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Victor S. Basyuk, Galina S. Kovaleva

**INNOVATIVE PROJECT OF THE MINISTRY OF EDUCATION
“MONITORING OF FUNCTIONAL LITERACY DEVELOPMENT”: THE
MAIN DIRECTIONS AND THE FIRST RESULTS**

The article presents information about the project of the Ministry of education of the Russian Federation "Monitoring the development of functional literacy", discusses approaches to the definition of the construct of functional literacy, development of measurement tools and its field trial. A brief description of the concept is given, the conceptual framework of the content and competence models of assessment is described, the approaches of operationalization of the tasks are given. The stages of monitoring organization are described. The first results of the project are presented, recommendations on implementation of the project results and participation of regions in regular monitoring are given.

Keywords: *functional literacy, monitoring, conceptual framework of assessment, content and competence areas of assessment, operationalization, system of tasks, results, PISA-2021 study.*

*Yulia.N. Gosteva, Marina I. Kuznetsova,
Lyubov A. Ryabinina, Galina A. Sidorova, Tatyana Yu. Chaban*

**THEORY AND PRACTICE OF READING LITERACY AS A COMPONENT
OF FUNCTIONAL LITERACY**

The article is devoted to the description of conceptual bases of reading literacy assessment and practice of measuring materials modeling in the framework of functional literacy monitoring in Russia and in the context of international studies of reading skills assessment PIRLS and PISA. The authors of the article publish examples of tasks for evaluating reading literacy, which can be used both to measure and to form modern reading skills of students in grades 5 and 7.

The authors analyze some results of approbation of the developed tasks on the basis of the results obtained conclusions are drawn about how to use them in school education in general. In the article the authors emphasize the need to study the problem of forming and evaluating reader literacy as a component of functional literacy within the framework of functional literacy monitoring in Russia, and also discuss the problems identified with specialists from other branches of the pedagogical sciences.

Keywords: *reading literacy, functional literacy, monitoring, educational process, evaluation practice, PISA.*

Larisa O. Roslova, Klara A. Krasnyanskaya, Elena S. Kvitko

CONCEPTUAL BASES OF FORMATION AND ASSESSMENT OF MATHEMATICAL LITERACY

The authors of the article presented the concept of mathematical literacy, the content of which is considered in the context of functional literacy. The article presents information on the results of Russian students in mathematical literacy in the international study PISA (Programme for International Student Assessment) for the period 2003–2015, which demonstrate low rates. The authors highlight the conceptual framework for the assessment of mathematical literacy in the PISA study, describe the structural components of the organization of research and development tasks, namely: the context, the scope of the mathematical content of the task and mental activity. The article lists subject and meta-disciplinary skills, the formation or development of which in the context of mathematical literacy should be paid attention to when studying in the grades 5 and 7. The authors outlined general approaches to the compilation of tasks for “soft monitoring” on the assessment and formation of mathematical literacy, which corresponds to the concept of the PISA-2021 study, and also presented the structure of the characteristics of tasks, the principles of compiling task blocks for monitoring purposes, examples of tasks from “soft monitoring” for 5th and 7th grade students with a description of their main characteristics. The article also presents various methods and forms of education offered for the formation of mathematical literacy of students.

Keywords: *mathematical literacy, functional literacy, PISA international study (Programme for International Student Assessment), concept of study PISA-2021, approaches to drawing up tasks, math literacy monitoring.*

Alexander Yu. Pentin, Genadii G. Nikiforof, Elena A. Nikishova

MAIN APPROACHES TO THE ASSESSMENT OF SCIENTIFIC LITERACY

The article discusses the approaches underlying the monitoring of the formation of scientific literacy of Russian students as one of the most important types of functional literacy. A brief description of scientific literacy is given and the urgency of the task of improving its level among Russian students is substantiated. The article describes the model of tasks for the assessment of scientific literacy used in the PISA international study and the peculiarities of its adaptation to the tasks of this monitoring. Approaches to the development of tasks for the formation and assessment of scientific literacy for students in grades 5 and 7 are discussed. At the same time, the selection of content for the tasks for grade 5 can not be limited only to the content of the studied science programs, but also rely on the out-of-school experience of students. The authors compares the competencies that make up

scientific literacy and the requirements of the Federal state educational standard for educational results.

Keywords: *scientific literacy, competence, educational task, educational standard, educational result.*

Elena L. Rutkovskaya

FINANCIAL LITERACY AS A COMPONENT OF FUNCTIONAL LITERACY: APPROACHES TO THE DEVELOPMENT OF LEARNING TASKS

The article presents the experience of defining and implementing approaches to the educational tasks aimed at developing the financial literacy of students. These aims are based on the conceptual ideas of the international PISA study organizers, their field definition of financial literacy assessment in this study, as well as the content of the Financial Competency System for school students in our country.

In the field of author's attention is a modern understanding of financial literacy, the components that make it up, the possibility of its reflection and representation in sets of tasks for different ages students.

The three-dimensional financial literacy model presented in the PISA study and implemented in the developed set of tasks is described separately.

The content of the tasks was created for the two age groups of primary school students and form financial literacy. The characteristic features of the tasks developed for each age group. The article describes the proposed option of grouping the developed tasks into different sets. It can be used for financial literacy development and at the same time accept to determine the dynamics of the expected educational results in this area.

Emphasizes the personality-oriented approach, implemented in the development of tasks and determining the relationship of educational material with the life of a particular person, its real behavior in society, interest in acquiring the knowledge and skills necessary to make informed decisions in typical life situations.

It reveals the importance of using tasks in the financial literacy field to achieve educational outcomes that are new to the pedagogical practice related to the formation of students' functional literacy.

Keywords: *functional literacy, financial literacy, PISA, educational results, connection of educational material with the life of a particular person, application of knowledge and skills to solve life problems, typical life situations, competent financial behavior.*

GLOBAL COMPETENCE IS A NEW COMPONENT OF FUNCTIONAL LITERACY

The article examines the features of global competence as a basic personality formation (dynamic and developing, activity-oriented and communication-oriented, etc.) and its essence as a specific value-integrative component of functional literacy, with a certain content, based on school curricula and aimed at developing of universal skills (soft skills). The study reveals the interrelation of basic ideas about formation and assessment of global competence in international monitoring PISA with the requirements of the Federal State Educational Standard of basic general education on achieving the subject, interdisciplinary (meta-subject) and personal results of education. The authors argue that the targeted formation of global competence can be carried out in the classroom and extracurricular activities of an educational institution, and determine the conditions for its formation (integrity and continuity of the process from grades 5 to 9, the definition of common goals and their differentiation at each stage of education; continuity and sequential complication of content, a combination of educational and value-oriented tasks, consideration of the age peculiarities of students, their contextual knowledge, etc.) The authors develop a list of didactic units that belongs to the subject (knowledge) basis of global competence and are assessed in 5th and 7th grade.

Keywords: PISA, functional literacy, global competence, education quality assessment, global competence model (framework).

*Nadejda A. Avdeenko, Marina Yu. Demidova, Galina S. Kovaleva,
Olga B. Loginova, Alexandra M. Michailova, Svetlana G. Yakovleva*

MAIN APPROACHES TO THE ASSESSMENT OF THE CREATIVE THINKING IN THE FRAMEWORK OF THE "MONITORING OF THE FORMATION OF FUNCTIONAL LITERACY" PROJECT.

The authors of the article consider approaches to the formation and evaluation of creative thinking as part of the monitoring of functional literacy. The authors substantiate the relevance of the task of assessing creative thinking. The article presents a brief description of the concept, describes the conceptual framework for the content and competence assessment models of creative thinking, and also provides examples of tasks for its assessment for the grades 5 and 7.

Keywords: functional literacy, creative thinking, framework focus domains, competency model, educational task, educational result, PISA-2021 Study.

CONTINUITY IN FORMATION OF MATHEMATICAL FUNCTIONAL LITERACY OF PRIMARY SCHOOL PUPILS

The foundations of the leading characteristics of mathematical functional literacy occur in elementary school. Some of them are developed in math class: the ability to establish mathematical relationships and dependencies, to apply mathematical techniques, to use mathematical language. Others are developed during the study of other subjects and in everyday life: the understanding of the possibility of solving problems using mathematical knowledge (to calculate, estimate, compare in magnitude), the mathematical evaluation of objects (measurement, evaluation of forms, sizes or numbers, etc.), the construction of models of relationships and situations (more-less, in order). During the transition from primary school to secondary school, a number of characteristics could be taken into consideration in the training process insufficiently. Then the representations and experiences of children cease to improve and expand, which leads to specific difficulties in the mathematical manifestation of functional literacy in its assessment at the later stages of learning. This is indicated by the results of the mathematical part of the PISA study (Programme for International Student Assessment) achieved by 15-year-old students. This article discusses possible causes of the specific difficulties faced by ninth-graders, caused by continuity problems, describes approaches to the assessment of mathematical knowledge that have a positive effect on the development of functional literacy. The authors of the article presented recommendations for primary and primary school teachers on the prevention and elimination of typical difficulties in the application of mathematical knowledge for learning and everyday life.

Keywords: *mathematical functional literacy, primary school, secondary school.*

TASKS ON FINANCIAL LITERACY IN THE CONTEXT OF THE IMPLEMENTATION OF THE SYSTEM AND ACTIVITY ORIENTATED APPROACH: FEATURES OF MODELING AND TESTING EXPERIENCE

The problem of functional literacy formation among students can be considered as a trend in the education development at the global international level. The system and activity oriented approach, fixed as the basis for formulating the requirements of the existing general education standards, fully corresponds to the development of the absolute majority of national educational systems. The article

deals with the problem of students financial literacy formation as one of the functional literacy elements.

The purpose of the article is a detailed description of the modeling tasks features on financial literacy, which were developed by specialists of the Institute for Strategy of Education Development of the Russian Academy of Education and are currently being tested in different regions of the country. The authors emphasize that the developed tasks, unlike most modern practices in the domestic education system, are aimed not only at the diagnosis of the achieved educational result, but also at their use as a tool for the formation of students financial literacy. The article demonstrates the didactic significance of the tasks and the possibility of their application in the educational process.

The developed tasks are arranged in blocks. Each block of tasks refers to a specific thematic module. The thematic modules content is directly related to the selection of situations in which students take part in real life. Each block of tasks includes from two to four tasks. Each of the tasks is focused on the formation of one of the four processes of cognitive activity: the identification of financial information, analysis of information in the financial context, the assessment of financial problems, the application of financial knowledge and understanding. Based on the testing preliminary results, the authors analyze the main problems faced by students in the performance of tasks, point to the deficiencies in the financial literacy of students and once again focus on the pedagogical potential of the presented tasks in the context of overcoming the identified deficiencies.

Keywords: *functional literacy, financial literacy, system and activity approach, PISA, cognitive activity, system of tasks as a forming tool, social experience, testing results.*

Alexander Yu. Pentin, Genadii G. Nikiforof, Elena A. Nikishova

FORMS OF USE OF TASKS FOR ASSESSMENT AND THE FORMATION OF SCIENCE LITERACY IN THE EDUCATIONAL PROCESS

The article deals with methodological approaches to the use of tasks on scientific literacy in the educational process. These approaches are analyzed on the example of two blocks of tasks, one of which is intended for students of 5 grade, and the other — for students of 7 grade. Two main forms of using these tasks are discussed: for diagnostic purposes and for the formation of competencies related to scientific literacy. Tasks are equipped with a system of assessment of their performance by students, which defines the formed competences of scientific literacy. It is argued that the methodological approaches of using the two blocks of tasks under consideration can be extended to other similar tasks.

Keywords: *scientific literacy, educational process, learning task, assessment, formation.*

Evgenia S. Korolkova

FORMATION OF FINANCIAL LITERACY IN THE SOLUTION OF COGNITIVE TASKS

The article is devoted to the problem of the formation of financial literacy of primary school students. The author of the article considers the state of financial literacy of adolescents aged 11–13 years and the possibility of forming financial literacy of students in this age group.

The focus of the author's research was on the specifics of financial literacy as a component of functional literacy. The author considers approaches to the development of tasks for solving the task, taking into account the cognitive abilities of students in grades 5–7, as well as their possible practical experience in the financial sphere.

Keywords: *functional literacy, financial literacy, peculiarities of the cognitive activity of students of primary school, content of financial literacy in primary school, formation of skills of financial literate behavior.*

Tatiana V. Koval, Svetlana E. Dukova

HOW TO EVALUATE STUDENTS' SKILLS IN THE AREA OF GLOBAL COMPETENCE

The article analyzes the approaches and results of creating and developing the framework for assessing functional literacy in the area of global competence. The authors show the importance of the criteria of international studies of the quality of education for the development of national education systems and the assessment tools created in this context—the determinant of verifiable content and skills, on the basis of which situations and tasks are developed and used to form global competence of 5th-9th grades' schoolchildren. The authors define the basic requirements for the developed toolkit; emphasizing the importance of cognitive laboratories and the experts' assessment of monitoring tasks, they characterize the role of testing and the peculiarities of adjusting the assessment framework at each stage; show the initial and final result, including the blocks “knowledge—understanding” and “skills”; reveal the block “skills”. The article contains examples of expert assessments and gives their analysis from the standpoint of the international comparative study of the quality of education PISA.

Keywords: PISA, functional literacy, global competence, education quality assessment, global competence evaluation framework.

Rais F. Shaikhelislamov

IN ORDER TO ENTER THE TOP TEN COUNTRIES FOR THE QUALITY OF EDUCATION: READINESS OF REGIONS FOR THE IMPLEMENTATION OF TASKS RELATED TO THE FORMATION OF FUNCTIONAL LITERACY

The article is devoted to the study of the readiness of teachers to implement the tasks on the formation of functional literacy of Russian schoolchildren. The Centre for Advanced Studies and Professional Retraining of Educators of the Institute of Psychology and Education is the largest additional professional education structure in the country, created on the basis of universities. About ten thousand pedagogical workers of the Republic of Tatarstan and other subjects of the Federation annually study at the Centre for Advanced Studies and Professional Retraining of Educators of the Institute of Psychology and Education.

In the study the author examines the impact of the characteristic difficulties of teachers in the implementation of Federal state educational standards on the readiness of employees for the upcoming activities on the development of functional literacy.

For this purpose the monitoring studies of difficulties experienced by pedagogical workers in the implementation of federal state educational standards of primary and basic education in 2013–2019 years have been carried out. Also, the intelligence studies of the motivational readiness of teachers, their attitude to the upcoming activities on the development of functional literacy of schoolchildren in 2018–2019.

The identified difficulties and problems in the implementation of the federal state educational standards of primary and basic education seem to be expedient to take into account in the process of forthcoming activities on the development of functional literacy of schoolchildren.

The research allows us to establish that the main reason for teachers in implementing the federal state educational standards is due to the fact that over the years they have failed to create an effective system of organizational and pedagogical support for the implementation of the federal state educational standards of primary and basic education at the school and educational authorities.

At the same time, there is a positive attitude of the teacher towards the upcoming activities on the development of functional literacy of schoolchildren and his / her motivational readiness to implement constructive activities.

Taking into account the fact that the studies were conducted in representative conditions, it seems possible to extrapolate the findings to the general education system of the Russian Federation.

Keywords: *functional literacy, competitiveness of schoolchildren, teachers' difficulties, exploration research, motivational readiness, adaptive factors of motivation, human capital, human resource.*

Lyubov A. Ryabinina, Tatyana Yu. Chaban

MONITORING OF READING LITERACY: REGIONAL EXPERIENCE

The article describes the eight-year experience of the Krasnoyarsk region in assessing the reader's literacy of primary and secondary school students, including approaches to the development of tools and methods for obtaining reliable data on the situation in the educational system. The issues of informing about the results of different categories of consumers and the main directions of work with the results, including the results of functional literacy monitoring, in which the region participated, are considered in detail.

Keywords: *functional literacy, assessment of reading literacy in primary and secondary school.*

Svetlana L. Orlova, Elena M. Taslitskaya, Tatyana V. Chetvertnykh

POSSIBILITIES OF EXAMINATION OF TASKS FOR THE ASSESSMENT OF FUNCTIONAL LITERACY OF STUDENTS IN THE SYSTEM OF ADDITIONAL PROFESSIONAL EDUCATION OF PEDAGOGUES

The authors of the article describe the approaches to the use of the results of the conducted examination of tasks for the evaluation of functional literacy for the system of formal, non-formal and informal education of teachers.

Keywords: *examination of tasks, functional literacy, formal, informal, informal education.*
