint stock company in Almaty and Astana.*

**The content of Grades 9-11 subject programmes** was aligned with Integrated Educational Programmes for 11 subjects: Kazakh language, Russian and English languages, Physics, Mathematics, History, Geography, ICT, Biology, Chemistry and Economics.

In April of the reporting year, a workshop was conducted for **30 Republican Physics and Mathematics School Almaty teachers** of Mathematics and Natural Sciences strand, Social and Humanitarian Sciences strand, and languages. The mechanisms for integrating the programmes of NIS and Republican Physics and Mathematics School were defined during the workshop. The results of the workshop underlie a protocol with recommendations for Republican Physics and Mathematics School on the development of subject programmes and plans with the methodological support of the specialists of Center for Educational Programmes.

**To introduce** trilingual education, a **Schedule for the transition to teaching subjects in three languages** was created. Language preparation courses for teaching in another medium of instruction were organised for teachers of non-linguistic subjects. Also, English teachers took courses to improve their English proficiency.

#### **In September 2016, NIS started introduction of:**

- ▶ History of Kazakhstan, Geography in Kazakh, Chemistry, Biology, Physics, Global Perspectives and Project Work, Economics in English in Grade 9 with the Russian language of instruction.
- ▶ World History, ICT in Russian, Chemistry, Biology, Physics, Global Perspectives and Project Work, Economics in English in Grade 10 with the Kazakh language of instruction;
- ▶ History of Kazakhstan, Geography in Kazakh, Chemistry, Biology, Physics, Global Perspectives and Project Work, Economics in English in Grade 10 with the Russian language of instruction,
- ▶ World History, Computer Science, Economics and Physics, Global Perspectives and Project Work in English in Grade 11 with the Kazakh language of instruction;
- ▶ History of Kazakhstan, Geography in Kazakh, Global Perspectives and Project Work, Economics in English in Grade 11 with the Russian language of instruction.

An integral part of the educational process is the **pastoral component** implemented in each lesson through the value-based approach in the subject programmes, and through extracurricular activities of additional education and various social projects / practices.

Teachers of Republican Physics and Mathematics School learned about the organisation of pastoral work and libraries of Intellectual schools.

Teachers attended Features of NIS Pastoral Work workshops conducted in NIS schools in Kyzylorda, Taldykorgan, Astana and Almaty. There they studied social projects of several strands. They are Shanyrak School Community, 100 Books Recommended for NIS Learners, Reading Times, Book Crossing, Book is a Source of Knowledge, 2 Weeks in the Aul, Wikipedia Club, 10 Days at the Parents' Workplace professional orientation practice, Take your Child to Work one-day practice, NIS TEDx Club under the framework of Ideas Worth Spreading, Kazakh Songs, Serving the Society Programme.



Much work was carried out for **teachers' professional development**. 202 teachers are currently working at Republican Physics and Mathematics School in Almaty and Astana.

NIS staff organised monitoring activity to determine the need for the development of professional competencies of teachers of Republican Physics and Mathematics School. The monitoring showed the following:

1. ICT competencies: of **80 teachers who took part in the monitoring** 1 demonstrated high level, 18 teachers (22.5%) – average level, 49 teachers (61.3%) – low level, and 12 teachers (15%) demonstrated a critical level.
2. Kazakh language proficiency as according to Kaz.Test (National Testing Centre): of 77 teachers 5% of teachers demonstrated a high level of proficiency, 40% – above-average, 24% – average, and 31% – basic and elementary.
3. English language proficiency as according to APTIS (British Council): of 61 teachers 1 teacher (1%) received C, 4 teachers (7%) – B2, 7 teachers (11%) – B1, (A2), 25 teachers (42%) – A1, 17 teachers (28%) – A0.
4. English language proficiency as according to IELTS (British Council): 9 teachers (3 teachers score 6.5, 4 teachers scored 6.0, 2 teachers scored 5.0).



For that reason work should be organised on:

- improvement of professional skills of teachers teaching language and non-language subjects with receiving certificates of competence;
- implement a system of professional development based on NIS experience;
- - implement an attestation of teaching staff based on NIS experience.

During the reporting period **43 activities were conducted while it was planned to undertake 41 activities of** experience translation.

Teaching staff of RPhMS received training on assessment, pastoral work, arrangement of library work. They participated in annual NIS international conference in sections about content, leadership, professional development of teachers and organization of research activities.

There was an open session held by Creative Team teachers about using teaching and laboratory equipment based on NIS Almaty PhM.

Thus, now RPhMS has creative teachers who organize innovative work at school and teach their colleagues in 8 methodological association of the school. Teachers, who introduce innovations, deliberately implement methodological support of teaching process at school; work on implementing new methods, techniques and approaches in teaching as well as professional development of their colleagues.

The work will concentrate on in 2017:

- ▶ bringing the curriculum in line with the content of IEP;
- ▶ making RPhMS a supporting platform for schools with advanced study of Physics and Mathematics in Almaty and Astana for further support for specialized school focused on this direction in the country;
- ▶ creating a page on SMC for RPhMS, where teaching staff will place their best lessons and work;
- ▶ creating learner science and research centres on the basis of school libraries;
- ▶ development of system for further training for teaching staff within RPhMS;
- ▶ involving parents in extracurricular activities of RPhMS learners;
- ▶ improvement of pastoral work in RPhMS.

### 3.6. NIS SCHOOLS AS REGIONAL RESOURCE CENTRES

Intellectual schools serve as the main regional resource centres. They carry out continuous work in the framework of the Curriculum Reforms.

**Each NIS school** is expected to monitor the approbation of the Curriculum Reforms, provide constant methodological assistance, and consult pilot and comprehensive schools teachers. Plans of NIS cooperation with 30 pilot schools in 2015-2017 were approved. In 2016, the following took place:

- ▶ **739** workshops;
- ▶ **477** training courses;
- ▶ **2 081** master classes in all primary school subjects (including **527** team teaching lessons);
- ▶ **814** lessons in pilot schools were attended;
- ▶ language courses for **423** English teachers in pilot schools;
- ▶ **46** educational lectures for parents;
- ▶ **511** online lesson for learners and **96** online workshops for primary school teachers.

Additional information on Intellectual schools regional activities can be found in the *Appendix 7* table.

#### On a daily basis, NIS schools provide constant methodological and practical assistance for comprehensive schools' teachers in:

- ▶ the efficient academic and educational process (differential approach towards learning, formative assessment, using interactive methods of learning);
- ▶ teaching language subjects (summer language courses, specific use of formative assessment, in developing in 4 skills);
- ▶ organising educational work in school, based on the fundamental principles of the national idea Mangilik Yel;
- ▶ developing teachers' leadership skills based on train-a-trainer, equal-to-equal;
- ▶ creating a suitable psychological climate in school;
- ▶ discovering children's capabilities at an early stage in order to use data in the educational process;
- ▶ conducting early diagnostics to discover professional inclinations of learners;
- ▶ organising an online school;
- ▶ using the latest ICT technologies in class.

Furthermore, sufficient academic and material resources allow NIS to become a resource centre for sharing experience in creating a suitable environment in comprehensive schools. Thus, to accomplish this:

- ▶ an internship platform was prepared for school principals, vice principals, primary school teachers and subject teachers in methodology and techniques of teaching;
- ▶ creative groups of innovative teachers were established in order to provide methodological and practical assistance for comprehensive schools teachers;
- ▶ a number of various events for the local community, orphan children and children left without parental care, seniors in nursing homes, etc.
- ▶ discussion platforms for teaching staff were opened;
- ▶ virtual and summer schools for learners in various subjects are in operation;
- ▶ pilot schools teachers have weekly methodology discussions;



- ▶ summer courses in STEAM, Robotics, English are being held;
- ▶ sports events for learners all around the country take place;
- ▶ annual Geometric Workshop olympiads for comprehensive schools Mathematics teachers;
- ▶ collaboration with underfilled schools teachers in implementing methods and approaches to teaching is taking place.

## UNIT 4.

### EDUCATIONAL RESOURCES





## UNIT 4. EDUCATIONAL RESOURCES

Educational resources play a great role within the Curriculum Reforms in Secondary Education Initiative.

### 4.1. TEXTBOOKS

Work on textbooks development is taking place within the implementation of the State Programme of Development of Education and Science for 2016-2019<sup>1</sup> and the translation of NIS best practices:

- ▶ for primary school, Grades 1, 2 and 3 (according to SCPES)
- ▶ for secondary school, Grade 5 and Grade 7 (according to the SCES).

Textbooks are developed together with the strategic partner Cambridge University Press (hereinafter CUP). Along with CUP, the following was completed:

- ▶ **18** training workshops for authors, **6** workshops for editors *intended to develop Primary School Textbooks*.
- ▶ **7** training workshops for authors and **8** training workshops for editors *intended to develop Secondary School Textbooks*.

**352** people are involved in the development of textbooks:

- ▶ **173** authors that are **NIS teachers**;
- ▶ **61** authors that are **faculty members** of Kazakhstan's leading universities and compulsory schools teachers;
- ▶ **79 editors** that are NIS teachers, compulsory schools teachers and **faculty members** of national universities;
- ▶ **39 scientific consultants** that are **faculty members** of Kazakhstan's national universities.

The operating result within the reporting period is the development of textbooks in the Kazakh and Russian languages.

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<sup>1</sup> The Decree of the President of the Republic of Kazakhstan No.205 dated 1 March 2016



**Table. Developed textbooks**

Grade	Number of Textbooks	Subjects	Number of names	Status
1	6	Mathematics (in Kazakh/Russian), World Understanding (in Kazakh/Russian), Science (in Kazakh/Russian)	18	MES included them into the basic textbooks list for comprehensive schools
2	16	Mathematics, World Understanding, Science, Arts and Crafts, Music, Russian Language (L2), Russian Language (L1), Literature Reading, Kazakh Language (L2), Kazakh Language (L1), Kazakh Literature Reading	48	under approbation in 30 pilot schools of the RK
3	18	Mathematics, World Understanding, Science, Arts and Crafts, Music, Russian Language (L2), Russian Language (L1), Literature Reading, Kazakh Language (L2), Kazakh Language (L1), Kazakh Literature Reading, Information and Communications Technologies	52	Draft versions developed
5	16	Mathematics, Computer Science, Science, History of Kazakhstan, World History, Kazakh Language, Kazakh Language and Literature, Kazakh Literature, Russian Language, Russian Language and Literature, Russian Literature	32	Draft versions developed and submitted for Uchebnik RSPC experts evaluation
7	26	Mathematics, Computer Science, World History, History of Kazakhstan, Physics, Chemistry, Geography, Biology, Arts and Crafts for Girls, Arts and Crafts for Boys, Kazakh Language, Kazakh Literature, Kazakh Language and Literature, Russian Language, Russian Literature and Russian Language and Literature	52	Draft versions are developed and submitted for Uchebnik RSPC experts evaluation

## KEY FEATURES OF DEVELOPED TEXTBOOKS

Textbooks cover the subject programme objectives and promote their achievement in every lesson.

Textbooks for primary schools consist of a Learner Book, Learner Workbook and Teacher's Handbook. Textbooks for secondary schools - a Learner Book and Teacher's Handbook

**The Learner Book** content is developed in accordance with the requirements for academic literature. Developed learner books are characterized with practical and oriented activities focused on the learners' functional literacy considering the differentiated approach to learners' knowledge and skills development.

The learning materials presented in different forms, the Learner Book encourages development of learners' skills of operating with texts, illustrations, photos, tables, charts and diagrams.



The approach to activities can be observed through various features. The features include practical actions designed to consolidate and deepen knowledge gained during lessons. Features promote cognitive interest and encourage learners to master the learning material.



Learners' abilities to study individually are developed through having a variety of instruction to activities that help the learner work with the book and text activities promoting self-control of knowledge and skills.

### Learner Book structure

Each lesson theme is presented in a spread (two facing pages). The content is structured and distributed in accordance with strands and substrands of Subject Programmes.



Every LB unit starts with the introduction page. Its aim is to introduce the learners with the theme of the section and its key issues.

The spread of a textbook starts with lesson's learning objectives worded in the learner-friendly language and corresponding the subject programme and consists of the main texts, different tasks and features.

Optimal combination of illustrations, main texts and tasks is the important condition for achieving the lesson's learning objectives.

Every unit is concluded with a concluding page that contains closed test tasks. These pages help learners identify their level of academic material understanding and check their own knowledge of the unit theme.

Developed textbooks have an interesting and colourful design. The illustrations are bright and colourful. Every illustration interprets the content of the learning material and used to complete the corresponding activity. Moreover, it is used as a tool for additional information.

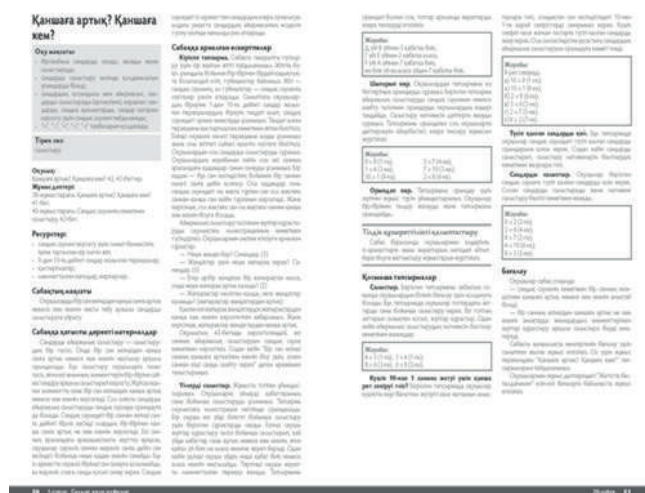
**Learner Workbook** includes activities designed to consolidate the learner's skills, deepen and expand their knowledge gained at every lesson. LWB worksheets can be used to reinforce the material learnt at lesson. In addition to that, LWB activities can be used as a component of formative assessment.



**The Teacher's Handbook** is a system of methodology recommendations for the teacher in how to lead the lesson. Recommendations for a teacher are given as an explanation for leading and managing learning, and include references for recommended resources.

A teacher is expected to apply different teaching and learning strategies that include the following:

- ▶ motivating and developing learners' teaching through carefully selected tasks and well-thought activities;
- ▶ modelling the ways of problem solving based on the examples clear for learners;
- ▶ encouraging active learning based on the research approach;
- ▶ developing learners' critical thinking skills.



Thus, teaching materials developed in accordance with the updated standards for the primary and secondary school content contribute to introduction of the learning system when subject knowledge is formed, research, critical and creative thinking skills are developed based on the experience gained.

## 4.2. DIGITAL EDUCATIONAL RESOURCES

Use of Digital educational resources enables teachers to qualitatively change the content, teaching methods and forms. In addition, as practice shows, pedagogic tools are being implemented and the learning quality and efficiency are being increased.

In 2016 DERs, interactive virtual laboratories and a mobile application were developed.

- ▶ 50 DERs have been developed for secondary school on such subjects as Computer Science (Grade 7), History of Kazakhstan (Grades 5, 7), Mathematics (Grade 7) in the Kazakh and Russian languages.

These DERs have been approved in the Intellectual Schools and other 30 national pilot schools.

- ▶ **KazLingua mobile application for Grade 1** has been developed based on the frequency dictionary (every theme and lesson include high frequency words, word combinations appropriate for the learner's age and level) that in turn helps keep them in mind and use in speech as individual words and word combinations and whole sentences in the Kazakh language through different kinds of interactive tasks.

*KazLingua is a tool that enables the efficient learning of Kazakh language in grades learning in the Russian language.*

The programme has been developed by ERC employees with the content developed by CEP employees and Baitursynov Institute of Linguistics. The KazLingua trademark is registered in the Ministry of Justice of the Republic of Kazakhstan.

Draft electronic textbooks and **KazLingua mobile application for Grade 1 were successfully presented** on August 18, 2016 to Deputy Prime-Minister and Minister of Education and Science at the MES republican pedagogic meeting.





Image. DER for «History of Kazakhstan», Grade 5



Image. DER for «Mathe», Grade 7

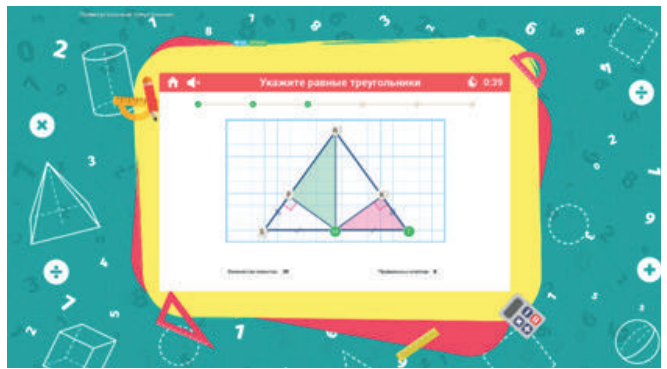
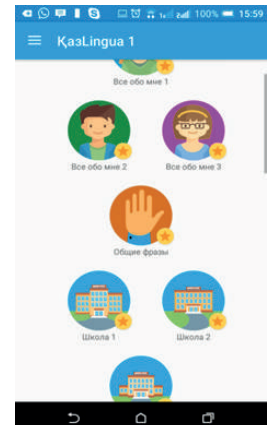
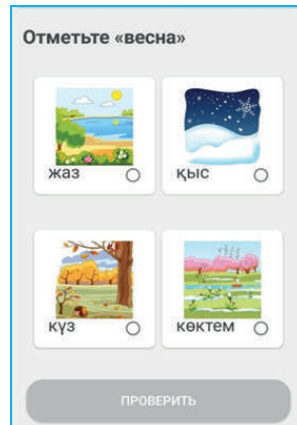


Image. DER for «Computer Science», Grade 7



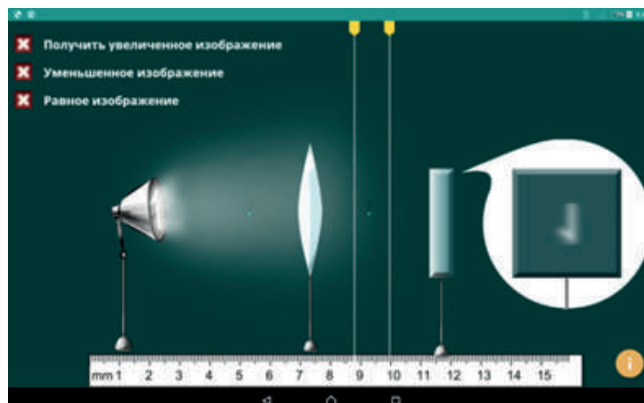
Image. KazLingua Mobile Application for Grade 1



- **Interactive virtual laboratories have been developed for secondary school, Physics, Grades 7, 8** in the Kazakh and Russian languages. These interactive virtual laboratories have been approved by the NIS branches and 30 national pilot schools and placed in the PlayNIS platform.

PlayNIS <http://play.nis.edu.kz/> is a platform within updated secondary school education content consisting of 392 DER, 26 applications for Android devices, 10 electronic textbooks and 2 videos.

*Image. Interactive virtual laboratory - Physics, Grade 8*



The PlayNIS platform includes electronic textbooks in «Science», «Mathematics», «World Understanding», Grade 1. The access to the DER, interactive virtual laboratories, electronic textbooks in the PlayNIS platform has been provided for teachers of 30 national pilot schools and School № 76, Astana. These academic resources give learners an opportunity to gain additional knowledge on the themes covered.

*In 2017 the work on the DER development and their placement in the PlayNIS platform will continue:*

- 33 DER for primary school subjects: «Science», «Math», «World Understanding» in the Kazakh and Russian languages;
- 172 DER for secondary school subject: «Biology», «Geography», «Computer Science», «History of Kazakhstan», «World History», «Math», «Physics» and «Chemistry»;

### 4.3. EDUCATIONAL RESOURCE PORTAL

To give support to comprehensive school teachers an online System Methodology Complex (SMC) [www.smk.edu.kz](http://www.smk.edu.kz) has been developed.

*SMC portal is a programme and information complex designed to prepare, place and use the scientific and methodological, educational and other information.*

Comprehensive school teachers have an opportunity to get registered in the portal (37576 teachers registered), use the material placed, make comments and evaluate the material quality.

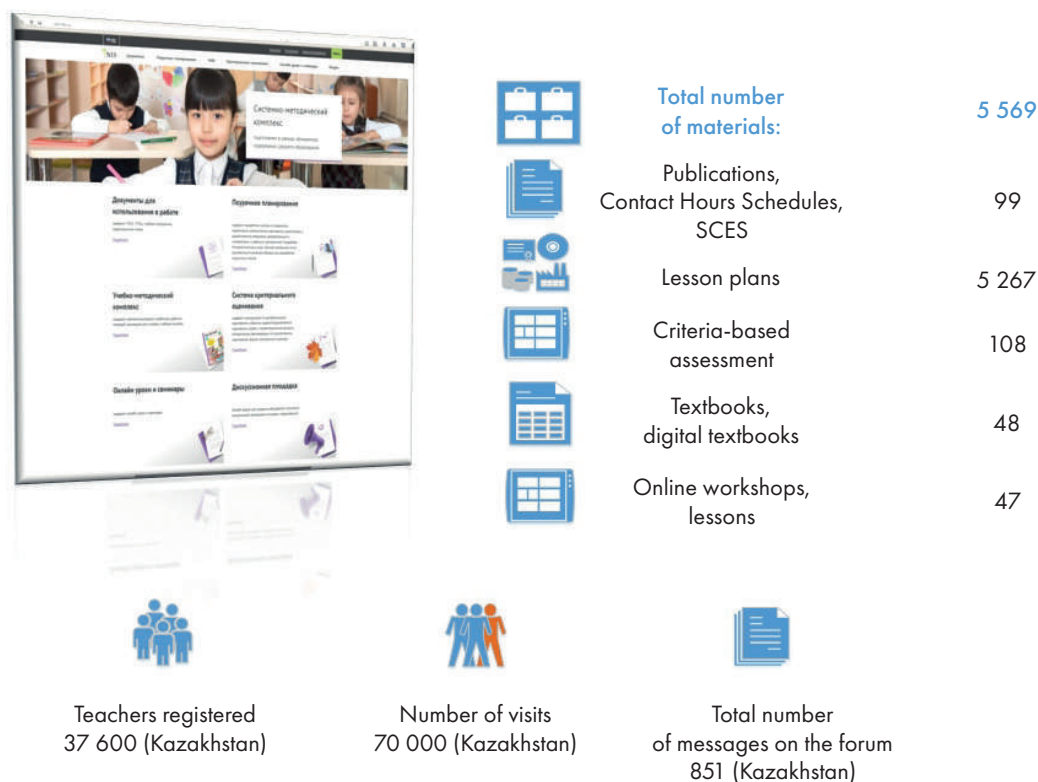
SMC includes the following:

- documents for use in work: standard course plans, primary school subject programmes and middle-term plans for each subject of Grade 1 in two languages approved by a decision of the SCPES and order of Minister of Education and Science, and calendar year-based theme lesson scheduling plans developed by CEP employees;



- ▶ draft lessons with didactic materials: presentations for the lesson, cartoons and videos, tasks for formative assessment, cards for differentiated work management, etc. The primary school methodology complex is being developed by teachers of Intellectual Schools in Kokshetau and Taldykorgan.
- ▶ documents about the assessment system: Criteria-based Assessment Guideline for teachers, formative assessment tasks collection, methodical recommendations for summative assessment, videos and presentations;
- ▶ textbooks: electronic versions of Learner Books, Learner Workbooks, Teacher's Handbooks, posters for speech development;
- ▶ discussion platform serving as a forum. Teachers have an opportunity to hold discussion, get consultations on any direction, and to publish comments and suggestions.

Image. Data on the SMC content



Today there are about 6000 materials in the portal which teachers may use for their lessons. Now the portal is being actively updated with new materials. To provide teachers with qualitative resources all materials are moderated by teachers of Intellectual Schools.

Within the reporting period 1016 questions have been sent to the SMC concerning the subjects content, assessment system, learning management, teaching approaches etc.

All questions are answered in a timely manner by the subject programmes developers-workers of NIS and Altynsarin NAE and analyzed every week. Based on the analysis, measures were taken to resolve individual issues related to teachers, for example, at the request of teachers from different regions lesson scheduling plans for all subjects of Grades 1-2 have been developed and published in the SMC portal for their further application at work.



## 4.4. PUBLICATIONS

### 4.4.1. PEDAGOGICHESKIY DIALOG [PEDAGOGICAL DIALOGUE] INFORMATION AND METHODOLOGY JOURNAL

In terms of experience translation COE in collaboration with the Faculty of Education experts, University of Cambridge publish Pedagogicheskiy Dialog, an information and methodology journal in the Kazakh, Russian and English languages.

In 2016 **4 issues of the magazine** dealing with the latest learning and teaching issues in terms of updated secondary education content have been published.



**Issue №1 (11)** is dedicated to the topic «**Pedagogic research**» where articles considering general theoretical and methodological issues of the pedagogic research and teachers' research skills development are presented.



**Issue №2 (12)** is dedicated to the topic «**Updating secondary education content**» where special aspects of updated standards and assessment system, and their aprobation in practice by 30 pilot schools are presented.



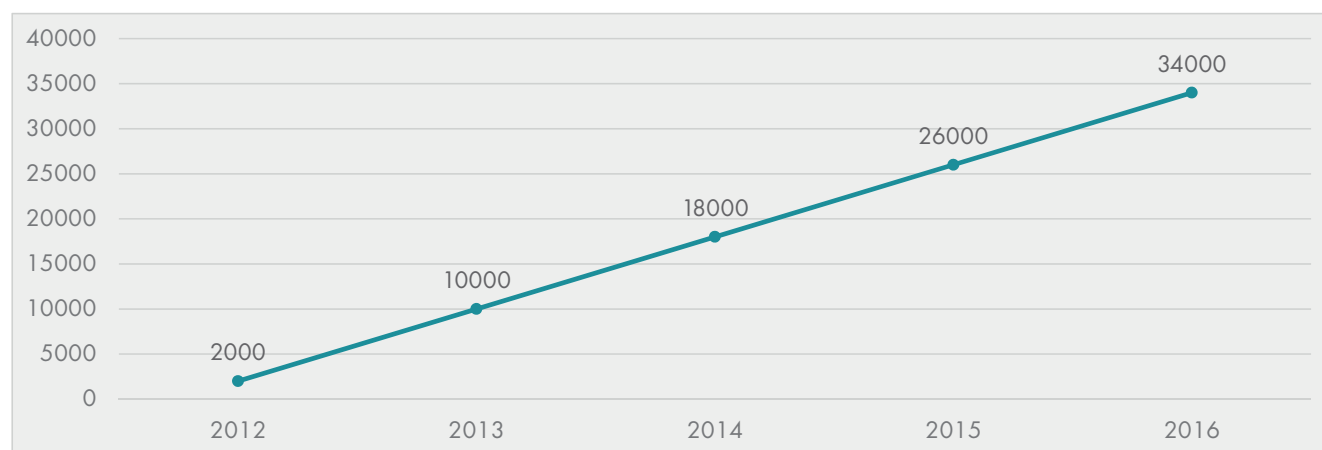
**Issue №3 (13)** is dedicated to the topic «**Effective teaching: methods and tools**». Authors have demonstrated how to use the methods of problem-oriented learning and reflective practice, tools for metacognitive skills development through emotional intelligence and learners' self-regulation, ways of learners' motivation increasing through the assessment tools.



**Issue №4 (14) is dedicated to VIII International Research-to-Practice Conference Taking Change to Scale in Education: Approbation and Translation» held by NIS. The articles include information on the experience of national and international experts in education and the best practice of Kazakhstan teachers.**

In total, from 2012 to 2016, **18 issues** of the journal have been published in **34 000** copies.

*Diagram. Pedagogical Dialogue journal publication*



The range of nationalities of authors contained in the journal is expanding annually: Australia, Azerbaijan, Armenia, Great Britain, Israel, Indonesia, Spain, Canada, Kyrgyzstan, Malaysia, Netherlands, Portugal, Russia, USA, Finland, RSA, Jamaica, Japan.

Authors of the articles are teachers of Intellectual Schools, comprehensive and pilot schools participating in the aprobation of the updated secondary education content, COE trainers, NIS employees, representatives of national and international higher education institutions training the pedagogic staff.

*Table. The number of Pedagogic Dialogue journal authors in terms of categories*

Journal № in 2016					Total	
Author category	№1	№2	№3	№4	Number	%
NIS Teachers	3	-	7	4	14	24,1
Comprehensive school teachers	3	1	2	-	6	10,4
Center employees	3	3	7	2	15	25,8
Kazakhstan higher institutes' employees	-	1	-	-	1	1,7
International experts	2	2	4	4	12	20,7
Kazakhstan educational institutions' employees	-	-	-	3	3	5,2
NIS Employees	2	2	-	3	7	12,1
<b>Total</b>	<b>13</b>	<b>9</b>	<b>20</b>	<b>16</b>	<b>58</b>	<b>100</b>

#### 4.4.2. METHODOLOGICAL AND INFORMATION AND ANALYTICAL LITERATURE

To give continuous methodological support to teachers and school principals since 2012 methodological and information and analytical literature has been published. In 2016 **70 book items** were published.

*Table. Printed material*

Nº	Printed material direction	Book names number
<b>Methodological literature</b>		
1	Resource books:	<b>60</b>
	for teacher	34
	for school principal	6
	within the Curriculum Reforms	20
<b>Information and analytical literature</b>		
2	Monitoring studies	6
3	Essay collections	4
<b>Total:</b>		<b>70</b>

In terms of Curriculum Reforms in the Secondary Education Initiative, the following have been developed:

- **10 resource books and recommendations** designed to provide teachers who completed the professional development training courses with the resource support in terms of teachers' research and reflective culture development and learners' self-regulation skills formation.

#### **Appendix**

- **10 lesson plan** collections of pilot school teachers as translation of experience gained for the period of working on the updated course plans and textbooks of a new generation developed by the AEO. **Appendix**

In 2016 the CE Resource Library estimates **204 names of resource books.**

*Table. CE Resource Books*

Nº	Directions	2012	2013	2014	2015	2016	Total
<b>Resource books</b>							
1	International experience	-	2	9	5	-	<b>16</b>
2	For teacher	2	4	24	35	34	<b>99</b>
3	For school principal	-	-	-	2	6	<b>8</b>
4	Work with higher institutions training pedagogic staff	-	-	-	4	-	<b>4</b>
5	Collections (of practical studies)	-	-	5	2	-	<b>7</b>
6	Within the Curriculum Reforms in Secondary Education Initiative	-	-	-	-	20	<b>20</b>
<b>Information and analytical collections</b>							
7	Monitoring studies	4	7	8	9	6	<b>34</b>
8	Essay collections	2	1	5	4	4	<b>16</b>
<b>Total:</b>		<b>8</b>	<b>14</b>	<b>51</b>	<b>61</b>	<b>70</b>	<b>204</b>

In 2016 CE publications have been highly appraised at the Moscow International Book Fair (VDNH, Moscow, September 7-11, 2016) and awarded the Gold medal Participant of the International Book Fair and Fair Participant's Certificate.



## UNIT 5.

COUNTRY-WIDE PROFESSIONAL  
DEVELOPMENT AND IN-SERVICE  
TRAINING OF PEDAGOGICAL STAFF





## UNIT 5. COUNTRY-WIDE PROFESSIONAL DEVELOPMENT AND IN-SERVICE TRAINING OF PEDAGOGICAL STAFF

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### 5.1. DEVELOPMENT OF EDUCATIONAL PROGRAMMES FOR IN-SERVICE TRAINING OF KAZAKHSTANI PEDAGOGIC STAFF

In 2016 in terms of the Curriculum Reforms in the Secondary Education Initiative, NIS Center of Excellence **developed 21 educational programmes** focused on professional development of pedagogic 17 subject programmes (Appendix 1).

These programmes have been developed to improve teachers' pedagogical excellence in terms of updated subject programmes and to introduce the criteria-based system. The programmes are oriented to:

- ▶ introduce teachers with the structure, content, sequence, objectives and tasks of the updated subject programme;
- ▶ ensure teachers' understanding and ability to apply pedagogic approaches and learning materials in accordance with the updated subject programme and to use the criteria-based assessment system to achieve the learning objectives of the updated subject programme.

### 5.2. TRAINING CHANCE AGENTS FOR THE RENEWED CONTENT OF EDUCATION INITIATIVE

In the reporting year, **701 trainers have been trained** in 15 professional development courses for the pedagogic staff of primary and secondary schools including primary school curricula - 287 people, secondary school curricula - 414 (Appendix 2).

Trainers have been prepared to train primary and secondary school teachers in the corresponding programmes in terms the Curriculum Reforms in Secondary Education Initiative. They have been selected from the COE, NIS AEO, Altynsarin NAE, Orleu NCPD senior employees, and the first- and top-rank teachers who completed the second (basic) and first (advanced) levels of the level-based training courses.

In 2015-2016 in terms of the Curriculum Reforms in Secondary Education Initiative COE trained **1 469 trainers** (in 2015 - **768**, and in 2016 - **701**).



Table. Number of trainers prepared in 2015-2016

Name of the educational organization	Number of trainers prepared		
	Total	2015	2016 r.
CE and its branches	258	185	73
Nazarbayev Intellectual Schools	49	49	-
Altynsarin NAE	19	19	-
Orleu NCPD and its branches	612	262	350
Other educational organizations (including general education organizations)	531	253	278
<b>TOTAL</b>	<b>1469</b>	<b>768</b>	<b>701</b>

To introduce the updated educational content into Kazakhstan's school practice 230 trainers have been prepared in professional development courses upon the following three programmes:

- ▶ Professional development programme for principals and vice principals of general educational organizations of the Republic of Kazakhstan in terms of updated secondary education content **(50 people)**;
- ▶ Professional development programme for regional coordinators in terms of criteria-based assessment introduction in the updated secondary education content **(100 people)**;
- ▶ Professional development programme for the pedagogic staff of the Republic of Kazakhstan on Robotics **(80 people)**.

In addition, MES instructed NIS **to consistently monitor the implementation** of the professional development courses for the pedagogic staff in terms of the Curriculum Reforms in Secondary Education Initiative. Due to this, employees of COE and its branches<sup>1</sup> have been assigned regional advisers. Over the period from May and August, 2016 74 national schools were visited where Orleu NCPD courses were held. Inappropriate use of curriculums has not been identified.

In 2016 to implement the supplementary vocational education programme for higher education institutions and liberal arts colleges training pedagogic staff, **498 trainers** including **248** members from the teaching staff of **19 higher education institutes** and **250** teachers of **25 state liberal arts** (pedagogic) colleges have been trained (Appendices 3, 4).

In terms of the Curriculum Reforms in Secondary Education Initiative, **36 trainers** from the **teaching staff of 18 higher education institutions** have been trained upon the professional development programme for the primary school subject teaching staff. These trainers will train the final-year students and arts college graduates and introduce them new teaching methods and approaches at school.

## 5.3. PROFESSIONAL DEVELOPMENT OF KAZAKHSTANI TEACHING STAFF

### 5.3.1. PROFESSIONAL DEVELOPMENT OF PRINCIPALS

In 2016 **1 396 people** including 935 people having started the courses in 2015 have completed training under the Professional development programme for principals.

Over the reporting period **1 000** principals have been enrolled and **5** principals who did not complete the training in 2015 have also been enrolled.

**17 school principals** have been trained under the professional programme for Intellectual Schools principals.

<sup>1</sup> CoE Order №79/OD April 15, 2016



*Table. Total number of people trained under the Professional development programme for principals over 2014-2016*

Learner category	Total	2014	2015	2016	Plan for 2017
Principals of comprehensive educational organizations	<b>2 639</b>	583	660	1 396	1 000
NIS principals	<b>17</b>	-	-	17	20
<b>Total</b>	<b>2 656</b>	<b>583</b>	<b>660</b>	<b>1 413</b>	<b>1 020</b>

In terms of this programme implementation formative assessment has been introduced. While practicing the formative assessment trainers have attended 1121 lessons, 382 coachings, 209 workshops, 836

interviews with teachers, 1518 interviews with learners and 808 interviews with parents which helped to evaluate the changes in the school culture, teachers interaction and cooperation environment and interest in the school practice reform.

*Diagram. Number of lessons, coachings, workshops attended while practicing formative assessment*



### 5.3.2. PROFESSIONAL DEVELOPMENT OF TEACHERS

2016 saw professional development courses of «Efficient learning», «Teacher's leadership at school», «Teacher's leadership in the pedagogical community» conducted for teachers of Zhas Ulan national military schools, comprehensive and NIS schools.

In total **6 196 teachers** have been trained:

- ▶ «Efficient learning» - **1 781**;
- ▶ «Teacher's leadership at school» - **1 420**;
- ▶ «Teacher's leadership in the pedagogical community» - **2 995**.

From the total number of teachers trained:

- ▶ **5 088 teachers** of state comprehensive schools («Efficient learning» - 995 teachers; «Teacher's leadership at school» - 1 193 teachers; «Teacher's leadership in the pedagogical community» - 2 900 teachers);
- ▶ **83 teachers** from state military schools Zhas Ulan, Astana, Almaty, Karaganda, Shymkent («Efficient learning»);
- ▶ **1 025 teachers** - Intellectual Schools («Efficient learning» - 703 teachers; «Teacher's leadership at school» - 227 teachers; «Teacher's leadership in the pedagogical community» - 95 teachers).



Over the period from 2012 to 2016 at the COE and its branches in total 22 583 teachers from comprehensive schools have completed training upon the level-based and professional development programmes.

Table. Number of teachers trained upon level-based and professional development programmes in 2012-2016

Name of the educational organization	Name of the programme level	Number of teachers completed the training					
		total	including				
			2012 r	2013 r.	2014 r.	2015 r.	2016 r.
Center of Excellence	Third (basic)/ «Efficient learning»	<b>6 934</b>	1 053	1 147	1 004	1 949	1 781
	Second (main)/ «Teacher's leadership at school»	<b>3 589</b>	-	997	999	173	1 420
	First (advanced)/ «Teacher's leadership in the pedagogical community»	<b>12 060</b>	-	3 093	3 101	2 871	2 995
<b>Total:</b>		<b>22 583</b>	<b>1 053</b>	<b>5 237</b>	<b>5 104</b>	<b>4 993</b>	<b>6 196</b>

From 2013 to 2016 **2 491 teachers from Intellectual Schools** completed the level-based and professional development programmes.

Table. Number of teachers from Intellectual Schools trained upon level-based and professional development programmes in 2013-2016

Name of the educational organization	Level/title of the programme	Number of teachers taught				
		total	including			
			2012 r	2013 r.	2014 r.	2015 r.
Center of excellence	Third (basic)/ «Efficient learning»	<b>1 926</b>	223	-	1 000	703
	Second (basic)/ «Teacher's leadership at school»	<b>382</b>	-	-	155	227
	First (advanced)/ «Teacher's leadership in the pedagogical community»	<b>183</b>	-	-	88	95
<b>Total:</b>		<b>2 491</b>	<b>223</b>	<b>-</b>	<b>1 243</b>	<b>1 025</b>



## Professional development programmes for the pedagogic staff in terms of the Curriculum Reforms in Secondary Education Initiative

In terms of the Curriculum Reforms in Secondary Education Initiative **30 135 teachers** have been trained, including:

- ▶ **14 874 teachers** including:
  - 4 288 - primary school;
  - 2 737 - the Kazakh language;
  - 3 143 - the English language;
  - 3 319 - Arts;
  - 1 387 - Physical culture;
- ▶ **15 261 pedagogical employees** including:
  - 3 596 principals;
  - 3 596 deputy principals;
  - 877 methodology experts and specialists of oblast, Almaty, Astana, district (city) departments of education and methodology departments;
  - 7 192 regional and school coordinators on criteria-based assessment introduction.

To encourage efficient introduction of the updated educational content in national schools upon the following educational programmes:

- ▶ **2 999** teachers of Computer Science from comprehensive schools have been trained in Robotics,
- ▶ **38** employees from NIS departments **have been trained** in Key ideas of the efficient learning.

**According to the order of MES dated March 30, 2016** on the use of Saturday for professional development of teachers from comprehensive schools, a teacher professional development model have been developed where the key aspect is intraschool training of the pedagogic staff on the «peer-to-peer» principle. To encourage teachers' professional development at schools **8 737 school trainers** have been trained by the professional development programme for the pedagogic staff of comprehensive schools **«Reflection in practice»**.

## 5.4. QUALITY ASSURANCE MONITORING OF COURSES

The quality of the professional development programme for pedagogic staff and integration of their ideas in Kazakhstan's education practice is managed based on the following:

1. preliminary diagnostics of the target audience;
2. course quality monitoring;
3. postcourse activity efficiency monitoring of the certified pedagogic staff trained upon the COE educational programmes.

In 2016, **85 472 respondents** have been involved in the monitoring studies:

924 - principals, teachers and employees of Intellectual Schools.

728 - representatives of oblast, district, and city educational departments;

54,095 - principals and teachers of (complete and underfilled) educational organizations;

26,124 - parents of learners;

3 523 - representatives of higher education institutions, teachers of liberal arts colleges, final-year students of universities and colleges;

78 - COE trainers.

**1) 45 997 respondents are involved in the PRELIMINARY DIAGNOSTICS.** It is held in two directions:

a) **Identification of professional problems and needs of underfilled schools** (*hereinafter - UFS*).

The respondents were representatives of oblast, district, and city educational departments, principals, UFS learners' parents. Respondents' needs for practical skills to use the most popular methods and technologies in the UFS have been identified as a result of the interview.

The primary diagnostics results will help develop conceptual foundations, objectives, tasks and expected outcomes of professional development programmes for UFS principals.

The research results are published in Book 25 from the «Monitoring research» series and the following appendices to the publication mentioned:

1) Statistical data on UFS:

Book I. General information.

Book II. Teaching staff.

Book III. Material and technical facilities.

2) Statistical data on UFS in terms of country regions (14 publications).

3) UFS professional problems and needs (general analysis).

### b) Professional problems and needs of the pedagogical staff of Intellectual Schools.

According to the results of preliminary diagnostics the following topics have been identified required for the professional development courses and methodology workshops:

- ▶ International experience in developing the educational programmes within the secondary education.
- ▶ Methodological foundation of the level-based programmes (the essence of the constructive approach, theories of «flow», etc.).

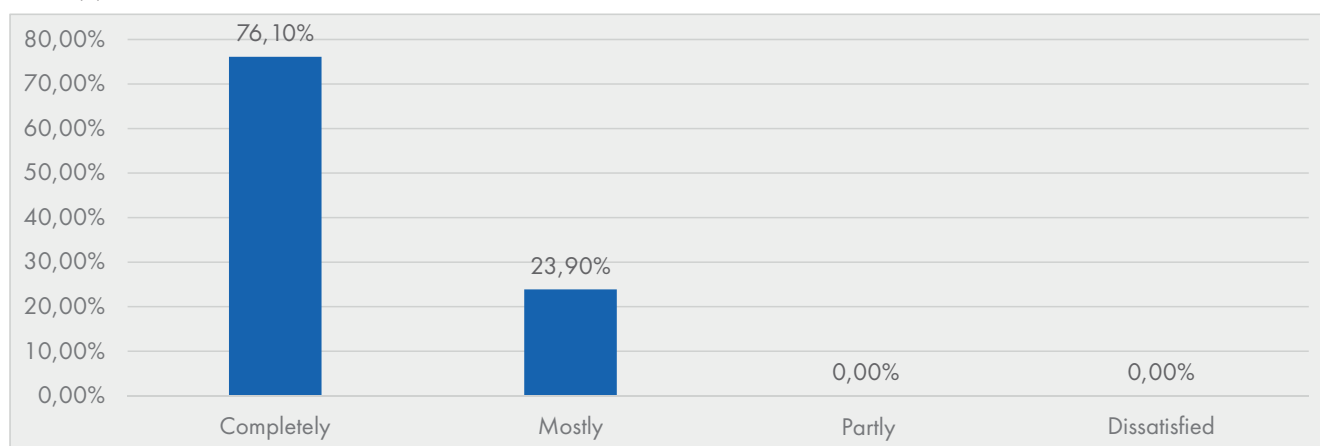
- ▶ Subject and methodological teaching aspects (learning objectives and criteria for learners' assessment; planning, efficient methods, teaching technologies and approaches, quality management, successful teaching monitoring, etc.).
- ▶ Specific and methodological aspects of the work with gifted children.

2) In terms of the educational process upon the level-based programmes and programmes for principals of comprehensive organizations **COURSE MONITORING RESEARCH** has been held with **36 450 respondents** involved.

The course monitoring research is aimed at:

- ▶ evaluating the importance and practical significance of the programme;
- ▶ dynamics of learners' professional changes («input» and «output» diagnosis);
- ▶ COE trainers quality evaluation;

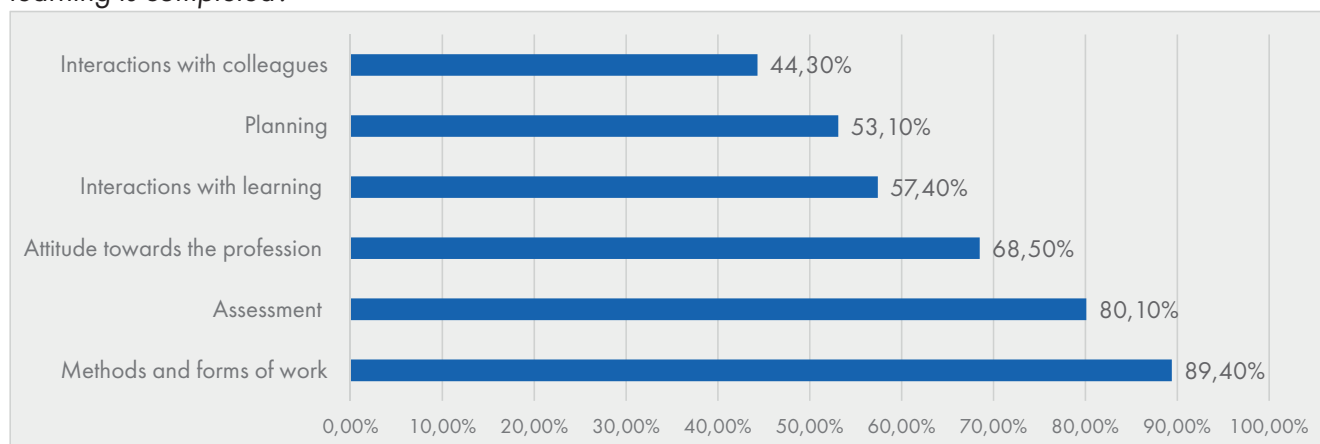
Answering the question: «Are your professional needs and expectations for the learning results satisfied?», all respondents answered their professional needs and expectations were satisfied.



All respondents who answered the question: «What do you intend to change in your teaching practice after the learning is completed?» said they were ready to start working upon the renewed secondary education content and considered the information gained at the professional development courses to be an incentive to improve their own teaching practice.



Diagram. Answer to the question: «What do you intend to change in your teaching practice after the learning is completed?»



### Absolute majority of teachers thinks that the training Programmes:

- ▶ Expanded their methodological arsenal of new competencies;
- ▶ Acquainted with effective forms of work with learners;
- ▶ Helped to test and realize the effectiveness of the proposed methods and technologies of teaching and medium-term planning;
- ▶ Influenced favorably the motivational aspects of the activity: Increased interest in the profession, changed the attitude toward the content of teaching and the principles of interaction with learners.

Comparison of «input» and «output» diagnosis results of respondents indicates:

- ▶ transformation of the thinking style, broadening the range of professional priorities, views on the philosophy of education, rethinking the style and nature of the relationship with learners and colleagues in the workplace;
- ▶ Acquisition of knowledge and skills of researching their own practice of teaching, functioning in a networked professional community, inclusive teaching, criteria-based assessment, reflection of their own practice and practice of colleagues in the workplace;
- ▶ Formation of a leadership position, a new style of teaching; Rethinking the importance of self-education, self-improvement, self-assessment;
- ▶ Better ICT skills use in teaching practice.



**The results** of the course monitoring studies **on the programme of managers** showed that the absolute majority of school principals highly appreciated the novelty and relevance of the programme, its positive impact on the development of skills and abilities on the issues of:

- ▶ a new vision of the work of a modern leader;
- ▶ strategic planning of school development;
- ▶ development of the trajectory for professional development of teaching staff;
- ▶ organization and maintenance of the effective functioning of the professional community network;
- ▶ introduction of leadership in the school;
- ▶ rational use of teaching staff potential;
- ▶ time management;
- ▶ interaction with parents of learners and the public;
- ▶ implementation of coaching and mentoring approaches for school teachers.

### 3) POST-COURSE EFFECTIVENESS MONITORING OF TEACHERS' ACTIVITY

Post-course monitoring was conducted within the framework of the educational program for additional professional education for graduate students of higher educational institutions.

The respondents were **3 025 graduates of 18 universities** (training teachers) who completed their studies and started working in schools in September 2015-2016 academic year.

According to all interviewed university graduates, thanks to the training under the Centre of Excellence programme, the problems of scheduling the teaching work; methods and approaches in teaching; work with children; relationship with parents of learners have been significantly simplified.

## 5.5. POST-COURSE SUPPORT FOR TEACHING STAFF

POST-COURSE SUPPORT FOR TEACHERS OF 30 PILOTING SCHOOLS IN THE FRAMEWORK OF APPROBATION OF STATE COMPULSORY PRIMARY EDUCATION STANDARD (SCPES)

Centre of Excellence allocated 33 tutor trainers for qualitative approbation of the renewed content of education and provision of consulting support to the teachers of the piloting schools.

Tutor trainers provided methodological support to teaching staff of piloting schools through: supervision of lessons, professional conversations with teachers and coordinators, training events (consultations, workshops, master classes, round tables, webinars, mentoring) in the form of **online and offline communication:**

- ▶ **937 lessons were attended in the first grades.** They were analyzed and teachers received support;
- ▶ **285 professional conversations** with school coordinators of the project were conducted,
- ▶ **854 professional conversations** with teachers were conducted,
- ▶ **298 training events** were organized for school teachers,
- ▶ 388 lessons were planned **jointly for** each subject.

POST-TRAINING SUPPORT FOR PEDAGOGICAL STAFF BY LEADING REGIONAL SCHOOLS

According to Letter, No. 02-2 / 678 of the Ministry of Education and Science of the Republic of Kazakhstan from April 22, 2014, **689 Leading schools** of the country were identified by the regional educational authorities for effective interaction with certified teachers of schools. The post-course support for Leading Schools teaching was carried out staff by Centre of Excellence trainers in the following staff by Centre of Excellence trainers

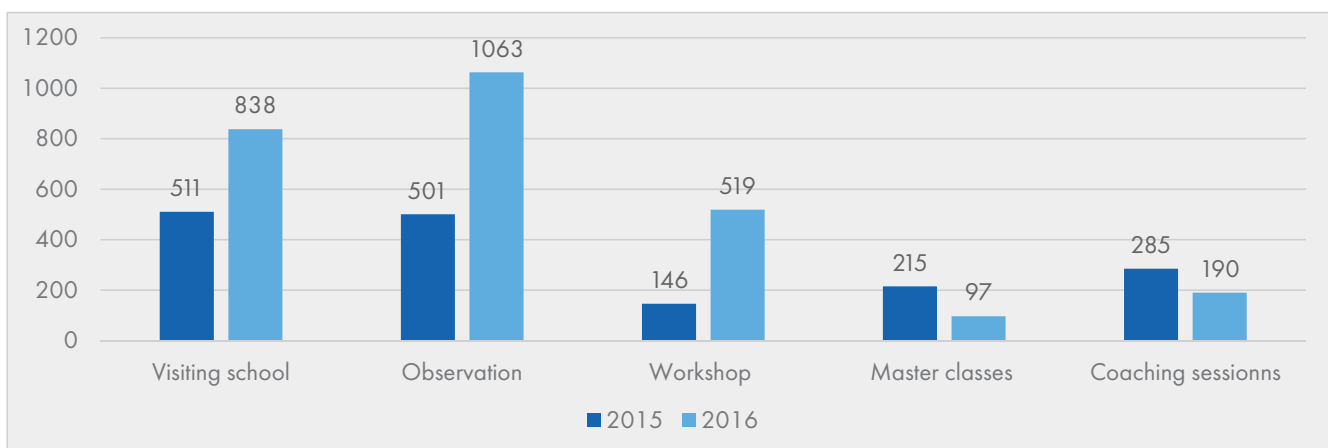


- Visiting schools for the purpose of consulting support of coordinators, school trainers and administration of the Leading School;
- Observation of lessons to improve pedagogical practices of teachers;
- Conducting training events by trainers;
- Running events on translation of experience of teachers to regional schools to popularize the ideas of renewed content of secondary education;
- Participation in events held by the regional and city departments of education.

**At the premises of Leading schools,** together with the trainers of the Centre and its branches, **192 events** were held to translate the experience of teachers from a region.

In 2016 trainers of Centre of Excellence and its branches visited **838** compulsory schools, they **observed 1 063 lessons and ran 806 training events.**

*Diagram. Activities within the framework of post-course support of teachers through Leading Schools*



The work of trainers on post-course support on work management at the premises of Leading schools intensified significantly in the reporting year as compared with 2015. Thus, the staff of Leading schools with trainers of Centre of Excellence and its branches ran **192 events** to translate experience for teachers of the regional schools at the premises of the Leading Schools.

During the August Meeting of Pedagogical Workers, **trainers of Centre of Excellence presented 96 speeches** on the renewal of content of secondary education.

**In April-May 2016,** Centre of Excellence together with the region and city education authorities ran the Republican contest «The Best Constructivist Lesson» in Astana in order to summarize and familiarize the best pedagogical practices, to promote the development of pedagogical skills in the framework of introducing new approaches to teaching and learning. **More than 400 teachers of secondary schools** took part in the contest.

Also, the branches of Centre of Excellence provided trainers with methodological and advisory support **within the post-course support** including the **teaching staff from colleges and universities carrying out training of pedagogic staff** trained upon level/education programmes as follows: 4 workshops, 8 roundtables, 1 conference, 2 coachings, 4 joint research projects, 2 master classes, 6 training sessions

## POST-COURSE SUPPORT OF PEDAGOGIC STAFF OF EDUCATIONAL ORGANISATIONS UNDER THE TERMS OF MEMORANDUM

According to the Associate Agreement made between Education Authority of Astana and NIS on the introduction of modern technologies in educational process of gymnasium school No.76:

- ▶ 3 principals have been trained upon professional development programmes for principals and vice-principals of comprehensive schools;
- ▶ training workshop on a topic of Modern Approaches to Effective Lesson Plan Development was organised for 33 teachers;
- ▶ questionnaire survey was conducted for pedagogic staff (98 respondents) for the purpose of determining needs in the further professional development of school team.

There are workshops being held within the Memorandum on cooperation between **Education Authority of Akmola region** and NIS on the topics of School Development during Introduction of the Renewal of the Content of Secondary Education of the Republic of Kazakhstan for principals of underfilled schools, and Use of New Approaches to Studying in Underfilled Schools within the Renewal of the Content of Secondary Education for primary grades in underfilled schools.

The following events have been held within the Memorandum on cooperation between the Akimat of Kyzylorda region and NIS:

- ▶ Regional conference «Training of pedagogic staff: professional 21 st century skills» with participation of teachers from innovative educational organisations, Korkyt Ata Kyzylorda State University and Mametova College of Humanities;
- ▶ Regional platform for coach leaders from 22 innovative schools «New beginnings. New ideas. New steps»;
- ▶ Roundtable «Introduction of the renewed content of education in innovative schools of Kyzylorda region» with participation of the akim of Kyzylorda region, NIS Chairman of the Executive Board, representatives of Education Authorities, principals of district and city departments of

education, specialists of methodics departments, principals and teachers of the regional comprehensive schools;

- ▶ Master classes based on the practice of innovative schools.

The situation centre of the regional akimat has organised communication with educational workers from Kyzylorda region in the online mode. In the course of the dialogue the practice results have been discussed: the introduction of the trilingual policy; work with innovative and collaborating schools in terms of network community; organization of intraschool courses; integration of NIS social projects in practice; Methodology Caravan work arranged by the COE in Kyzylorda.

- ▶ Training workshops have been held within the Memorandum on cooperation **between the National Defence University and NIS** for the purpose of the post-course support on topics «Leadership and management in a modern school», «Effective lesson» for principals and vice principals of Zhas Ulan Republican school in Astana, Karaganda, Shymkent and Almaty.

## 5.6. METHODOLOGICAL SUPPORT FOR TEACHING STAFF

### TEACHERS NETWORK COMMUNITY SUPPORT

The professional development courses are now available for listeners at the COE educational portal (further referred as the portal) [www.cpm.kz](http://www.cpm.kz).

During the reported period, additional subsections for the following Educational programmes were added to the «Professional development programmes» section:

- ▶ professional development courses for regional and school coordinators in implementing the system of criteria-based assessment;
- ▶ professional development courses for teaching staff in the Robotics elective course;
- ▶ professional development courses for teaching staff in comprehensive schools «Reflection in practice»;
- ▶ a professional development course for NIS affiliates heads.



1993 teacher communities were created and are now functioning, which trainers use to provide methodical assistance and consult pilot, leading and partner schools teachers. The portal allows school leaders and teachers to improve their professional competence level by sharing experience, discussing questions online and offline.

The number of registered users is 89,000 which amounts to 23% of all teachers in the country.

**Table. Number of visits and registered users from 2012 to 2016.**

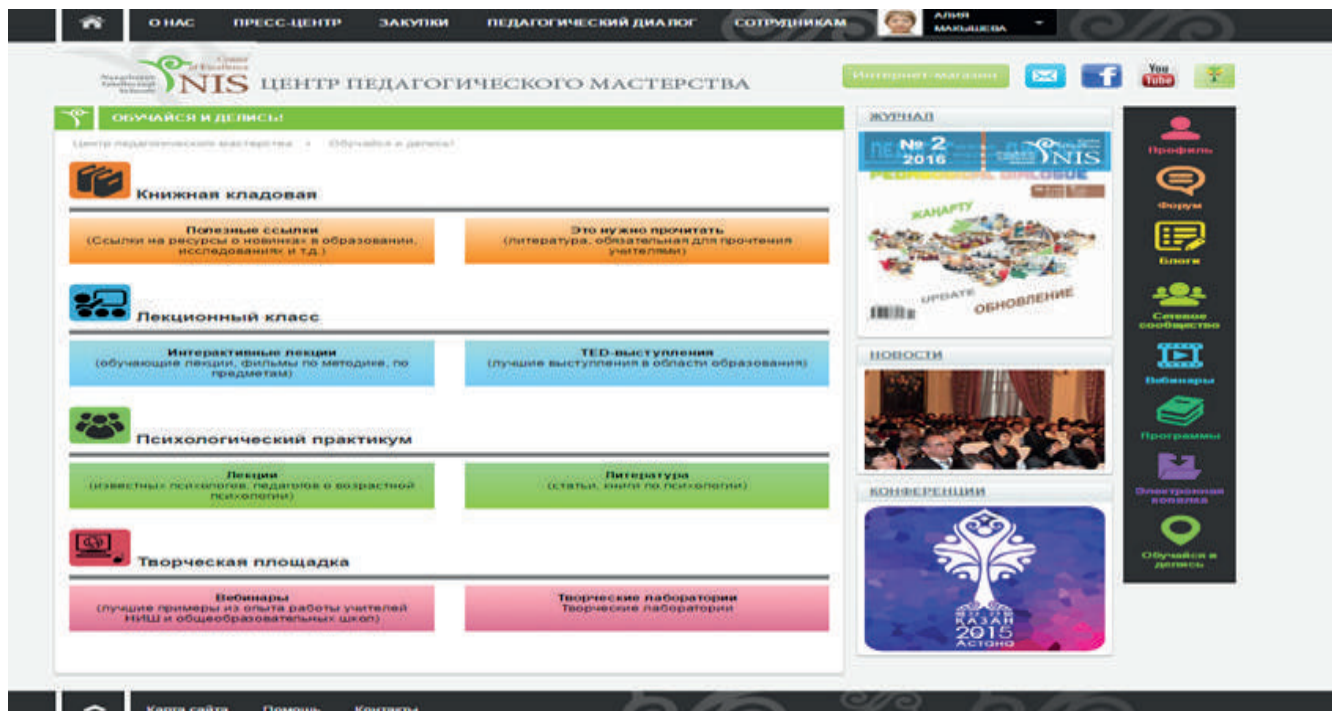
№	Report year	Number of registered users	Number of visits
1	2012	7600	112 821
2	2013	21 643	212 780
3	2014	39 000	331 077
4	2015	61 600	591 105
5	2016	89 100	1 417 516

Digital methodological CE database is annually updated. Currently 1565 items structured by subjects had been placed on it. All pedagogical staff registered in the portal [www.cpm.kz](http://www.cpm.kz) have access to the digital methodological database.

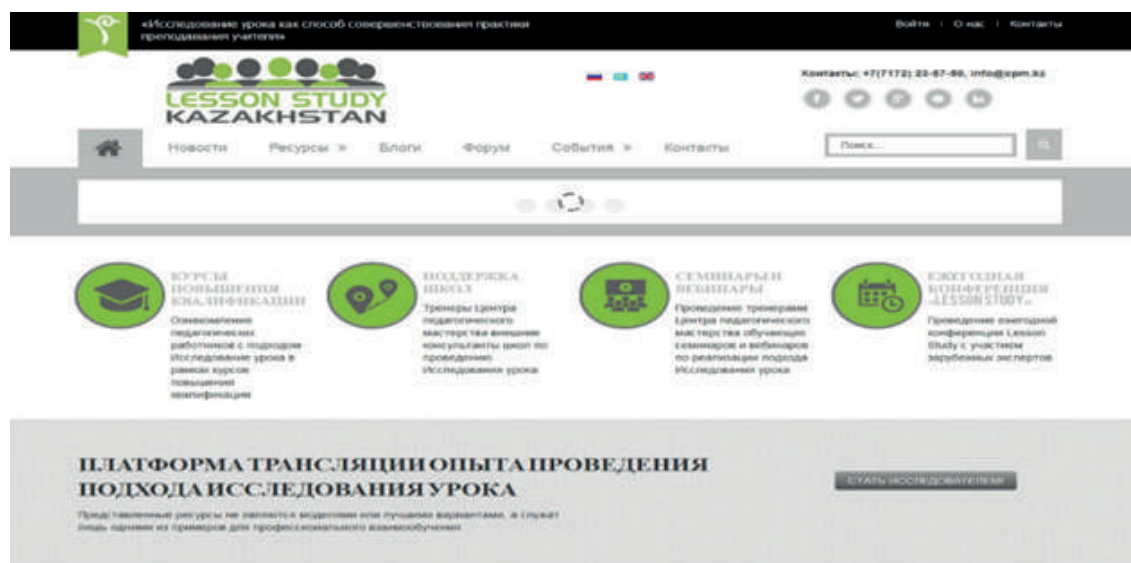
There is a section called «Learn and share!» consisting of the following subsections: Book Store, Lecture class, Psychological practicum, Creative stage.

The CE portal has become a platform for webinars. Within the reporting period the CoE has held 44 webinars for trainers and teachers of the country.

**Image. Website section «Learn and share!»**



The following website <http://lessonstudy.kz> has been developed and launched in order to improve teaching and learning quality assurance for the practical implementation of Lesson Study.



There is also the Electronic Account System for listeners trained on the basis of CPE programmes [www.db.cpm.kz](http://www.db.cpm.kz) created for accounting and controlling listeners of professional development courses.

## 5.7. PUBLICATIONS IN THE MEDIA

For the presentation of modernization of the secondary education systems and professional development, a number of articles in Kazakh and Russian languages have been published in the regional and republican mass media on implementing professional development courses within the Curriculum Reforms in Secondary Education Initiative.

Within the reporting period, employees of the CoE and its branches, and professional development course participants have published **105 articles in the mass media** including:

in the republican journals and magazines – **9** articles and 1 TV spot;

in the regional mass media – **34** articles and 17 TV spots;

in the academic journals – **44** articles including 12 in the periodical «Pedagogic Dialogue». Feedback from the professional course participants has been introduced to more than **60** publications of the

republican and oblast significance. They are: Bilimdi el - obrazovannaya strana, Kazakhstanskaya pravda, Innovatsiya zhane memlekettik kyzmet; oblast and regional newspapers: Mangystau adiskeri, Mangystau mugalimi, Aktobe ustazy, Vestnik Aktobe, Sharaina, Ortalyk Kazakhstan, Arka Azhary, Ustaz Uni, Akmeshit, Syr mektebi, Akku uni, Bilim shapagaty, Zhetisu, Alatau, Bolashak, Kazakhstan zholy, Priuralye, Yuzhnyi Kazakhstan, and electronic media.

Analysis of publications has shown that course participants are positive about the content and format of the professional development courses within the Curriculum Reforms in Secondary Education Initiative.





## UNIT 6.

ADDITIONAL SUPPORT FOR  
COMPREHENSIVE SCHOOLS





## UNIT 6. ADDITIONAL SUPPORT FOR COMPREHENSIVE SCHOOLS

### 6.1. PASTORAL WORK

There is a unified pastoral work system functioning in the Intellectual Schools that is closely related to the educational process and complies with the values of the national idea of Mangilik Yel.

Within the framework of experience translation, **the following was developed and delivered to the Ministry of Education and Science:**

- ▶ Main strands of pastoral work in Intellectual Schools;
- ▶ Main approaches of pastoral work in Intellectual Schools;
- ▶ Recommendations on organizing the curatorial service in schools;
- ▶ Routes of research and regional expeditions «A bow to the Motherland»;
- ▶ Recommendations on organizing Shanyrak school community;
- ▶ Practice Guide: Implementation of the idea Mangilik el in Intellectual Schools;
- ▶ Practice Guide on implementing the following activities: Vocational guidance in the Intellectual Schools: concept, principles and suggestions;
- ▶ Practice Guide on formation of active citizenship: NIS experience for implementation of the programme Serving the people;
- ▶ List of books under the project 100 Books recommended for NIS learners;
- ▶ Description of social projects and practices recommended for translation of experience in pastoral work in the Intellectual Schools to the National Physics and Mathematics School.

During the reporting period, NIS employees held the workshops and trainings on transmission of the pastoral work experience in the Intellectual Schools. Also they submitted meeting and round table reports organised and held by the state bodies.

- ▶ The republican workshops on the activity of «Shanyrak» school community are organised for educational workers from comprehensive schools within the state program on development of education and science on the base of the NIS Astana and NIS Shymkent.

«Main idea of «Shanyrak» community is to form positive communication and cooperation between learners of different ages learning different languages, and taking care of the younger ones. It creates a unified, united community of learners, teachers and parents at school, promotes developing the ability to think creatively, mutual respect and sympathy, team spirit, and involves organisation of sports events and recreational activities.

- ▶ The workshop on the following topic was organised **in April 2016:** «Special aspects of implementing the values of «Mangilik el» to the educational process of Intellectual Schools» **for 115** vice principals for pastoral work from comprehensive schools in Astana and pilot schools, as well as for workers of the National Defense University on the base of NIS Astana PhM.

- ▶ Training workshops «Special aspects of organising social projects and practices: formation of Kazakhstan patriotism and serving to the people» were organised **in May for 178** vice principals for pastoral work from comprehensive schools in South Kazakhstan Region, 30 pilot schools, as well as for teachers of the National Defense University and Zhas Ulan schools on the base of two NIS Shymkent schools.
- ▶ Within the period from September to December 2016, 20 NIS workers **held 71 training workshops and practical coachings** on pastoral work for 36 educational organisations. 3158 subject teachers, supervising teachers, vice principals for pastoral work, 190 learners from comprehensive schools and 243 parents.



## 6.2. SUMMER SCHOOL AND ELECTIVE COURSES

**Nauryz meetings were held for 160** NIS and comprehensive school learners in order to develop their research skills, to involve them in natural sciences, to increase knowledge within the transmission of NIS experience.

The following **courses** were organised for **407 comprehensive school learners** and based on 3 programmes: «Science Unlimited», «Robotics», «English language». Content of the courses presented a creative approach in solving the set tasks.

The elective courses were organised for **18 comprehensive school learners for the purpose of increasing their subject knowledge, developing an ability to use them in practice, research skills and project activity.** For the first time, the elective courses were held by professors from the Stanford University and the Silicon Valley Innovation Center, USA.

During the courses of «Creative writing», **learners** learnt how to write letters, essays, literary works, and explored the different methods of improving and developing the skills of creative reading and writing.

«Game Design» courses provided participants with basic concepts of programming, design and techniques of creating video games using the following tools and technologies: Arduino, Processing and Twine.

Entrepreneurship courses provided learners with the foundations of business enterprise and basic principles of company establishment and management.

**Summer Schools** were organised for **1 010 learners** on the base of **the following 4 programmes:** «Engineering», «Manufacturing and design of soap», «Soil and its properties», «Biotechnology and bioengineering».

Also, in order to develop practical skills of playing chess, an ability to solve difficult logic problems and to form strong will characters, **50 young chess-players from vulnerable social groups among the comprehensive school learners got into «Chess planet» summer school** at the expense of sponsorship of Kazakh Chess Federation and Science and Education Fund named after Shahmardan Yessenov, an academician.



On the eve of the 25-th anniversary of the Independence of the Republic of Kazakhstan - on 12 December 2016, it was Doors Open Day held in all the Intellectual Schools. Our schools hosted more than 4 000 learners from comprehensive schools.



<http://24.kz/ru/news/obrazovanie-i-nauka/item/152952-v-nazarbaev-intellektualnykh-shkolakh-strany-proshel-den-otkrytykh-dverej>



The guests visited lessons, school chemistry, biology and physics laboratories, they took participation in scientific experiments; interactive quizzes, flashmobs, concerts and many other interesting events were organised for improving the relationship between schools and local communities.

Intellectual Schools provided comprehensive school libraries with more than **4 000 books**.

In November, the Intellectual Schools organised charity fairs and exhibitions with bakery food and handicraft for sale. The funds collected by NIS learners by the end of this event were spent for their peers from needy and large families from all over the country to take 5 days training courses at the Summer School of NIS Astana giving them a chance to visit EXPO-2017, with 100 children from comprehensive schools getting the opportunity to visit EXPO-2017.



### 6.3. LIBRARIES

For the purpose of translation of professional experience, NIS librarians hold training workshops and provide library employees from comprehensive schools with methodological assistance within the academic year.

In 2016, **104** workshops were held at NIS libraries covering **1 638** participants.

In the course of these workshops school librarians learnt about the main aspects of work and new methods for developing reading, information and functional literacy, research which have been successfully integrated and practiced in the NIS libraries.

Due to the experience translation, comprehensive school librarians have introduced different forms of work:

- ▶ they have changed the library design and zoning (Zhas Ulan Shymkent and Almaty, gymnasium school №15 in Almaty, gymnasium school №9 in Aktobe and others);
- ▶ most libraries of pilot schools and some comprehensive schools have provided public access to the book stock;
- ▶ methods for developing reading are being implemented: Book Bingo, Guess the book name, Book conquers the world', Sweet guessing game, Finish drawing, Visualization cards, Find the book';
- ▶ promotional actions and projects as follows are held: 1,2,3, Reading time, READx, 100 books, 30 books, 50 books (Kyzylorda, Uralsk);
- ▶ electronic library programme CABIS is partially introduced;





- ▶ reading clubs and family reading clubs have been arranged (gymnasium school №9 in Aktobe);
- ▶ school libraries learn to promote libraries on social networking websites, create library accounts on Facebook and VK and online communities of school libraries, and use the interactive online application called learning-apps.

Bookcrossing, a book travel with NIS.

Within the celebration of 25 years of Independence of the Republic of Kazakhstan, Nazarbayev Intellectual Schools in Almaty, Astana, Shymkent, Karaganda have held the promotional action called Bookcrossing, a book travel with NIS - Bilimnin kozi - kitapta launched in Zhas Ulan republican military schools.

The future Kazakhstan's army officers have been gifted more than 1000 books: fiction, informative literature, encyclopedias, dictionaries in the Kazakh, Russian and English languages.

In the annual Bookcrossing event held in December on the occasion of the First President's Day and Independence Day of the Republic of Kazakhstan Intellectual Schools learners traditionally visited village schools and gifted more than 9 706 books. With the book the learners leave a small address to his or her friend that is going to read this book sharing his own thoughts and impression about it.

## 6.4. ROBOTICS

Dynamic changes in the modern world are related to the large-scale dissemination of information and communication technologies. About 17% of children in the OECD countries start to use the Internet



resources from 6 years, and 40% - from 7 to 9 years. More than 90% of professions currently require digital competence.

According to the technology index of the World Economic Forum, Kazakhstan occupies 40th place among 146 countries, and 56th place in terms of schools' access to the Internet.

To integrate robotics in comprehensive schools, the Nazarbayev Intellectual Schools AEO has developed the programme for the elective course «Robotics», trained 80 trainers that shared their knowledge and experience with more than 2 900 teachers of the whole country.

This course includes learning basic electronics, mechanics, electrical engineering, 3D modelling, computer programming and safety on the Internet.

Robotics learning develops the learners' engineering and design consciousness, and mathematical modeling that encourages the learners' creative abilities.

Unfortunately, the wide introduction of robotics is impossible for now due to the weak technical provision of comprehensive schools.

Nazarbayev Intellectual Schools AEO is a national organizer of the World Robot Olympiad in the Republic of Kazakhstan. In 2014 100 teams participated in the Olympiad and in 2015 - 115 teams.

One of the indicators for the professional development programme efficiency is the third participation of Kazakhstan's national robotics team of 16 learners from Intellectual and comprehensive schools in the World Robot Olympiad held in 2016, New Delhi (India).



Kazakhstan's team took participation in seven categories: Regular Junior High, Regular Senior High, Open Elementary, Open Junior High, Open Senior High, Advanced Robotics Challenge, Football.

At the end of Olympiad's three days the national team has been honoured with **LEGO Education Creativity Award** for the most creative and innovative project «**Robotic orbit station for space junk disposal in the earth's orbit**».

This triumph once again proves the expediency of the course, selected for development of the robot industry in the country: Kazakhstan and talented Kazakhstani children show their worth on the global scale.

In 2017 the Republican Robotics Olympiad is planned to be held based at EXPO-2017.

## 6.5. CONFERENCES AND FORUMS

### INTERNATIONAL RESEARCH AND PRACTICE CONFERENCE

On October 27-28, 2016 VIII International research and practice conference «Taking Change to Scale in Education: Piloting and Dissemination» (hereafter - Conference) was held by NIS in Astana where the leading world experts in education discussed how to take changing to education and to what extent it is important.



Over 750 participants from 15 countries attended the Conference where they presented 190 Kazakhstan and international educational organizations.

**45 break-out sessions in 14 areas** have been organized and focused on educational changes and innovations; leadership in education; education evaluation and quality; research practice and ethics; family, community and society; children well-being; educational resources.

Over **160 presentations** have been demonstrated in different formats - plenary sessions, presentations, workshops and session poster.

Moreover, exhibition of educational resources with 13 organizations involved has been held.

In 2016 in terms of the Conference the online system for presentation abstracts review and payment for participation has been introduced for the first time on the updated conference website <http://conferences.nis.edu.kz/>. According to the results of online inquiry, the Conference participants have noted that it made participation in the Conference more accessible for people concerned.

The inquiry data indicates advantages of the positive feedback about the conference organization and research and practice materials presented. One of the prominent advantages is 26% increase of the respondents that want to attend the

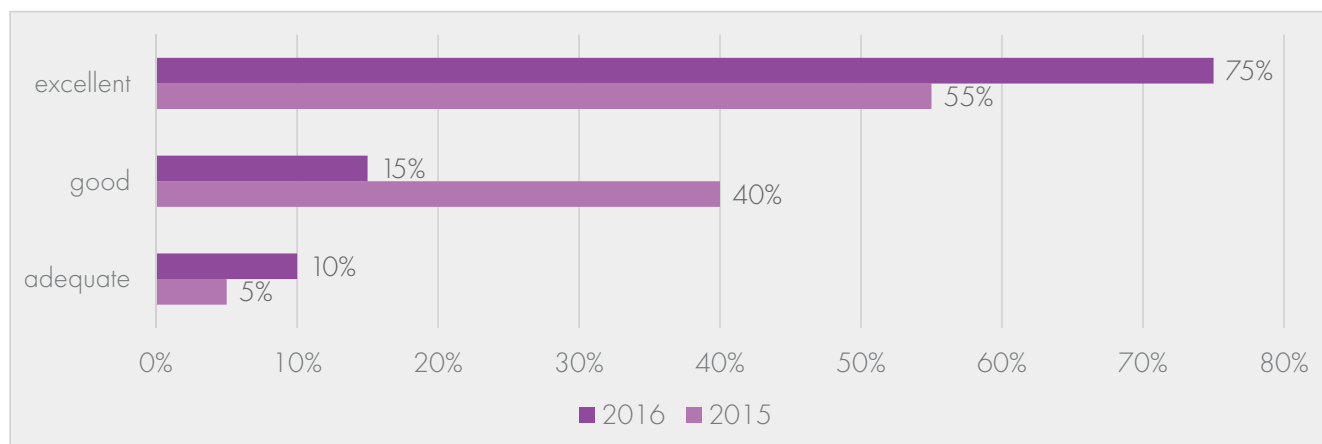




International Research and Practice Conference next year compared to the previous year. The academic community presented their qualified reports and constructive suggestions. Participants' recommendations for the conference format and content will be considered next year.

Comparative analysis of the conference within 2 years shows 20% increase of the respondents that estimated the content relevance and information quality as «excellent» (see diagram below).

**Diagram. Content relevance and information**



Many respondents have noted the wealth of information on the plenary sessions and original presentations of the reporters that encouraged better information acquiring. Miho Togumo's (Principalate for Education and Skills, OECD) and Pavel Luksha's (Moscow School of Management «SKOLKOVO»,

Russia) speech has been especially impressive to have identified the basic education development in the global context. Respondents have particularly emphasized Alejandro Adler's (Pennsylvania University, USA) presentation focused on the emotional state and well-being of the learners.

**Image. Miho Taguma, OECD senior analytics, on the plenary session**



**Image. Pavel Luksha, SKOLKOVO Innovation Center professor, on the plenary session**





In terms of experience dissemination the Intellectual Schools have held sections and round table discussion on the education reforms with pilot schools, comprehensive schools, principals and scholars participating. Thus, the Conference has become a discussion platform for innovations integrated into the educational system of Kazakhstan.

All the Conference materials are available on the website <http://conferences.nis.edu.kz>.

### REPUBLIC FORUM «INNOVATIONS IN TEACHING THE KAZAKH LANGUAGE: NAZARBAYEV INTELLECTUAL SCHOOLS EXPERIENCE»

To exchange the pedagogic experience and to implement trilingual education in December, 2016 III Republican Forum «Innovations in teaching the Kazakh language: Nazarbayev Intellectual Schools experience» dedicated to 25 years of Independence of the Republic of Kazakhstan has been held.

MES, Altynsarin NAE, Cambridge University consultants, 350 teachers of the Kazakh language and literature from comprehensive, basic and pilot schools have attended the forum.

2 plenary sessions, 7 section sessions, and 12 workshops on the communicative approach in teaching the language have been organized for teachers of comprehensive schools.

International research results, experience of teachers in teaching the grammar through the communicative approach have been presented at the forum.

Moreover, the forum participants have considered the methods and techniques designed to implement the updated language curricula. In particular, they have reviewed some methods and techniques of teaching the Kazakh language in Kazakh speaking and non-Kazakh speaking classes, and teaching language approaches through non-linguistic disciplines.

The workshops have presented the modern approaches to literature learning and fiction analysis, essay writing.

Intellectual Schools teachers of History of Kazakhstan in the Kazakh language regardless of the learners' language have shared their experience on how to

develop learners' vocabulary in the second language and help acquire it.

The forum participants gave positive feedback about the content and organization of the forum and valuable recommendations.

This forum has attracted attention of a lot of teachers of the Kazakh language. The people concerned about the Kazakh language development initiated the forum to be held traditionally once every two years.

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## RUSSIAN DELEGATION FEEDBACK ON THE VISIT TO NIS

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At the end of the visits the foreign delegations were pleasantly surprised and impressed with the Intellectual Schools achievements in a short period:

[https://www.facebook.com/pg/martelarussia/photos/?tab=album&album\\_id=1300023720013193](https://www.facebook.com/pg/martelarussia/photos/?tab=album&album_id=1300023720013193)

*«Last week we went to Kazakhstan. We had heard much about the success of the Kazakh people in school education and finally we had a chance to witness it personally.*

*We visited the Miras school and two NIS schools — two out of the twenty schools created within five years.*

*Astonishment, I suppose, is the most appropriate word. Having visited tens of schools in Finland, Sweden, Great Britain etc. - we definitely did not expect to be surprised in what we would see in Kazakhstan's schools. The results are amazing. **NIS has become the reformer of the whole school system of the country.***

- 1. All learners of the upper secondary school fluently speak three languages: Kazakh, Russian and English. The average IELTS score is 6.5. Mostly the lessons are led in English. Roughly a quarter of school teachers are foreign.*
- 2. Schools work upon the programme of the International Baccalaureate. A wide range of international partners: children constantly and regularly intern in the USA, Great Britain, Singapore, South Korea, and the Netherlands. Learners are actively involved in the research of the most globally known companies like Apple.*
- 3. Scientific research is the main dominant of school programme. Any projects are applied and related to the tasks of specific companies. To learn how to extract chitin out of «expensive» shell fish as well as «cheap» insects-cockroaches affecting nearby and to be able to sell this invention to a pharmaceutical company; to find a cheap and the fastest method for oil level detection in the wraparound tank - and to get financing for this work from the oil company; to develop an easy way to feed aquarium fish remotely so its nutrition is reasonable and healthy; to learn to preserve flowers fresh using biological and mineral materials that are easily and cheaply available in Kazakhstan etc. So all students, as part of their studies, invent new things. Inventions, development of new solutions, originality and creativity are the «currency» that has value at NIS.*
- 4. Originality and independence matter not just in science (Physics, Biology, Chemistry and Programming) but in humanitarian and social areas. At one lesson a teacher develop the learners' linguistic feeling suggesting them to guess the discussion topic in a completely unknown language based on the intonation and word formation type. In another lesson the learners study the phenomenon of unprompted clubs that appear everywhere in different parts of the city. At the next lesson they learn TV broadcasting. Moreover, they look for ecofriendly ways for waste and plastic recycling. They have instagram and post photos of dogs living in the neighbouring shelter so they increase their chances to find kind and good hosts. A typical poster drawn the sequence of physical exercises by hand which literally comes to life and becomes a series of illustration videos by using a smartphone. The learners create and produce books and task collections (again in three languages). In addition, they develop projects for transport scheme refinement. The learners play*



national musical instruments, watch and discuss, for example, the USA presidential debates, attentively and thoroughly keep track of Kazakhstan's position at the international political arena.

5. *Robotics and Rockets. It is something incredible: the robot sumo tournament; robots singing national Kazakh songs and dancing; rockets winning at the international Olympics.*
6. *Sensitive, attentive and creative enough relation to the national identity. For at least one week, every child goes to a rural area, a real Kazakh village where (far away from modern city life) he learns to fish, juice, herd, pick mushrooms and makes a video report on the experience gained and his own impressions. The village is not recommended by the school - a child must find such a rural place on his or her own. Thanks to this experience family ties destroyed long ago become reestablished. The learners find their distant relatives. Family conflict is healed. Every learner should spend a week at work place of his parents. He should observe what his Mom and Dad do and try to find the ways how to efficiently improve the company and its workers, give recommendations on how to facilitate the work ensuring efficiency. Every day the school holds a «10-minute reading»: when every teacher, learner, administrative specialist puts all work aside and reads a book. There is a list of 100 books written in the Russian, Kazakh, and English languages recommended for every learner's reading while studying at NIS.*
7. *School buildings are designed very simply but the provision level of Biology and Chemistry, Robotics, Pottery, Physics and Computer Science classrooms is great. They have a green house. The Library is the most sociable place where all learners gather in their free time. In halls there are chess boards available. Additionally, school has a large and recommendable Boarding facilities. There is a large publishing office. Every square metre at the school is fitted to support work and learning.*

*After we have seen this all one starts to understand that the crisis affecting Kazakhstan is overcomeable. The schools are indeed preparing the intellectual elite of the country. Nowadays, foreign companies establishing in Astana are building trust in international business for the country's future. Smart and reserved NIS managers proud with their work are real heroes that have not known what holidays and weekends are for 7 years but nevertheless, they are energetic, passionate and inventive. High-quality education indeed can change the destiny of the country and its people..»*

Yelena Aralova  
March 25, 2016, MARTELLA Russia,

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## APPENDICES

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### List of programmes for updated education courses

1. Kazakh Language and Kazakh Literature at kazakh schools;
2. Kazakh Language and Literature at non-Kazakh schools;
3. Russian Language and Russian Literature at Russian schools;
4. Russian Language and Literature at non-Russian schools;
5. Mathematics;
6. Computer Science;
7. Chemistry and Science;
8. Biology and Science;
9. Physics;
10. Geography and Science;
11. History of Kazakhstan and Fundamentals of Law;
12. World History and Fundamentals of Law;
13. Economics and Fundamentals of Entrepreneurship;
14. Graphics and Design;
15. Kazakhstan in the modern world;
16. Physical Education;
17. Kazakh Language and Kazakh Literature at non-Kazakh schools;
18. Professional development training programme for regional and school coordinators criteria-based assessment integration;
19. Professional development training programme for pedagogical staff the elective course Robotics;
20. Professional development training programme for comprehensive schools' pedagogical staff Reflection in practice;
21. Professional development training programme for managers of the NIS AEO branches.



### Number of trainers prepared

Nº	Programmes	Number of people
<b>Primary School Programmes</b>		
1	Professional development training programme for the pedagogical staff on "Russian Language" at Kazakh schools	31
2	Professional development training programme for the pedagogical staff on "Kazakh Language" at Russian schools	49
3	Professional development training programme for the pedagogical staff on "English Language"	50
4	Professional development training programme for the pedagogical staff on primary school subjects	97
5	Professional development training programme for the pedagogical staff on "Arts"	16
6	Professional development training programme for the pedagogical staff on "Music"	11
7	Professional development training programme for the pedagogical staff on "Physical education"	33
<b>Overall:</b>		<b>287</b>
<b>Secondary school programmes</b>		
8	Professional development training programme for the pedagogical staff on "Mathematics"	75
9	Professional development training programme for the pedagogical staff on "Computer Science"	30
10	Professional development training programme for the pedagogical staff on "Chemistry" and "Science"	57
11	Professional development training programme for the pedagogical staff on "Biology" and "Science"	56
12	Professional development training programme for the pedagogical staff on "Physics"	63
13	Professional development training programme for the pedagogical staff on "Geography" and "Science"	59
14	Professional development training programme for the pedagogical staff on "History of Kazakhstan" and "Fundamentals of Law"	48
15	Professional development training programme for the pedagogical staff on "World History" and "Fundamentals of Law"	26
<b>Overall:</b>		<b>414</b>
<b>Total:</b>		<b>701</b>



## Number of trainers additionally prepared

Nº	Programmes	Number of people
1	Professional development training programme for principals and vice principals of general academic organizations of the Republic of Kazakhstan in terms of the curriculum reforms in secondary education initiative	50
2	Professional development training programme for regional coordinators on criteria-based assessment integration in terms of the curriculum reforms in secondary education initiative	100
3	Professional development training programme for the pedagogical staff of the Republic of Kazakhstan on the elective course "Robotics"	80
<b>Total:</b>		<b>230</b>



### Preparation of trainers out of the higher education institutions teaching staff

№	Name of the institutions	Trainers prepared	
		on supplementary vocational education for final-year students of institutes and colleges	on the basis of the professional development programme for pedagogic staff on primary school subjects
1	Zhubanov Aktobe Regional State University	20	2
2	Dosmukhamedov Atyrau State University	8	2
3	Altynsarin Arkalyk State Pedagogical Institute	7	2
4	Amanzholov East Kazakhstan State University	9	2
5	Shakarim Semey State University	10	2
6	Zhansugurova Zhetysu State University	10	2
7	Utemisov West Kazakhstan State University	10	2
8	Kazakh State Women's Teacher Training University	15	2
9	Abay Kazakh National Pedagogical University	26	2
10	Kazakh Ablai Khan University of International Relations and World Languages	8	-
11	Buketov Karaganda State University	12	2
12	Ualikhanov Kokshetau State University	8	2
13	Kostanay State Pedagogical Institute	16	2
14	Korkyt Ata Kyzylorda State University	7	2
15	Pavlodar State Pedagogical institute	20	2
16	Kozybayev North Kazakhstan State University	11	2
17	Taraz State Pedagogical Institute	21	2
18	South Kazakhstan State Pedagogical Institute	7	2
19	Yessenov Caspian State University of Technologies and Engineering	23	2
<b>Total:</b>		<b>248</b>	<b>36</b>

## Preparing trainers out of arts college teachers

Nº	College name	Trainers prepared
1	Mussin Pedagogical College, Kokshetau	8
2	Pedagogical College, Schuchinsk	8
3	Aktobe Humanitarian College	18
4	Yesik College of Humanities and Economics	12
5	Zharkent Humanitarian and Technical College	8
6	Dutbayeva Atyrau Humanitarian College	11
7	East Kazakhstan Humanitarian College	8
8	Auezov Pedagogical College, Semey	12
9	Dosmukhamedov Pedagogical College, Uralsk	11
10	Abay Zhambyl Humanitarian College	16
11	Karaganda Humanitarian College	11
12	Zhezkazgan Humanitarian College	5
13	Kostanay Pedagogical College	12
14	Altynsarin Rudny Social and Humanitarian College	10
15	Kulzhanova Torgay Humanitarian College	6
16	Mametova Kyzylorda Humanitarian College	16
17	Mangistau Humanitarian College	5
18	Beineu Humanitarian and Economic College	4
19	Akhmetov Pavlodar Pedagogical College	10
20	Zhumabayev Petropavlovsk Humanitarian College	9
21	Almaty Humanitarian and Pedagogical College №1	8
22	Almaty Humanitarian and Pedagogical College №2	5
23	Humanitarian College, Astana	12
24	Muratbayev Zhetysai Humanitarian College	13
25	Turkestan Humanitarian and Technical College	12
<b>Total:</b>		<b>250</b>

# Work done by Intellectual Schools with pilot schools from September, 2015 to December, 2016

	Workshops	Number of participants	Trainings	Number of participants	Workshops	Number of participants	Peer teaching lessons	30 schools visited	Courses for English teachers	Lecture halls for parents	Number of lecture hall participants	Online courses	Online Workshops	Events
<b>TOTAL</b>	<b>739</b>	<b>9457</b>	<b>477</b>	<b>6414</b>	<b>2081</b>	<b>4182</b>	<b>527</b>	<b>814</b>	<b>423</b>	<b>46</b>	<b>1837</b>	<b>511</b>	<b>96</b>	<b>5714</b>
Astana PhM	24	322	27	484	61	62	46	35	38	2	154	40	3	276
Almaty PhM	20	259	14	146	27	87	10	25	32	2	71	31	47	208
Kokshetau PhM	47	604	29	313	214	258	37	29	8	4	168	48	7	423
Aktobe PhM	64	520	32	287	114	146	23	88	54	4	83	30	2	411
Taldykorgan PhM	56	551	33	411	121	805	12	85	25	1	20	43	9	385
Atyrau ChB	44	430	30	415	169	251	29	60	10	2	221	27	0	371
Semey	30	461	14	210	63	172	17	21	5	1	10	30	3	184
Oskemen	19	100	13	96	41	114	24	29	11	2	198	32	3	174
Uralsk PhM	46	522	30	298	137	231	15	84	17	2	50	31	2	364
Taraz PhM	31	281	25	289	22	141	18	41	12	3	82	31	3	186
Karaganda ChB	56	583	31	472	121	316	52	85	20	4	194	28	5	402
Kyzylorda ChB	38	593	28	510	235	563	47	58	31	4	152	31	2	474
Kostanay PhM	56	698	28	378	19	123	48	28	16	4	92	23	0	222
Aktau ChB	49	737	32	538	109	272	71	21	59	2	75	0	2	345
Pavlodar ChB	65	1120	47	639	410	219	29	37	43	2	22	31	3	667
Petropavlovsk	40	691	35	391	21	142	6	15	8	4	24	0	0	129
Shymkent ChB	28	450	14	275	88	128	27	41	26	1	86	28	3	256
Shymkent PhM	26	535	15	262	109	152	16	32	8	2	135	27	2	237

## Experience sharing by NIS for comprehensive schools during 2016-2017 period

№	Regions	workshops			trainings		master classes			online workshops			language courses			total	
		number of workshops	participants	number of trainings	participants	number of master classes	participants	online courses	participants	number of courses	participants	number of events	participants	number of events	schools		
	Akmola	1376	26349	598	7534	3402	9465	2630	261	105	423	8267	43348	3079			
1	Aktobe	7	197	14	206	199	133	355	52	7	8	627	536	85			
2	Almaty	61	486	32	298	115	240	60	3	8	54	271	1024	102			
3	Atyrau	73	1829	62	521	662	501	379	46	6	25	1222	2851	583			
4	WKO	46	625	30	415	169	391	128	9	5	10	382	1431	79			
	Semey PhM	67	2224	16	270	144	1028	326	27	3	5	580	3522				
5	Oskemen ChB	100	1935	15	156	166	2558	323	36	3	11	640	4649	641			
	Western																
6	Kazakhstan	33	685	23	274	31	141	81	10	2	12	178	1100	90			
7	Karaganda	150	2331	32	343	136	185	144	13	8	17	475	2859	173			
8	Kostanay	72	3077	33	507	121	349	127	11	8	20	364	3933	140			
9	Kyzylorda	57	908	29	401	31	238	50	0	8	16	167	1547	50			
10	Mangistau	124	1463	68	607	439	504	130	10	7	31	771	2574	298			
11	Pavlodar	45	703	32	538	109	876	0	0	8	59	186	2117	17			
	Northern																
12	Kazakhstan	189	2997	68	737	486	699	177	15	8	43	935	4433	67			
13	SKO	34	648	35	391	21	142	0	0	7	8	90	1181	533			
14	Shymkent ChB	25	423	16	265	88	149	118	12	4	26	259	837				
	Almaty	25	1052	18	278	109	202	110	10	4	8	272	1532	76			
15	Almaty PhM	19	399	16	252	66	163	52	3	5	32	156	814	65			
	Astana	0	0	0	0	0	0	0	0	0	0	0	0	0			
16	NIS AOE	112	1524	26	484	61	162	70	4	4	38	273	2170	80			
	AOO HИИШ	137	2843	33	591	249	804	0	0	0	0	419	4238	0			



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