

# TECHNOLOGY FOR ASSESSING THE ENVIRONMENTAL KNOWLEDGE OF PRIMARY SCHOOL STUDENTS BASED ON THE INTERNATIONAL ASSESSMENT PROGRAM TIMSS

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## ABSTRACT

The article highlights the technology of assessment of environmental knowledge of primary school students on the basis of the international assessment program TIMSS.

**Keywords:** Technology, assessment, program, ecology, knowledge, student.

## INTRODUCTION

Various modern international and domestic studies in the field of education quality assessment show that most education systems do not keep up with the rapidly changing economy and do not provide students with the necessary skills, such as the ability to critical, creative thinking, the ability to work together and the ability to adapt to the constantly changing technology used in everyday life and in the workplace. Reforming the methods of knowledge assessment is extremely necessary for the implementation of any systemic changes in the field of education, and today we need not just changes, but transformations of a global nature. Only they can equip students with the skills they need to succeed.

### Materials and methods

Monitoring international study TIMSS - Trends in International Mathematics and Science Study, conducted by the International Association for the evaluation of educational achievement IEA – International Association for the Evaluation of Educational Achievement every four years allows to trace tendencies of development of mathematics and science education more than 50 countries. The success of teaching children at school is the result of a lot of work and close interaction of all those involved in the education system-teacher-parent-university teacher-developers of standards and textbooks, etc. The TIMSS toolkit is common to most countries and contains a huge bank of test tasks, the solution of which, according to international experts, is necessary for the successful implementation of the knowledge gained by the student in the modern world. The purpose of the study

One of the important points of this study is to take into account the fact that as a result of training, students must master certain types of educational and cognitive activities and be able to demonstrate them. Therefore, each task is assigned the activities that students must demonstrate when performing this task. The selection of content takes into account the importance of studying issues in the framework of mathematics and natural science courses, their relevance for modern society, as well as the needs of modern society.

The tools of this study include:

- tests, questionnaires for students, teachers, school administration, education experts, and research quality monitors;

- methodological support for the organization and conduct of research, guidelines for checking tasks with free answers, guidelines for data entry;
- software for selecting classes and students and for entering data.

Study of the quality of education of high school graduates who studied advanced courses in mathematics and physics. These two subjects are priority areas in terms of assessing the intellectual potential of a country and the ability of its younger generation to use and improve new technologies.

## RESULTS AND DISCUSSION

The methodological basis of the international TIMSS study is a conceptual Model for assessing students' educational achievements, developed by K. Travers and A. Westbury.

The research model of the International Association for the Evaluation of Educational Achievements IEA includes the vast experience gained by this organization as a result of research in the field of quality assessment of education. This model helps to understand the complex relationship of various elements of the education system. Education in the presented Model is considered from the position of three levels •

- planned-social order of the school,
- realizable-real educational process of the school,
- achieved - the results of the training of this school.

At the planned level, the macro level, the official goals of education are formed. The totality of pedagogical and methodological ideas accumulated in society is reflected in programs, textbooks and methodological manuals. At the school and class level, the teacher implements the planned content of education in the real educational process – the implemented level of education. At the achieved level, the student is evaluated, his knowledge, skills and attitudes. Thus, groups of questions of these levels were the basis for the development of TIMSS research tools. The TIMSS research model was developed taking into account criticisms of previously conducted international studies in the field of student success assessment. The TIMSS model reflects not only new approaches to assessing students' academic achievements, but also focuses on the analysis of the data obtained. Thus, the need to study a large number of factors has led to a significant increase in the elements of the analyzed system and the creation of a sufficiently effective model of interaction of factors in the educational system. Thus, the improved TIMSS Model meets all the basic requirements of existing approaches to assessing the quality of school education.

The content of school science education in the international TIMSS test, according to the developers, is most adequately represented by the following blocks: biology, physics), chemistry, geography and ecology.

In TIMSS studies, the assessment of natural science literacy is carried out using a single general test on tasks that allow you to check the assimilation of basic natural science knowledge and its application in the context of everyday life and various social contexts, as well as to assess the ability to analyze situations, establish causal relationships.

All tested skills and types of educational and cognitive activities are represented in the international test by the following groups •

- Actual knowledge (knowledge of facts and procedures) (30 %).
- Conceptual understanding and use of concepts (39% c) •

- Establishing causal relationships and analysis, including research and problem solving (31 %).

According to the TIMSS program, students, their teachers and school administration are also surveyed to identify factors that affect the quality of education.

External factors influencing the results of natural science education are the following •

- socio-economic conditions of the country;
- cultural traditions of the region and country;
- social order of the company for the formation of "portrait of an ideal school graduate".

Various methods, approaches to learning, innovative educational programs contribute to the achievement of positive results of natural science education, successful mastering of knowledge, skills (competencies), the formation of value relations, views, beliefs.

## CONCLUSION

It follows that the teacher should think through the lesson in such a way as to attract the experience and knowledge of children, and, accordingly, stimulate their cognitive activity. In addition, a significant part of the tasks were presented in the study in an unusual text form for fourth graders, which is accompanied by a drawing, diagram, table or in the form of a game with a description of its rules. It is clear that the inclusion of such types of tasks in the content of the lesson is possible precisely for the purpose of forming the ability to work with different types of information, analyze, generalize, prove, based on the source. But this is nothing more than universal general educational and logical actions.

An important point for the teacher will also be the opportunity to assess the personal achievements of students. Thus, the questionnaires developed in the TIMSS study for students allow us to identify motivation, emotional factors, strategies used by the student in studying the subject, and self-confidence.

## REFERENCES

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