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PROSPECTS OF USING MODERN PEDAGOGICAL TECHNOLOGIES IN TEACHING PHYSICS AND ASTRONOMY - PISA INTERNATIONAL ASSESSMENT PROGRAM

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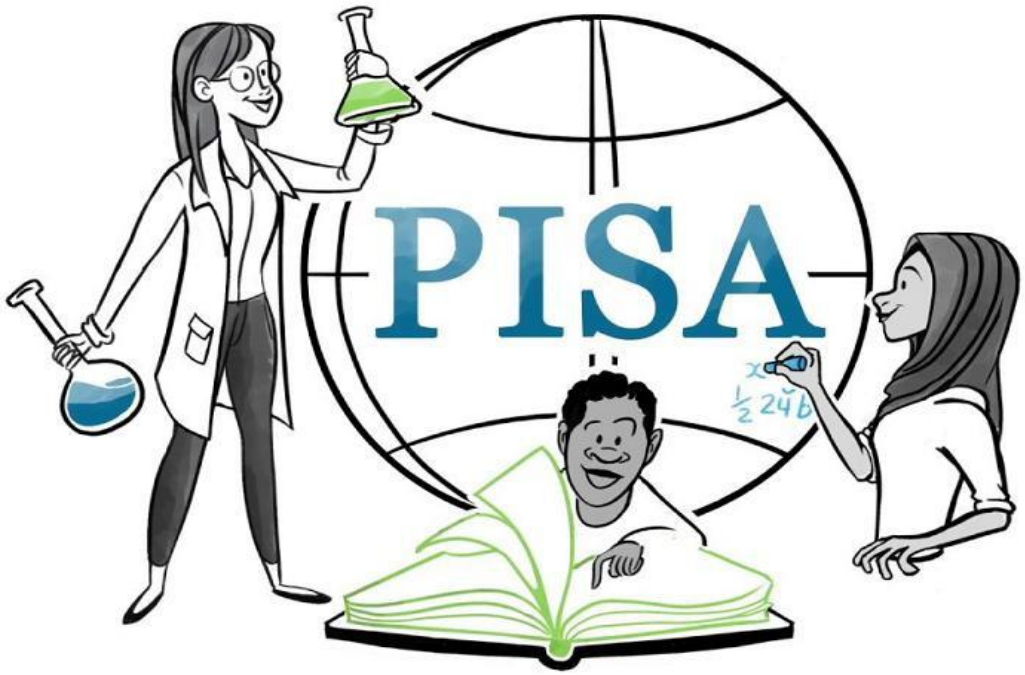
Abstract: This article provides statistical information about the international assessment program, modern educational programs, creative thinking, and the promotion of scientific literacy.
Key words: international standards, statistics, PISA, TIMSS, PIRLS, EGRA, pedagogy, interpretation, opinion, communication

The decree of the head of our state dated April 29, 2019 "On approving the concept of development of the public education system of the Republic of Uzbekistan until 2030" defines the tasks of achieving inclusion in the first 30 advanced countries of the world by 2030 according to the rating of the PISA student assessment program.



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What international assessment programs are available?

PISA is an international program for assessing the educational achievements of students

PIRLS is an international study that determines the level of reading and comprehension of text

TIMSS is an international monitoring of the quality of mathematics and science at school.

TALIS is an international study of teaching and learning

More than a hundred countries in the world participate in international assessment studies such as PISA, TIMSS, PIRLS, TALIS, EGRA and EGMA in order to objectively assess the quality of education introduced in their country. In particular, Uzbekistan is expected to participate in PISA and other international assessment studies for the first time.

PISA - Program for International Student Assessment

PISA is an international program for evaluating the educational achievements of students. It is a program that evaluates the literacy of 15-year-old students in different countries (reading, mathematics, natural sciences) and the ability to apply their knowledge in practice. This program is held once in 3 years. It was originally developed in 1997 and was first used in 2000. An increase of 50 points in the PISA score ensures an annual increase of 1% of the Gross Domestic Product (GDP).

Uzbekistan's participation in PISA studies shows at the international level the quality of education in the country. Why is this important? First of all, there is an answer to the question of whether we are going the right way in the changes in education. In PISA studies, questions are asked that are not based on any facts. One question combines elements of several subjects and may include chemistry, physics, biology. The test is a test that assesses children's readiness for independent life. Currently, a national curriculum is being developed. Within the framework of the national curriculum, work is being carried out to give children not only theoretical knowledge, but also life skills and qualifications. Through this, we can achieve results in international evaluation programs.

The PISA task block takes the form of real problem situations.

In this case, each question and task is classified according to the following categories:

- competence

- type of natural-scientific knowledge

- context

- cognitive level

Competencies:

1. Being able to explain phenomena scientifically;

2. Being able to apply the methods of natural and scientific research;

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3. Being able to draw conclusions based on scientific evidence.

Type of natural - scientific knowledge:

1. Content knowledge:

a) Natural systems

b) Living systems

c) Earth and space science

2. Imperative knowledge (knowledge related to the process) - knowing how to use various methods in obtaining scientific knowledge.

3. In the substantive knowledge section - "Natural systems" - this is mainly physics and chemistry, "Living systems" - biology, "Earth and space science" - geography, geology, astronomy science materials.

However, the tasks of the PISA program are interdisciplinary in nature.

Contexts.

Context is the thematic section of the problem situation related to the question or task.

The PISA study has the following contexts.

- Health

- Natural resources

- environment

- dangers and harms

- Science is the unity of science and technology.

Each context can appear in 3 states:

- personal (circumstances related to the student himself, his family, friends)

- local,

- scientific

- global

The international assessment program PISA conducts research using the following tools:

1. A test set of educational tasks.

2. Questionnaire for students about the educational institution where they are studying.

3. Questionnaire questions for school leaders about the educational institution where they are teaching.

4. Questionnaire questions for the leader conducting the test and questionnaire questions.

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5. Questionnaire questions for employees of educational management bodies.

6. Instructions on preparation of test tasks and mathematical statistical analysis of the obtained results.

Rather than examining the superiority of specific school curricula, PISA looks at students' ability to apply knowledge and skills to key topics, analyze, interpret, and effectively solve problems, think, and communicate.

PIRLS - Progress in International Reading and Literacy Study

It is intended to assess the level of reading and understanding of the text of 4th grade students. This international program provides a basis for successful continuation of studies at the next stage of education by making students understand the read text, interpret it, and make the right decisions in their independent life during the educational process organized in primary grades. prepares

TIMSS – The Trends in International Mathematics and Science Study

TIMSS - International monitoring and evaluation system of the quality of learning mathematics and natural sciences. This study aims to compare the level of achievement of students in mathematics and natural sciences in the 4th grade of the primary school and the 8th grade of the basic school in different countries of the world, and according to the obtained results, each country's recognizes the unique features and achievements of the lim system.

TALIS – Teaching and Learning International Survey

TALIS is a research based on the international comparative analysis of pedagogical processes organized in different countries, established by the Organization for International Economic Cooperation and Development.

To guide teachers and heads of educational institutions engaged in pedagogy in schools to analyze the educational process, to develop criteria for determining educational quality indicators on the main aspects of educational policy International consortium, teachers' association, establishment of international cooperation.

Participating in international studies, forming the skills of our students to apply the knowledge they have acquired at school in life, for this, it is necessary for us to carry out the following activities by the responsible ministries and agencies:

- Creation of a national assessment system that allows for objective monitoring of the quality of education.

- Formation of the material and technical base affecting the quality of education.

- Conducting international scientific research.

- Creation of additional methodological manuals and literature based on international research.

- Creation of a national database of questions in the directions of international studies and integration into educational programs.

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- To update the methods and technologies of teaching in relevant subjects based on international research, and to organize advanced training courses to increase students' awareness and training in this regard.

- Adaptation of educational programs to students of international studies in higher education institutions that prepare pedagogic personnel.

In short, the development of the national innovation system and the improvement of the innovation potential are considered the most important factors of the country's economic growth. Therefore, the problems of researching these factors are relevant for many countries and international organizations of the world.

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