



## TEACHING OF MATHEMATICS ON THE BASIS OF ADVANCED INTERNATIONAL EXPERIENCES

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### Abstract

It is known that in the period of changes, the educational system requires rapid development based on social processes. Through education, a new generation capable of fulfilling future tasks will be formed in the society. Taking this into account, special attention is being paid to strengthening the material and technical base of general education schools and pre-school educational institutions, to creating the necessary conditions and opportunities for the young generation to receive comprehensive education. The satisfaction of this demand, in turn, creates the need to increase the interest in reading and classes among young people and to increase the attention of teachers all-round education through modern social innovations.

**Keywords:** education, assessment, collaborative, resources, doable task, representatives, principal, questionnaire.

## ПРЕПОДАВАНИЕ МАТЕМАТИКИ НА ОСНОВЕ ПЕРЕДОВОГО ЗАРУБЕЖНОГО ОПЫТА

### Аннотация

Известно, что в период перемен система образования требует быстрого развития на основе социальных процессов. Через образование в обществе будет формироваться новое поколение, способное решать будущие задачи. С учетом этого особое внимание уделяется укреплению материально-технической базы общеобразовательных школ и дошкольных образовательных учреждений, созданию необходимых условий и возможностей для получения подрастающим поколением всестороннего образования. Удовлетворение этого спроса, в свою очередь, порождает необходимость повышения интереса к чтению и занятиям у молодежи и повышения внимания педагогов к всестороннему образованию посредством современных социальных инноваций.

**Ключевые слова:** образование, оценивание, сотрудничество, ресурсы, выполняемая задача, представители, директор, анкета.





## Introduction

Experts of the Independent Institute for Monitoring the Formation of Civil Society, taking into account that such requirements are very important for today's education system, some advanced measures aimed at improving the quality of education by evaluating and monitoring the development of education and science in most foreign countries studied experiments. In particular, PISA (Program for the International Student Assessment of Educational Achievement), which determines the quality, level and level of education in the world, PIRLS (International Study of Reading and Comprehension of the Text), TIMSS (Mathematics and Science Quality Study at School) There are a number of international programs, such as international monitoring), which are widely used as a criterion for improving the quality of education in developed countries.

## Literature Review

PISA is an international program for assessing the achievements of students in the field of education, the test in which evaluates the knowledge and the ability to apply it in practice of schoolchildren in the countries of the world. The main object of the program is to evaluate the ability of 15-year-old students to use the knowledge and experience they acquire at school in solving various life tasks in social relations and human activities. This test is held once every three years. Only 15-year-old teenagers take part in the test. The PISA program aimed at monitoring the quality of school education is conducted in three main areas: reading, mathematics and social science literacy.

In 2015 more than 70 countries participated in the PISA international program test. In general, the PISA program has a significant impact on the education policy of countries. Based on the results of the research, each country objectively determines its strengths and weaknesses in the field of education, sees its position in relation to other countries, and determines its directions and strategies for improving the educational process in educational institutions.

## Research Methodology

In order to improve the quality and efficiency of education, it is important to study foreign best practices and introduce the requirements of international standards. In this regard, the practical steps being taken in the Republic of Uzbekistan include the adoption of a government decision on the organization of international studies in the field of education quality assessment in the public education system, cooperation with



such a prestigious organization as the International Association for the Evaluation of Educational Achievements (IEA).

In studying the achievements of students, it is evaluated by conducting objective tests not from all students, but from students selected as representatives of this layer. Also, school principals, teachers, students, and even parents were surveyed to find out the factors that influence the quality of education in schools, including school resources, students' perceptions of education. Valuable information will be collected on attitudes, teaching methods and the extent to which students' learning is supported at home.

These studies are conducted on the basis of high technical and scientific requirements. Also, depending on the nature of the studied cases, effective methods such as observation are used along with case studies. The main task of education is to form the skills that the student will need today and in the future to lead a successful life in society. Creative thinking is an important skill for today's youth.

If the main role of education is to provide students with quality education that is necessary for success in society, then creative thinking is an imperative need for the development of today's youth.

## **Analysis and Results**

The PISA 2021 international program will be the first to assess creative thinking, another new OECD project to support new pedagogies capable of fostering creative thinking. The purpose of this is not only to single out creative individuals, but rather to describe how students' ability to think creatively in searching and expressing ideas is related to the teaching approach, school activities, and other features of the educational system.

## **WHAT IS CREATIVE THINKING?**

Creative thinking is finding innovative (new, innovative, original, non-standard, unusual, etc.) and effective (practical, effective, economical, optimal, etc.) solutions, acquiring new knowledge, developing ideas aimed at effective expression of imagination, is the ability to effectively participate in the evaluation and improvement process.

Creative thinking helps us find unusual solutions to problems. However, we should not confuse it with critical thinking, but rather see it as "siblings" (people who is close to each other) who help us find complementary solutions to impossible problems.





In PISA studies, students are required to solve scientific problems or social problems, express their ideas in writing or visually, according to the assessment model of creative thinking.

The assessment of creative thinking focuses on the competence to develop different ideas, improve creative ideas, and evaluate and enhance ideas.

If it were not for the creative thinking of primitive people, two flints would have struck fire, Thomas Edison would not have invented the electric lamp, and Leonardo da Vinci would not have invented the parachute.

PISA focuses on the creative thinking processes that can reasonably be expected of fifteen-year-old students. Its purpose is not to identify highly creative individuals, but to analyze how creatively students can think in expressing and identifying ideas, and how this skill, in turn, is related to the learning process, school activities, and other aspects of the educational system.

The main goal of the PISA study is to provide internationally comparable information on students' creative thinking with clear implications for education policy and systems.

- The process of creative thinking under the task should tend to improve through education;
- The various supporting factors of this thinking process in the context of the educational process should be clearly defined and linked to the indicators in the assessment;
- The content of the field used in the assessment should be closely related to the subjects taught in regular high school;

In order for assessments to have predictive value for creative achievement in school and life, tests need to resemble real activities that students engage in their everyday lives, both in and out of the classroom.

Collecting data on the complex array of facilitators of creative thinking in PISA is a difficult but doable task.

PISA consists of two parts: a test and a questionnaire.

The test part provides information on how well students can use their creative approach cognitive processes in tasks related to ideation, analysis and improvement. The questionnaire complements this information with information on other supporting factors of the student's creative thinking, including information such as creative approach (openness, enthusiasm and confidence towards the goal), perceptions of the school environment, activities engaged in school and outside it.



## Conclusion

Some contributing factors are better covered than others in the assessment. For example, although collaborative skills are an important contributor to creative thinking, they are not directly measured in PISA due to organizational and technical challenges. However, this methodology recognizes the ability to work collaboratively as an important personal enabler.

Examples of PISA tasks presented to students:

1. Climbing Mount Fuji. Mount Fuji in Japan with its "sleeping" volcano is a famous mountain. Mount Fuji is only open to the public from July 1st to August 27th. About 200,000 people are currently climbing Mt. Fuji. On average, how many people climb Mount Fuji every day?

2. Metabolic intensity (MAI) is the energy required for respiration, digestion and circulatory system.

This indicator is determined for a person lying quietly and awake in a room with a temperature of 23°C.

Using the following formula, the metabolic intensity (MAI) in women is determined.

$$MAI = 9.74m + 172.9p - 4.737b + 667.051$$

Here, MAI is metabolic intensity, in kilocalories,

m - body mass, in kilograms,

p - height, in meters,

b - age, in years.

Calculate the metabolic rate of a 35-year-old woman with a mass of 60 kg, height of 1.70 meters. Round your answer to the nearest whole number.

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