

# **Assessment Technology of Students' Knowledge in Higher Institutions in the Republic of Kazakhstan**

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The level of education and science is one of the factors that determine a state's competitiveness. Development of the social responsibility system and modernization of education methods thus become priorities in order to comply with international standards. This paper reviews the technology for assessment of students' knowledge in higher education, and examines the practicability of a transition from intermediate state control (ISC) to the external assessment of educational achievement (EAEA), describing the orderliness of educational institutions' control. These procedures form an integrated system of independent external assessment of educational achievement that ensures the quality of education. This paper is based on earlier studies that described the testing procedures and defined the goals and objectives of their introduction.

The aims of the present work are to show the stages of control and monitoring implementation in the education system of the Republic of Kazakhstan (inlet control - unified national testing, intermediate control - ISC, outlet control - EAEA, to analyze the state of the higher education system; to identify the stages of the introduction of ISC and EAEA; and to determine their structural differences. The analysis is based on test results with data reported for the years 2007-2011, which prove the appropriateness of adopting emergency measures to bring the education system into line with the required standards. Consideration is also given, based on analysis to the comparative performance of methods for assessment of educational achievement, with the advantages and disadvantages.

The technology of the EAEA conduct is reviewed more widely, describing the stages of its implementation and showing the implementers of the testing process and the stages of processing test results. In total, the technology of the EAEA conduct reflects the integrity and effectiveness of the National Testing Center.

## **Key words**

Assessment technology, education quality monitoring, intermediate state control, external assessment of educational achievement.

## Introduction

The education reforms are taking place in most countries of the world. It is overall recognized that in the information-technological society of XXI century the level of education, science, creation of conditions for implementation and development of advanced technologies are the determining factors of competitiveness of states.

The level of education should meet international standards in the country. For ensuring compliance should be taken into account aspects such as educational programs, material and information resources.

The priorities in education are:

- System development of social responsibility in education;
- Modernization of education methods.

An integral part of the selected issues and priorities are: control, inspection, monitoring, and governmental regulation of education quality, forming in turn an evaluation system of education quality.

It is necessary to monitor at each stage of educational system (Fig.1) by considering the specificity of the verifiable level of knowledge and students contingent.

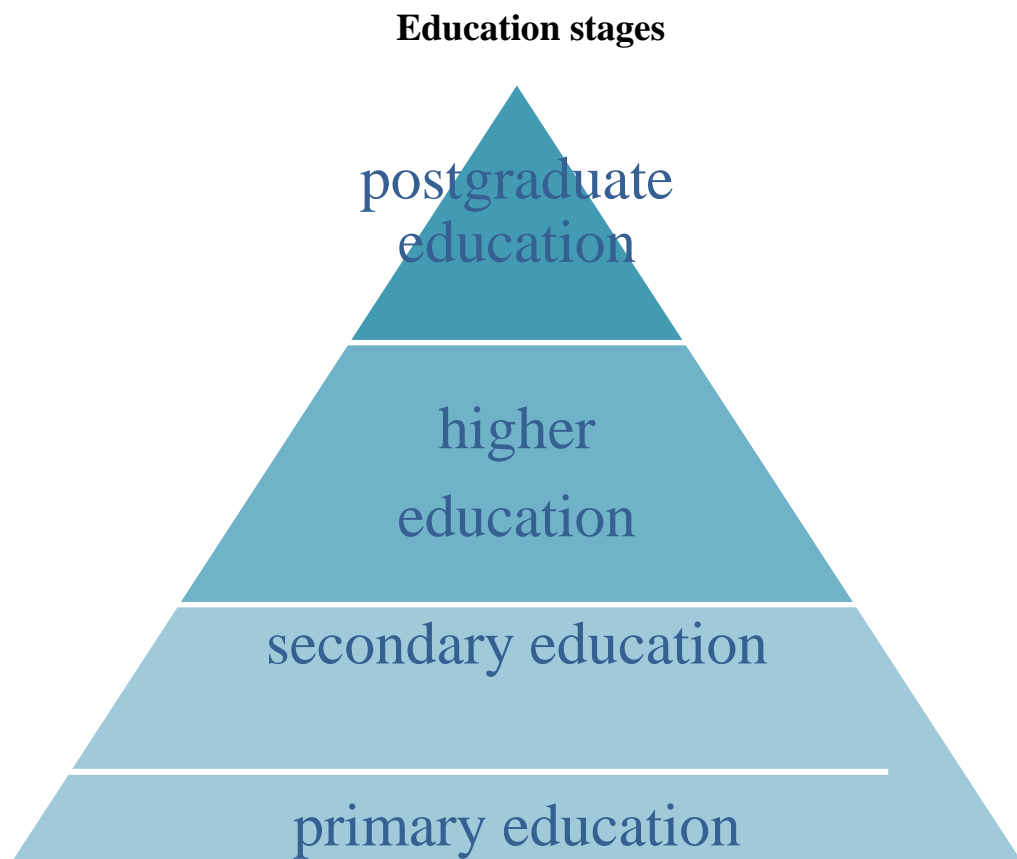


Figure 1

## Control and monitoring stages of educational system in the Republic of Kazakhstan

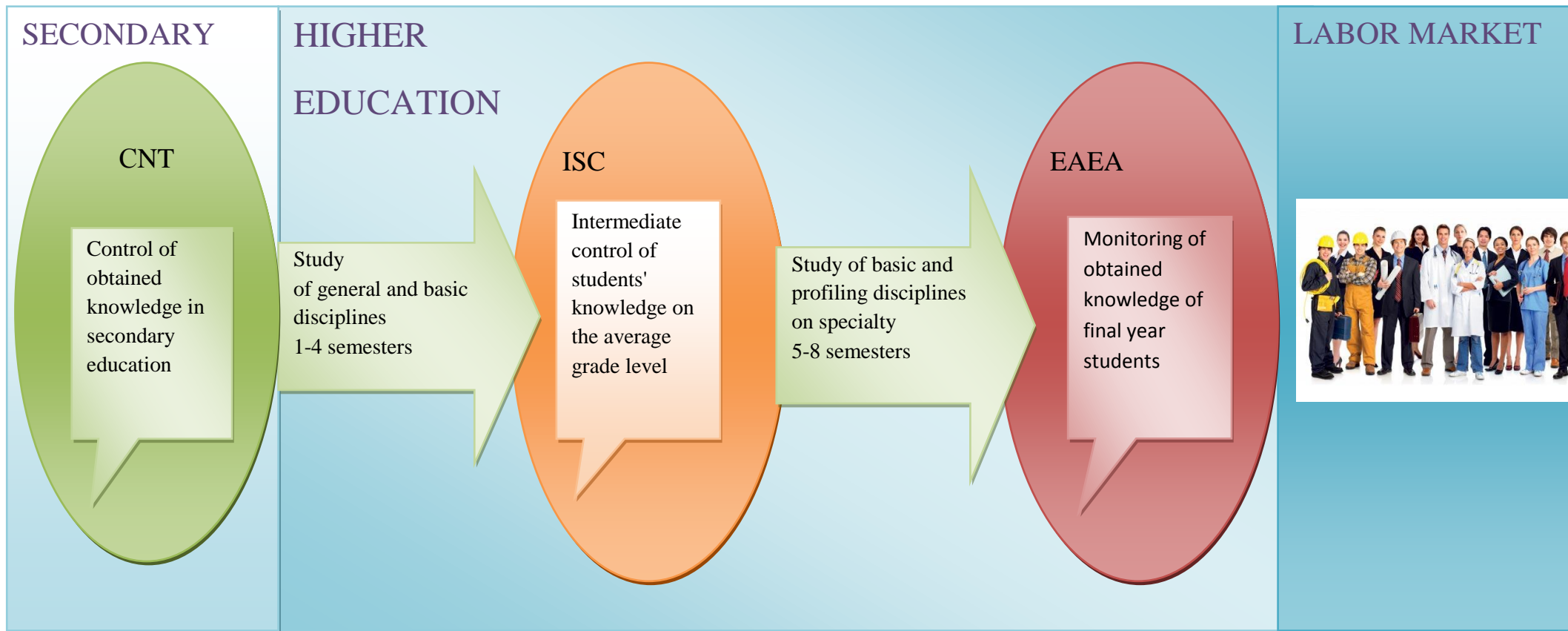


Figure 2.

Systematic monitoring of services is carried out in educational institutions in the Republic of Kazakhstan. In primary (4 grades) and secondary (9, 11 grades) education control is carried out by means of conducting the Common National Testing (CNT) and in higher education by means of an External Assessment of Educational Achievement (hereinafter referred to as EAEA), it was preceded by Intermediate State Control (hereinafter - ISC) [1].

These procedures form a common system for the independent external assessment of educational achievements, providing quality of education. In any industry where there is a raw material, a process for manufacturing products and the final product, as a result of the activity, there are steps which test the quality of products. The product, which has not been tested at an early stage can not participate further in the process, as it does not possess required quality or product having a low value, but at an acceptable level it may not pass the following test, as requirements increase accordingly.

Thus, in the field of education, students of the school - "raw material" meets with incoming inspection - CNT (the final state certification of school leavers and entrance examinations to colleges and universities are combined). Students of the 2<sup>nd</sup> (for medical specialties - 3) courses meet intermediate control - ISC. A graduate - "final result" of educational activity, subject to the control output - EAEA.

### **Intermediate State Control**

State system analysis of the higher education in the Republic of Kazakhstan in 2004 showed the inconsistency by higher educational institutions of educational activities with the requirements and standards of the Ministry of Education and Science. Thus, a measure of control over the implementation of educational institutions was the introduction of interim control knowledge obtained at higher educational institutions by 2 course students (for medical specialties - 3) of all specialties, except the art specialties.

The purpose of the intermediate state control was to make a control on the intermediate stage of training of students, namely to evaluate quality of students training by higher educational institutions for further training on the specialty.

The objectives of the ISC were:

- valuation of effectiveness of educational process organization;
- improvement of state comprehensive standards of education;
- elimination of the impact of negative factors and subjectivity on the educational process and the quality of students training;
- conducting comparative analysis of educational service's quality, giving by higher educational institutions.

State regulation was carried out by establishing a threshold score. Students, for overcoming the threshold needed to gain at least 40% of correct answers (for medical specialties - 60%), at the same time, a specialty for which 7% or more of the testing students which hadn't pass the threshold, it is considered that the student had not received ISC passing score. As a consequence, higher educational institutions in which there were 25% or more specialties, had not overcome the threshold scores, met an extra state certification.

The interim state control was introduced in stages (Figure 3).

### Stages of ISC

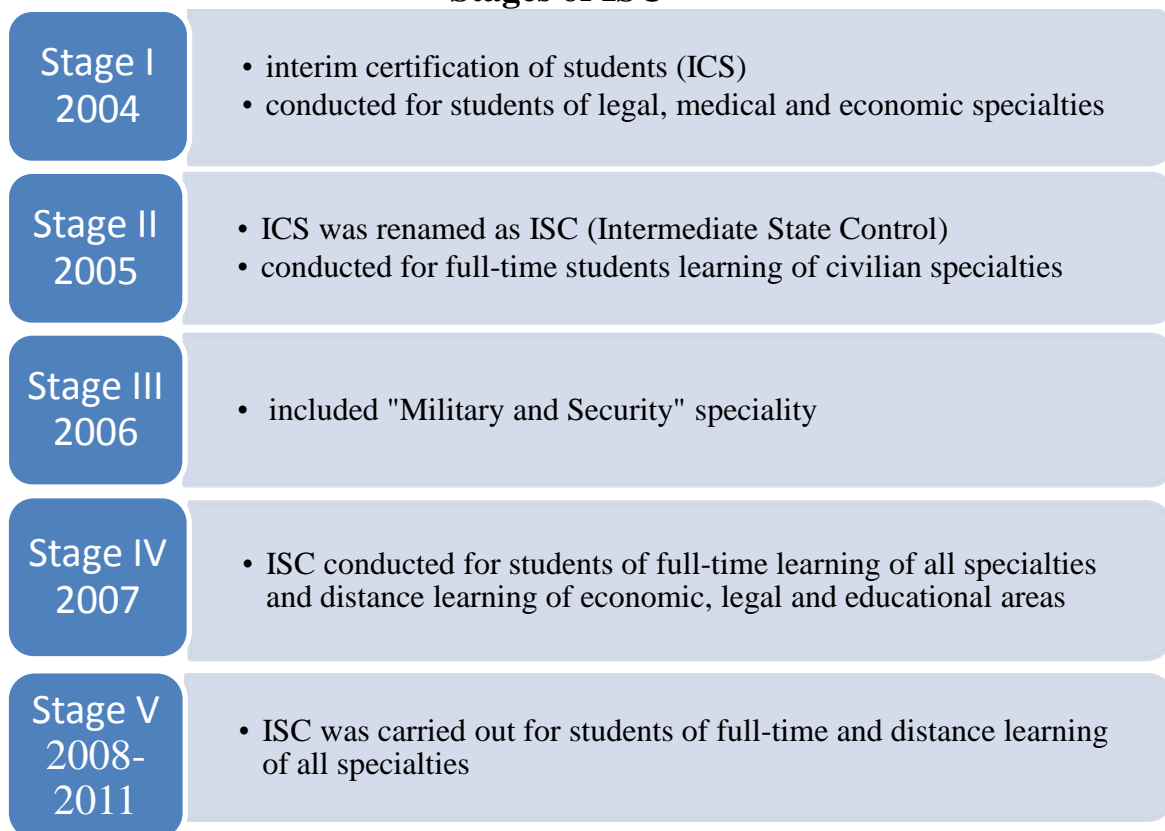


Fig.3

In general, the introduction of ISC brought to bear a positive influence on the quality of educational services provided by universities, due to, there were identified and corrected numerous deficiencies in the organization of the educational process and the training of students. Universities have increased demands to teachers, which in turn strengthened the control over students knowledge. ISC as a whole has achieved its objectives, the learning process has been brought in accordance with the standards.

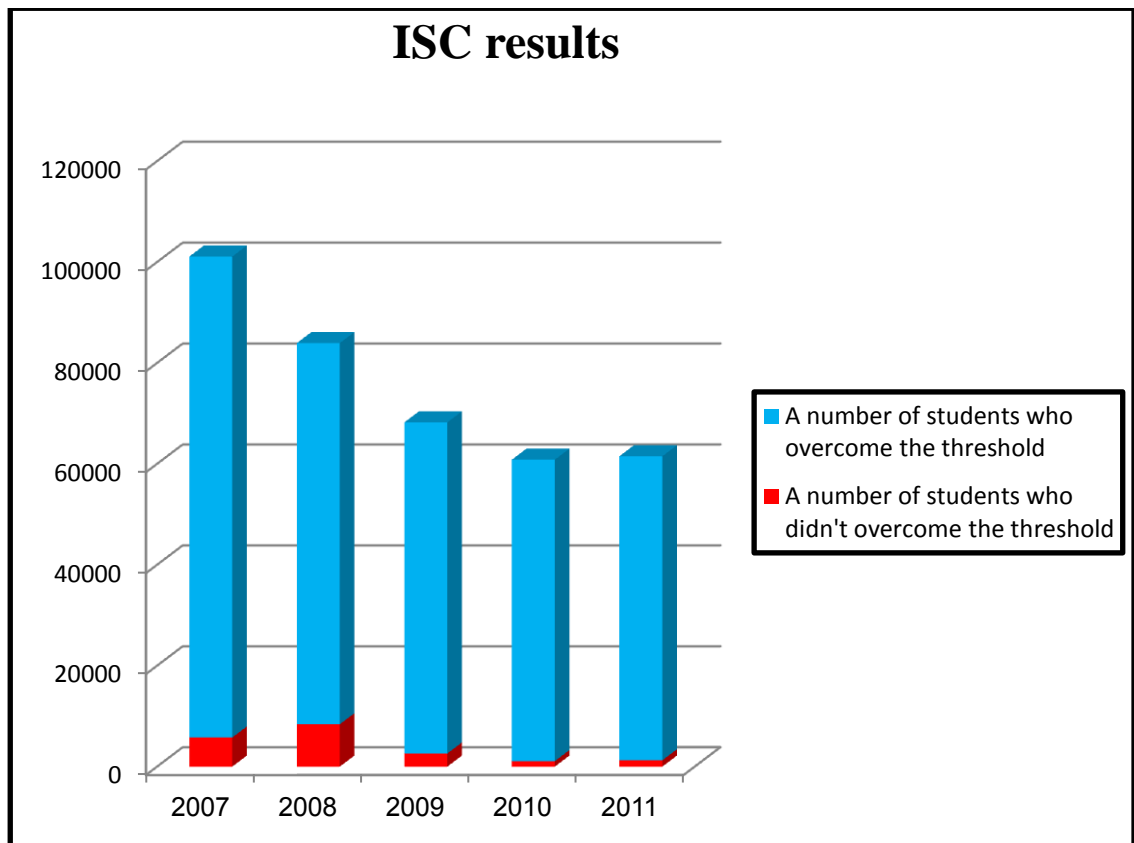


Figure 4

Statistical data of ISC results (Fig.4) show in process of time the percentage of students, which have not overcome the threshold on testing, rushed to a minimum. In accordance with this data, it can be judged that the activities of higher educational institutions has been brought into accordance, so achieved the required aims by ISC, and it's conducting then was inadvisable. In 2012 ISC was replaced by EAEA.

#### External assessment of educational achievement

An important factor in the improvement of higher education system is the monitoring of education quality, which monitors educational institutions graduates compliance with the requirements imposed by society and the labor market.

In 2012 an external assessment of educational achievements of students (EAEA) was introduced for centralized control system and monitoring of higher education quality is measured by standardized test.

The aim of EAEA is the evaluation of educational services quality, as well as the orientation of university on a result, namely, how much will be competitive a specialist, graduated by a university.

EAEA includes follow tasks:

- encouragement of universities for providing quality education;
  - valuation of quality of educational process organization;
  - eliminating the influence of negative factors and subjectivity on the educational process and quality of students training;
  - conducting of comparative analysis of educational service's quality, giving by universities [2]
- New system of EAEA is introduced step by step (fig- 5)

## Stages of EAEA introduction

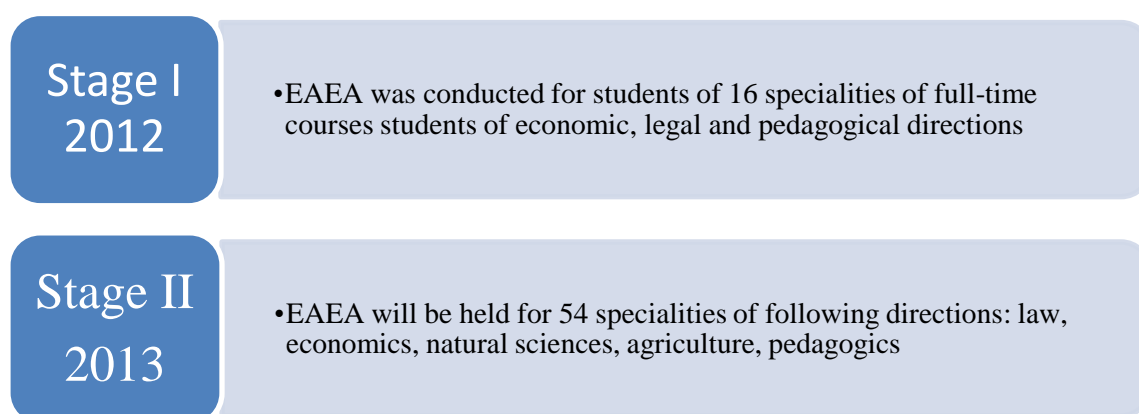


Fig 5

In EAEA are used testing tasks in format of several correct answers from a range of options, "few of the several." This format allows you to check the stability of students learning, as well as reduce the level of guessable. A student who chooses from a variety of proposed answers needed amount of correct - this student who is confident in his knowledge, therefore, he is a well-trained specialist. Since 2011 has begun preparations for introduction of "few of the several" testing tasks format, for this were carried out training seminars of teachers, training manuals are developed in order to improve the level of students training, also sample tests are posted on site NTC [www.testcenter.kz](http://www.testcenter.kz)

EAEA system is designed on assessment of the university, and not on assessment of a student, so its results indicate on the practicability of educational institution activity, as well as effect on a place in rating of universities, which operate on the territory of Kazakhstan.

The annual observance of all EAEA graduates best display quality of higher education, it will conduct a comparative analysis of universities. The authorized agency will annually select areas of specialties subject to be EAEA this year. At the same time EAEA will monitor academic achievement of students in each area of training, assessment of educational process effectiveness and comparative analysis of the quality of educational services, giving by educational organizations. EAEA results will be used in assays for rating studies.

### **EAEA technology**

For EAEA conducting in every city of Kazakhstan are allocated higher educational institutions, on the basis of which testing is carried out. To each basic institutions are attached several linear institutions, that is, students of linear institutions will be tested in basic institutions. There are 116 linear institutions in the Republic of Kazakhstan, only 54 of them are basic.

The process of EAEA is carried out in four main stages. In the first stage is formed the contingent of students and produced their distribution on the basic institutions. Further lists of students for testing pass from linear institutions to basic ones, where every student from the list is attached to a particular classroom. In accordance with distribution to the classrooms, students are given passes for testing. In a second stage EAEA is carried out directly. After testing all the materials are sealed and shipped in special package - intervoid (numbered one-off package with the safety valve) further answer sheets of students are scanned. Thus, the test data is processed, what is the third phase of EAEA. In final fourth stage, given data is printed and the testing results are issued.

Organizers of EAEA are the representatives of the Ministry of Education and Science of

the Republic of Kazakhstan (hereinafter referred to as “Ministry”), National Testing Center (hereinafter referred to as “NTC”) and control over the testing process is conducted by the Committee for Control in the sphere of Education and Science. Representatives of the Ministry stay directly at the basic institutions during EAEA conducting. Their task is to guide and control keeping the orders of EAEA carrying out.

The programmer of the Ministry is directed for scanning the answer sheets and processing of the testing results - responsible for the software, carries out the identification of answer sheets and gives exam records.

NTC carries out organizational work on:

- ✓ development and expertize of test materials;
- ✓ with the basic and linear institutions on formation of database of students and classroom fund (plan of corps position, plan of territorial allocation of corpses);
- ✓ formation and packing of examination materials, delivering to the basic institutions.

Review of the stages of the test data processing (Fig. - 9). The programmer of the Ministry receives an envelope with answer sheets from the representative of the Ministry and scans them. Answer sheets are scanned twice on classrooms. Upon completion of scan is made identification Protocol of answer sheets. Answer sheets, which identification has not made automatically, is done visually. After identification of answer sheets are opened codes of correct answers by entering three passwords.

Then the results are processed and exam records are issued in three copies: for public view, representatives of the Ministry and the basic institutions.

According to the results of EAEA the representative of the Ministry provides a full report about EAEA conduct in NTC. NTC, in turn, provides a consolidated report to the Ministry.

The organization and carrying out of EAEA is a centralized technological process. The technology, which is held EAEA by, will obtain objective and reliable results, showing the rationality and effectiveness of the educational institutions in higher education.

### **ISC and EAEA differences**

ISC and EAEA indicators are not comparable, as they have a number of differences:

1. The principal difference between EAEA and ISC is a rejection from legal consequences in respect of educational organizations. In ISC was carried a state control over the quality of education by establishing a threshold level, and in EAEA is monitored the quality of educational services, given by universities.

The EAEA results are used for a wide informing of potential students, parent community about the quality of educational services in each educational organization. Thus, the rating of educational organizations is formed and universities which don't provide an adequate level of training have low rating indicators, what is the reason of a decrease of a number of those wishing to enter to them, so universities will be forced to take their own steps to remedy the situation.

2. ISC was carried out for students of 2 grade (for medical specialties - 3), and EAEA is carried out for final year students.

This difference is due to the fact that the ISC is intended for intermediate control knowledge at an average grade level at university. At the same time, EAEA is conducted to assess the knowledge level of students, graduates, as they are finalizing result of activity of the university and according to their results it's possible to view about a comparative quality of educational services.

3. ISC was carried out in complex on disciplines of compulsory and basic cycle of obligatory component of SCES, and in EAEA are used tests covering the basic cycles and profiling disciplines.

The choice of subjects for testing is due to the specificity of educational process. Intermediate testing, carried out for 2<sup>nd</sup> year (for 3<sup>rd</sup> year for medical specialties) courses, and checks the level



of knowledge by studied subjects, included into the compulsory and basic cycle structure. Also the preparation of university's students is checked for continuing their education on major subjects. By EAEA, carried out on the basis of final year course, the level of knowledge of students for 5-8 semesters is assessed, during at which they learn the basic and major subjects. Graduates are the final result of universities' activities, assessing their knowledge, you can judge about the quality of services given by universities as a whole.

4. ISC tests were in the form of choice of one correct answer out of five proposed, and in EAEA is used the form of tests the multiple choice of correct answers from several options. Usage of this form in EAEA will analyze thoroughly knowledge of students and graduates and get the exact result.

## **Conclusion**

This paper reviews the assessment technology of higher education quality in the Republic of Kazakhstan, analyzed the main results and given the dynamic of change of assessment methods and ways of improvement in current conditions in the developed state - the Republic of Kazakhstan. Complex of methods, ways and organizational structures are shown for establishing a compliance of education quality with the requirements of state compulsory standards and conditions for achieving it through an external evaluation.

According to analysis, based on testing results, comparative characteristics of evaluation methods of educational achievements and their advantages and disadvantages are given.

The testing technology, assessment methods, underwent the changes in order to improve efficiency and effectiveness.

Thus, the education system has reached the required level, ensuring the competitiveness of graduates in the international educational space and the labor market.