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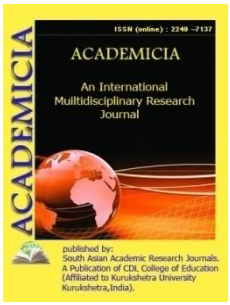

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INTERNATIONAL PROGRAMS FOR ASSESSING THE QUALITY OF EDUCATION–A FACTOR IN INCREASING THE SCIENTIFIC LITERACY OF STUDENTS

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ABSTRACT

The article discusses the development of natural science literacy of schoolchildren through the use of international programs for assessing the quality of education (piza, timss, pirls). Based on this study, the methodology for creating biology assignments and its importance is described.

KEYWORDS: *International Assessment, Quality Of Education, Students, Knowledge, Application, PIZA, TIMSS, PIRLS, Methodology*.

INTRODUCTION

During the period of the rapid development of our country along the path of innovative development, comprehensive support for the creative ideas and creativity of young people who are the heirs of our future, the formation of their knowledge, skills and abilities in accordance with state educational standards. It is important to improve the assessment system in accordance with foreign experience, international criteria and requirements.

Various modern international and domestic studies in the field of education quality assessment show that many education systems are not adapted to a rapidly changing economy and that critical, creative thinking applied to students in everyday life and at work is common. Does not provide essential skills such as productivity and the ability to adapt to ever-changing technology. Changes in the system of reforming knowledge assessment methods are necessary not only for

any structural changes in education, but also for today's global changes. Only they can give students the skills they need to be successful.

Approved by the Decree of the President of the Republic of Uzbekistan dated February 7, 2017 No. PF-4947 “On the Strategy of Actions for the Further Development of the Republic of Uzbekistan” “Five Priorities for the Development of the Republic of Uzbekistan in 2017. - 2021”[1]within the framework of the Education Action Strategy, a new monitoring system is being formed to assess the quality of education in Uzbekistan, based on the identification and comparison of international monitoring programs.

Studying international experience in assessing the quality of education, a comprehensive comparative analysis of the existing system, close cooperation with relevant international and foreign organizations, agencies, research institutes, assessing the quality of education, implementing international projects, improving the corresponding national assessment system that meets the requirements of modern requirements.

International comparative studies on the assessment of the quality of education are carried out by organizations: the Organization for Economic Cooperation and Development (OECD) and the International Association for the Evaluation of Educational Achievement (IEA-International Association for the Evaluation of Educational Achievement) [2].

An international comparative study allows you to identify and compare the situation and changes in the education system in different countries, as well as evaluate the effectiveness of strategic decisions in the field of education.

The comparison is carried out not on the basis of an observational study of different sources of information, comparison of the results of prestigious international Olympiads, but on the basis of research conducted by students from different countries using the same model tools, taking into account international priorities in education.

Three major international comparative studies - PISA, TIMSS and PIRLS - complement each other in assessing the quality of general secondary education. The simultaneous implementation of these three studies provides an opportunity to assess various aspects of the education system. Comparing the results of the PISA, TIMSS and PIRLS studies allows us to define the characteristics of primary and secondary education, mathematics and science, as well as assess the quality of general education in terms of educational priorities developed by the international community. Let us consider in more detail the main international programs for studying the quality of education.

PISA (Program for International Student Assessment) is an international student literacy research program whose main goal is to teach 15-year-old students to read (comprehend), math and science, and creative thinking skills using a variety of tests. These projects serve to assess students' creative and critical thinking, their ability to apply their knowledge in life, and the subsequent development of these skills. PISA is an international student assessment program sponsored by the OECD [3].

TIMSS is an international monitoring study of the quality of mathematics and science education (Trends in Mathematics and Science Study), conducted by the International Educational Association (IEA) [4]. The survey, which is conducted every four years, assesses the readiness of

students in grades 4 and 8 for mathematics and science, as well as students in grades 11 in schools with advanced study of mathematics and physics. The four-year study cycles compare the results achieved when fourth graders become eighth graders with the transition from elementary to basic in math and science training. Allows you to make changes.

The tools for this research include:

• tests, questionnaires for students, teachers, school administrators, education experts, research quality monitors;

• methodological support for organizing and conducting research, a manual for checking assignments with free answers, a manual for data entry;

• software for the selection and conclusion of classes and students;

• reading to learn to apply the student's literary reading experience;

• reading to assimilate and use information.

To study the quality of education of school graduates in schools with in-depth study of mathematics and physics. These two disciplines are prioritized in terms of assessing the intellectual potential of countries and their ability to use and improve new technologies of the younger generation.

PIRLS - Reading and Comprehension The International Development of International Reading Literacy project compares the quality of reading and reading comprehension by grade 4 primary school students in different countries. Surveys have been conducted every five years since 2001. This is done under the auspices of the IEA. All responsibility for organizing international studies rests with Boston Chestnut Hill College (Massachusets, USA). In Uzbekistan, this study is being conducted by the National Center for International Research on Education Quality Assessment. Reading confirms the quality of reading for students who graduate from 4th grade, as it is an important stage in the development of a child in the fourth school year, by which time students continue to read as a means of further learning.

The PIRLS study assesses two types of reading that students most often use in the classroom and outside of school: in accordance with the conceptual rules of the study, reading fiction and informative texts assesses four groups of reading skills: clearly marked information retrieval; draw conclusions; interpretation and synthesis of data; analysis and assessment of text content, language features and content.

In the process of developing students' skills in using interactive software in the practice of biological education and designing the development of classes with their use, various methods were used, special attention was paid to such methods as questioning, testing, interviews, conversations, experimental tests, system monitoring, statistical data processing [4].

Educational assignments of different levels, based on international assessment programs in biology, play an important role in the development of students' natural science literacy. Tasks are presented at 4 levels [5].

I. Task at the first level of difficulty.

Task 1. Systematic but moderate exercise is good for our health ?.

Question 1: What is the benefit of systematic exercise?

Circle 'Yes' or 'No' for each statement.

Is systematic exercise good for you?	Yes or no
Exercise is beneficial for preventing heart and vascular disease	Yes / No
Exercise leads to good nutrition	Yes / No
Exercise helps you avoid excess weight	Yes / No

Question type: Yes / No multiple choice.

Competence: Scientific explanation of phenomena.

Contents: Systems related to the Earth and the Universe (natural science)

Applications: Health.

Context: Personal.

Difficulty level: 1 level.

The task is on the second level of difficulty. To gain a more accurate understanding of the Earth's past habitat and ecology, geologists study rocks and fossils. Some of the possible findings of scientists and their conclusions are shown in the table below.

Does each conclusion follow from the corresponding findings? Circle 'Yes' or 'No' for each pin.

Findings Can the following conclusions be drawn? Yes or no?

In the sedimentary rocks of coastal zones, prints of footprints of different types of dinosaurs were found. Once upon a time, different types of dinosaurs lived on this territory. Yes or No?

Findings	Can the following conclusions be drawn?	Yes or No?
In the sedimentary rocks of coastal zones, prints of footprints of different types of dinosaurs were found.	Once upon a time, different types of dinosaurs lived on this territory.	Yes or No?
Oil and coal were discovered on the territory	In the past, intense volcanic activity took place in this area.	YesorNo?
Oil and coal have been discovered in the area	Has this area experienced intense volcanic activity in the past?	YesorNo?
Fossilized remains of induced marine molluscs found on the tops of the mountain system	Mountains emerged as a result of the uplift of the sea floor caused by the movements of the earth's crust plates.	Yes or No?

Question type: Yes / No multiple choice.

Competence: Recognizing and posing scientific questions.

Content: Natural science knowledge.

Field of application: Connection between natural science and technology.

Context: Global.

Difficulty level: level 2.

The task is on the third level of difficulty: Read the magazine article and answer the questions.

The researchers found that students who listened to music with headphones for more than two hours a day and attended discos at least once a week experienced a decrease in hearing sensitivity by an average of 10 decibels. Especially their perception of sounds with frequencies from 3 to 6 kHz deteriorated. Humans can hear sounds in the frequency range from 20 Hz (0.02 kHz) to 15 kHz, and we are most susceptible to sounds with frequencies between 1 and 6 kHz. “These frequencies are vital because they make speech intelligible,” says Professor RonHou, who studies auditory mechanisms.

A person's ears can determine the direction of where the sound is coming from. To better understand this phenomenon, Professor Howe studies the perception of sound in small flies, Ormiaochracea. These flies lay their eggs on crickets. “Crickets produce sounds at frequencies between 2 and 7 kHz, and the flies are fine-tuned to hear those sounds,” Howe says. “It's not enough for a fly to just say, 'Yeah, the cricket is around here somewhere.' She must find one invisible cricket in the surrounding space. " In his laboratory, Howe has built a special cage with speakers at the ends, from which crickets can trill. He observes the behavior of flies when sounds are heard from the speakers.

Question: Lines 3 and 4 indicate that students experience the greatest hearing impairment in the 3 to 6 kHz range. Why can hearing impairment, especially in this range, be a problem?

Performance Assessment:

The answer is fully accepted:

It highlights the importance of hearing and understanding clear speech.

• Because this noise level corresponds to the range of human speech.

• Because it is a person's range of speech.

• They may not hear human speech.

• This means that they will hear worse and will not understand what it is about.

• They won't hear what the teacher is talking about.

Question type: With a free-form answer.

Competence: Scientific explanation of phenomena.

Content: Natural science knowledge. Applications: Health.

Context: Personal.

Difficulty level: 3 level.

The task is on the fourth level of difficulty.

Questioner: Lines 14-16 describe Professor Howe's experiment. What was the main goal of Professor Howe observing the behavior of these flies?

Assessment of performance: The answer is fully accepted:

Flies are said to be guided by sound or have hearing organs that determine the direction of sound, or an answer is given that includes one of these positions.

• Flies fly to the sound and can accurately find the sound source.

• Flies fly to the sound of crickets.

• He checked to see if the flies would be attracted by the sound of the crickets.

• To see the reaction of the flies when the sounds of the cricket are transmitted from different directions.

It is said that Professor Howe conducted an experiment in order to understand how people can determine the direction of where the sound comes from. • How the human ear can determine the direction of where sound is coming from. • He wants to find out how the human ear determines the direction of sound.

Question type: With a free-form answer.

Competence: Scientific explanation of phenomena.

Content: Natural science knowledge.

Applications: Health.

Context: Personal.

Difficulty level: 4 level.

Thus, if the creation of educational assignments of different levels requires professional pedagogical skills from the teacher, then the fulfillment of this type of assignments contributes to an increase in the natural science literacy of students.

CONCLUSION

Modern approaches to education, focused on results, require changes in the educational preparation of students. It is necessary to use the experience gained during international research. An analysis of their goals and the features of their tools made it possible to identify difficulties with the tasks that Kazakh students encountered in international research, and which are recommended to pay special attention to when conducting educational work with students:these are tasks in which it is not clear which area of knowledge needs to be addressed to determine the course of action;these are tasks that require the involvement of additional information (including tasks described in the text that go beyond the situation) and, conversely, tasks containing "redundant" information and "unnecessary" data; this is the inability to understand unconventionally posed questions in the blocks "Knowledge", "Reasoning" and "Application";this is the presentation of several options for answers, unusually formulated; these are complex or structured project assignments consisting of several interrelated issues;this is a

large number of tasks of different topics and different formats that require different forms of recording an answer (choice of an answer, recording a word or number, short or detailed justification), in one task of a project type, which must be completed in a limited time;this is the inability to apply the acquired knowledge and skills to real, life situations typical of everyday life;this is the inability to interpret information presented in the form of tables, diagrams, graphs, insufficient development of spatial representations;this is the inability to integrate the various subject knowledge acquired.

Thus, the methodological recommendations and instructions we have developed for solving tasks of international studies, as well as options for tasks for the development of functional literacy of students, will be useful in preparation for international studies PISA, TIMSS. For each task-question, its main characteristics are indicated, the difficulty of the task on the international scale. All this is aimed at the development of mathematical and natural science literacy, which implies the ability of students to use the knowledge they have acquired during their studies at school to solve various problems of interdisciplinary and practice-oriented content, for further learning and successful socialization in society.

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