

PREPARING PRIMARY SCHOOL STUDENTS FOR THE PISA INTERNATIONAL ASSESSMENT

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ABSTRACT

This article discusses the theoretical and practical aspects of preparing primary school students for the PISA international assessment program. The PISA study is significant in that it is aimed at assessing students' reading literacy, functional knowledge in mathematics and natural sciences in real-life situations. The article considers methods for developing critical thinking, working with text, analyzing problem situations, making logical conclusions, and organizing lessons based on a competency-based approach at the primary education stage. Attention is also paid to the issues of gradually introducing PISA-type tasks into the educational process, improving the methodological training of teachers, and developing students' independent work skills. These approaches create the basis for improving students' functional literacy and successful participation in international assessment programs.

Keywords

PISA international study, primary education, functional literacy, reading literacy, mathematical literacy, natural science literacy, competency-based approach, problem-based tasks.

INTRODUCTION

In today's conditions of globalization, assessing and improving the quality of education based on international standards is one of the most important tasks. In particular, the international study PISA (Programme for International Student Assessment) conducted by the Organisation for Economic Co-operation and Development (OECD) is aimed at determining students' ability to apply their knowledge in reading, mathematics, and science in real-life situations, and it serves as an important indicator in evaluating the effectiveness of education systems.

The primary education stage is the foundation for forming students' basic knowledge, skills, and competencies. It is during this period that functional skills such as reading literacy, logical thinking, problem-solving, analysis, and drawing conclusions are developed. Therefore, preparing primary school students in the spirit of PISA requirements, teaching them to think independently, work with texts and information, and apply their knowledge in practical situations is considered a pressing issue.
[1]

In order to ensure достойное participation and achieve high results in international assessment programs within the national education system, it is essential to organize the educational process based on a competency-based approach, introduce modern pedagogical technologies, and enhance teachers' methodological capacity. From this perspective, this article discusses the main directions, effective methods and tools for preparing primary school students for the PISA international assessment, as well as issues related to their practical implementation.

DISCUSSION AND RESULTS

In developing teaching methodologies based on the PISA international assessment program, teachers need to pay particular attention to the three cognitive domains of PISA mathematical assessment: “knowledge” (40%), “application” (40%), and “reasoning” (20%). Teachers apply these domains at different levels when demonstrating mathematical competencies beyond their existing knowledge base. These PISA domains encompass problem-solving abilities, the evaluation of situations from a mathematical perspective (for example, using symbols and graphs), the construction of mathematical models of problem situations, and finding solutions by using tools such as rulers or calculators. [2]

The first domain, “knowledge,” covers teaching methodologies related to facts, concepts, and procedures that prospective primary school teachers are expected to know. The second domain, “application,” focuses on methods for applying knowledge and scientific concepts in various mathematical situations. Within this domain, skills such as reading, understanding, and presenting problems; responding using tables, pictograms, histograms, line graphs, and other data sources; integrating information from multiple sources; and drawing conclusions are developed. At the same time, students are expected to master methods of using mathematical knowledge, concepts, and procedures. [3]

The third domain – “reasoning” – goes beyond solving routine problems and includes methodologies for addressing unfamiliar situations, complex contexts, and multi-step tasks. This domain focuses on developing logical and systematic thinking, as well as solving new or complex problems through intuitive and inductive reasoning. Mathematical reasoning helps develop students' skills such as observation, calculation, making accurate assumptions, and drawing conclusions based on rules, thereby enhancing their overall thinking processes.

In preparing prospective primary school teachers based on the PISA program, it is essential to use educational forms, methods, and tools effectively. During the initial survey stage, information on PISA tasks is collected from teachers and evaluated. In the correction stage, clarifications are made in solving the tasks. At the independent assessment stage, additional training activities are selected, and at the final selection stage, a comprehensive program for preparing prospective primary school teachers for the PISA international assessment is developed.

PISA studies, tasks vary in complexity, specificity, and purpose, which requires distinct cognitive activities during their completion. From this perspective, PISA, as a program for assessing students' reading literacy, enables prospective primary school teachers to regulate and manage the learning process by modifying the volume, format, and objectives of the tasks assigned to students, as well as by using different situations and applying a cognitive approach to working with texts. [4]

Students' knowledge and reading skills cannot be assessed in the same way, as there are "student-related factors" that are not fully subject to cognitive control. Instead, the outcomes of task performance are guided by assessment criteria. The criteria for assessing reading literacy are developed based on three key characteristics, and determining the values of these characteristics is considered essential. Such an approach greatly assists test developers in classifying tasks, interpreting results, and explaining data. A student's ability to independently interpret task conditions is important for task performance; however, the understanding derived from a text may differ from the explicit instructions provided, since conclusions are formed based on learners' cognitive abilities, interests, and initiatives. Nevertheless, as an international program for assessing reading literacy, PISA focuses on information derived from clearly defined conditions and instructions given for completing tasks. [5]

CONCLUSION

The process of preparing primary school students for the PISA international assessment requires a comprehensive approach aimed at developing key educational competencies—reading literacy, mathematical literacy, and the ability to apply knowledge in science-related contexts to real-life situations. The PISA assessment framework is based on evaluating students' cognitive domains of knowledge, application, and reasoning; therefore, primary school teachers must effectively integrate these domains into the teaching and learning process from a methodological perspective.

Moreover, fostering students' abilities to independently interpret tasks, apply a cognitive approach to texts, and solve problem-based situations, as well as enhancing accuracy and observation during task performance, contributes significantly to improving the quality of education. In the process of preparing for PISA, teachers can enhance students' functional literacy by adopting a competency-based approach, employing diverse teaching methods and tools, presenting tasks in a step-by-step manner, and systematically analyzing students' learning outcomes. In this way, preparing primary school students in line with international assessment standards supports the development of their knowledge and skills and contributes to increasing the effectiveness of the national education system in the international arena.

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