



Advanced International Practices in Mathematics Teaching

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ABSTRACT

In order to improve the quality of education, information is given on the continuous monitoring of its state and development trends and on the implementation of objective and adequate assessment of the educational achievements of students.

Keywords:

Mathematics, method, students, research, research and innovation, general secondary education.

This is especially important at the general secondary level, which lays the groundwork for students' further personal and civic development. According to the decision of the Cabinet of Ministers of the Republic of Uzbekistan No. 997 of December 8, 2018 "On measures to organize international studies in the field of evaluation of the quality of education in the system of public education", organization of international studies in the field of evaluation of the quality of education in the system of public education, establishment of international relations, scientific research of students and youth - in order to comprehensively support and encourage research and innovation activities, first of all, creative ideas and creativity of the young generation, a national center for the implementation of international studies on the assessment of the quality of education was established under the State Inspectorate for the Control of the Quality of Education under the Cabinet of Ministers of the Republic of

Uzbekistan. from the main tasks and areas of activity:

ensuring the successful participation of general secondary education institutions in international research;

Comparative comparison of the results recorded by the Republic of Uzbekistan in international assessment programs with the results of other countries;

conducting systematic monitoring of the introduction of international assessment programs into the educational process, popularizing best practice in this field and participating in the development of recommendations and manuals for educational institutions based on it;

such as preparation of teaching-methodical recommendations on improving the qualifications of pedagogic personnel in reading, mathematics and natural sciences using innovative methods of teaching. The organization of international research on the following international assessment programs was established:

PISA - The Program for International Student Assessment — assessment of the level of literacy of 15-year-old students in reading, mathematics and natural sciences;

TIMSS - Trends in International Mathematics and Science Study— 4th and 8th grade students' mathematics and natural sciences assessment of mastery level; PIRLS - Progress in International Reading and Literacy Study— assessment of reading and comprehension level of primary 4th graders; [1]

TALIS - The Teaching and Learning International Survey is a study of the teaching and learning environment of general secondary educational institutions and the working conditions of teachers. Preparation for the participation of the Republic of Uzbekistan in international studies on international evaluation programs.

A "road map" was developed, according to which, the introduction of advanced national and international practices on improving the written and spoken literacy of students;

development of electronic education for students to learn independently, creating and enriching a database of questions on international studies in reading, mathematics and natural sciences; [2]

introducing independent learning to prepare students for international studies in reading, mathematics and natural sciences;

in connection with the implementation of international studies, in cooperation with qualified teachers-trainers, the organization of trainings in the regions is defined. PISA studies.

PISA (Programme for International Student Assessment) is an international program for assessing student knowledge, a study aimed at studying whether 15-year-old children have mastered life skills in mathematics, natural sciences, and their mother tongue. PISA studies began in 2000 and are held every three years. changes in the education system, the formation of the main directions of secondary education reform and the identification of obstacles to their implementation, monitoring the dynamics of changes and critical analysis of the results. The purpose of the international PISA research is to assess the literacy of 15-year-old students in mathematics and natural sciences, as well as

in their mother tongue. The research is not aimed at determining the level of development of school curricula, but at evaluating the ability of students to apply the knowledge and skills acquired in the process of teaching in real life situations. [3] What problems can students face in mathematics exams?

1. Due to the lack or lack of issues similar to PISA tasks in the textbooks and, therefore, the lack of experience of students in carrying out such practical activities, their the results may be low.

2. PISA tasks are usually described using long texts, and there are no instructions about which branch of mathematics to refer to in order to choose a real-world situation and a method of solving problems.

3. PISA tasks (text, pictures, diagrams and tables, graphs of real connections) are offered in different formats. It is required to translate them into mathematical language and after finding a solution, evaluate and interpret it in relation to real conditions.

4. Standard problems are usually given in mathematics textbooks and they are solved using standard methods, that is, students are taught to solve certain types of problems based on certain algorithms.[4]

5. Usually, the problems in mathematics textbooks are given in a specific chapter, and the methods of solving them are also given in connection with the methods seen in this chapter, that is, instructions are given on how to solve the problems of a specific section.

6. In addition, the problems in the textbook consist of the description of a purely mathematical problem, and usually their content is far from real life situations. [6] In our textbooks, there are very few or no problems similar to PISA tasks. The problems contain a large amount of information describing the situation under consideration, and the presence of a lot of new textual information in them makes it more difficult to understand the problem and solve it. Information is presented in various forms: text, numbers and data. The information needed to solve the problem must be obtained from different parts of the text. In some problems, even if the word "circle" is not mentioned in the text of the assignment, the

students themselves will have to find that the object is in the shape of a circle. Lessons from PISA research PISA-2015 research was conducted based on the following educational competencies of students: [5]

be able to perform practical exercises and educational tasks based on acquired knowledge,

able to apply acquired knowledge and skills in life situations outside school;

able to reflect on acquired knowledge and skills, i.e. able to think logically. According to the results of PISA studies:

Most students are not ready to live in the 21st century, that is, they do not have the competences that arise from the needs of modern society;

School education is largely not focused on building these competencies;

Students do not know where to use the acquired knowledge and skills;[7]

In many schools, education is still taught in the old ways, that is, ready-made knowledge is given. In fact, the school should "teach students to learn", that is, they should teach them to learn independently;

Textbooks and the content of the educational tasks in them are not intended to perform such a task;

TIMSS international studies. TIMSS (Trends in Mathematics and Science Study) international studies called international traditions in teaching mathematics and natural sciences are conducted every 4 years by the International Association for Quality Assessment of Student Achievement. TIMSS allows tracking of progress in these subjects in participating countries by assessing the academic achievement of 4th and 8th grade students in mathematics and science. Students are tested and questionnaires filled out by students, teachers, and school administrators are used to assess academic achievement and provide information on factors that influence learning outcomes. Developing positive attitudes toward mathematics and science is one of the most important goals of the curriculum of these subjects in many countries.

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