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**ЖАС ЗЕРТТЕУШІЛЕРДІҢ ҒЫЛЫМИ ЕҢБЕКТЕРІ
НАУЧНЫЕ РАБОТЫ МОЛОДЫХ ИССЛЕДОВАТЕЛЕЙ**

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Batyrov, Zh.,

*«7M01501 - Mathematics» master student,
Department of Natural Sciences and
Mathematics Education,
Suleyma Demirel University,
Qaskelen, Almaty, Kazakhstan*

**THEORETICAL ASPECTS OF THE FORMATION
OF FUNCTIONAL LITERACY OF SCHOOLCHILDREN**

Abstract

The article considers the issues of the formation of functional literacy of schoolchildren and ways of increasing students' functional literacy that is seen as an indicator of mastering the competencies required in education. This article also discusses the current level of functional literacy of students and the causes and consequences of this issue. Also, this article analyzes domestic and foreign experience and conceptual ideas in the formation of functional literacy of students, which determines the practical and theoretical aspects of the study, and provides methodological recommendations. This article also discusses the results of international research conducted in the framework of TIMMS and the Student Assessment Program PISA in mathematics and science and identifies the factors that shape the functional literacy of students. In addition, a questionnaire was used to determine the role of mathematics teachers in the formation of functional literacy. When analyzing the answers to the questionnaire, several advantages and disadvantages were identified.

Key words: *functional literacy, skills, theoretical aspects, conceptual ideas, methodological ideas.*

1 Introduction

Nowadays, as the level of development of society is growing from year to year, high demands are placed on human life, level of development, and general culture. The processes and phenomena that take place in real life create the need for broad thinking and analysis, the ability to think deeply. That is why functional literacy plays a very important role, both in everyday life and in school. Functional literacy means that students must be able to relate everyday phenomena and processes to the knowledge they receive at school, and at the same time be able to combine knowledge with life.

At the end of the 1960s, the concept of «functional literacy» first appeared in UNESCO documents and later came into use. Functional literacy, in the broadest sense, reflects the way a person is socially oriented, integrated between the connection of knowledge and multifaceted human activity. In the modern world, functional literacy is one of the basic factors that contribute to people's active participation in social, cultural, political and economic activities, as well as lifelong learning [1].

Comparing the research of different authors, we can see that the most commonly used concepts are: «functional literacy», «functionally literate individual». Functional literacy considers the level of students' cognitive abilities and indicators of students' productive work as the level of knowledge; this level is based on applied knowledge in solving tasks in different spheres of life. A functionally literate person acts by the values of society, by the established interests of the social situation.

The concept of «functional literacy» defines new achievements of students in the field of education under the international research program; be able to apply the knowledge acquired at school in real-life situations, to work with data from different sources, to critically evaluate the information obtained, to justify their hypotheses and research from their point of view. That is why functional literacy has a special place for schoolchildren. We need to be able to form functional literacy in students, taking into account the cognitive knowledge of students.

Throughout a diversity of situations, the aim of functional literacy remains basically the same: to mobilize, train and educate still insufficiently utilized manpower, to make it more productive and more useful to itself and to society. On the plane of development, most of the Third World countries have set themselves two main objectives: industrialization and modernization of agriculture. Industrialization requires capital, raw materials, and power; it also presupposes a high level of technology, supplies of skilled labor, and genuine know-how. These demands would be out of the question without qualified and specialist personnel at all levels. It is obvious that the industrialization of a country necessitates the production not only of technical personnel but also of a diversity of 'labor corps with the required skills and know-how. Now, a country that is just embarking on the industrialization process does not at first possess workers trained for industrial production. Very often, firms are obliged to take on untrained workers newly arrived from the country districts. These workers have to adapt to factory conditions and to the ideas of output and productivity. Accustomed in their villages to work to the rhythm of natural phenomena-sun, rain, the moon's phases, the seasons-they suddenly have to adapt to the rhythm of the machine, to the exigencies of precision, exactness, punctuality, and discipline, which industrial production implies. The difficulties presented by this adaptation are at the root of a great many failings which slow up production or make it costly and non-competitive. A few examples of this are frequent botches in tooling and waste of raw materials, numerous breakdowns of machines, unsatisfactory maintenance of equipment, deterioration of tools, accidents at work, large-scale absenteeism, etc.

2 Methods and materials

Our country has huge possibilities for improving the functional literacy of students. Functional literacy is education and human skills, the indicator of personal development. The main goal of youth is to contribute to the becoming of our country among 30 development countries in the world. At the same time, large-scale student assessment of the quality of education is needed to analyze on basis of international comparative studies' results [2].

What benefits the country's participation in international studies gives?

- Improvement of education monitoring and assessment;
- Integration of Kazakhstan education system into the world education;
- Modernizing of the educational curriculum, the creation of Kazakhstan control system of the quality of education;
- Creation of opportunities for national personnel development.

Analyzing different factors in the international studies demonstrates particular features of participating countries. Questionnaires provide a comprehensive assessment not only for the educational process but also for necessary conditions of the student's development in his family.

The influence of background information on education is used in several international projects, including an independent objective assessment of experts in TIMSS and PISA.

At the same time, the result of the development of functional literacy is the mastery of a system of basic competencies that allow students to effectively use the knowledge acquired by young people in practical situations and the process of social adaptation. Key competencies are the state's requirements for the quality of a high school graduate and the educational outcomes specified in the curriculum. Moreover, upon graduation from high school, students must have the following competencies: Management (problem-solving skills); Information (ability to self-cognitive activity or lifelong learning); Communication (ability to communicate orally, in writing, and effectively); Social (ability to interact socially); Personality (self-realization, self-improvement, life, and professional self-determination, ability to be resilient); Citizenship (the ability to feel responsible

for their homeland based on consciousness and cultural identity); Technological (ability to use technology at the level of effective use, including scientific, digital technologies). In addition to the main competencies, there are subject competencies within certain subject areas: special knowledge, business acumen, skills acquired within the subject. Basic and subject competencies must be clear, measurable, accessible, realistic and timely as a result of education. Curricula also focus on the development of functional literacy of schoolchildren and the achievement of basic, subject competencies.

As noted above, the growing interest in the term functional literacy is matched by the results of TIMSS (Third International Mathematical and Science Study) and the student assessment program PISA. An analysis of PISA results in Kazakhstan in 2019 showed that the study was not aimed at determining the level of mastery of the curriculum, but at assessing the ability of students to apply the acquired knowledge and skills in everyday situations. The analysis of the situation in the education system for the formation of functional literacy in Kazakhstan showed the following.

In the ranking of the Global Competitiveness Index according to the WEF, in 2019 Kazakhstan took 59th place among 140 countries. Out of 12 factors of competitiveness, an improvement occurred in 28 indicators, deterioration in 76 indicators, and 10 indicators showed no changes. The worst impact on the downgrade was the deterioration of the macroeconomic situation in the world in 2016.

3 Results and discussion

The authors studied school and university environments where school students and their would-be teachers are trained. This made it possible to identify a set of conditions necessary for the development of functional literacy of students, to find similarities and differences in the work of university and school students and teachers.

Having analyzed the questionnaire data, the authors identified the inconsistency in the views of teachers at pedagogical universities regarding the nature and ways of forming functional literacy of students and schoolchildren.

Most respondents note poor conditions for the formation of functional literacy all levels of general education, which refers to university and schoolteachers, high school students, and university students. The results showed that university and schoolteachers understand that student teaching and community-based internships will be the most effective regarding the formation of functional literacy of schoolchildren and university students. Unfortunately, the teacher did not consider it important to develop student's personality, although it is what ensures successful socialization in modern society.

The findings of the questionnaire conducted among eleventh graders and third-year students confirmed the idea that functional literacy is formed only when the individual is engaged in an activity that has personal significance to them and that can be either purposeful or spontaneous, but always driven by personal motives. This is confirmed by low assessment of teaching methods (1 point each) and educational environment (especially by university students).

At the same time, school and university students assessed the educational content differently. The school students considered it more significant and relevant regarding the development of functional literacy, while it was less important for university students. It can be assumed that in this case, university students realize the need for practical-oriented, competency-based educational texts, the number of which is currently insufficient. The eleventh-graders do not realize this yet.

At the same time, the research finding points to the need for changes in general education and teacher training at universities. It is obvious that modern approaches and the corresponding interactive methods that are insufficiently used in modern education, both at school and in university teacher training course, have an important role in the development of functional literacy. Subject knowledge should be flexible, deep and well mastered, as this is prerequisite for the formation of the functional literacy of learners as the integral characteristic of personality, their ability to take a public stance in a certain activity and science. At present, functional literacy is the first step for successful self-realization in society.

Specific features of functional literacy:

- focus on solving social and everyday problem;
- situational characteristics of the personality which reveal themselves in certain social circumstances;
- a link to solving standard, typical tasks;
- mastery of certain elementary (basic) level of reading and writing skills;
- is primarily used to assess adults;
- is relevant mainly in the context of finding efficient ways to increase literacy.

Within the system of training and career development of school and university teacher, the following conditions should be created:

- an integrated approach to teachers training aimed at preparing them to develop functional literacy of students;
- mastery of subject content, modern teaching methods and techniques;
- teaching methods and techniques are applied in accordance with the goal;
- conducting student's research projects;
- taking into account individual needs, interests and aptitudes of students;
- organizing the work of the teams of teachers under the supervision of their organizing, professional associations and unions;
- facilitating the use of digital resources in education and information systems to assess the development of each student;
- design, planning and management of the educational environment in cooperation with other teachers and partner;
- after action review and making necessary adjustments.

Thus, functional literacy is a meta-subjective, integral phenomenon that is formed in the course of studying school subjects with focus on personal features and that is manifested in various forms.

4 Conclusion

Summarizing the above, we add that a systematic approach is needed to develop the most important skills, the task of which should be an integral component of the curriculum. As aspects of educational activities that most affect the quality of education, the following are distinguished by the quality of personnel, which implies a high qualification of teaching and managerial personnel; the quality of educational programs, combining the level of teaching and innovative technologies, their compliance with government orders and public demand [3].

According to domestic's researchers, the current trends in the education of the republic and challenges facing its various levels necessitate a rethinking of their role, function, and place in the general education system, the development of new approaches in their future development [4]. We consider it necessary to determine the state and prospects of the updated content of education and training of the competitive younger generation: Thus, the goal of modernizing the quality of education, its transition to new content is the development of the functional literacy of schoolchildren. This approach to the definition of core competencies is consistent with the understanding of the fundamental goal of education outlined in UNESCO documents.

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**БАТЫРОВ, Ж.
МЕКТЕП ОҚУШЫЛАРЫНЫҢ ФУНКЦИОНАЛДЫҚ САУАТТЫЛЫҒЫН
ҚАЛЫПТАСТЫРУДЫҢ ТЕОРИЯЛЫҚ АСПЕКТІЛЕРІ**

Бұл мақалада мектеп оқушыларының функционалдық сауаттылығын қалыптастыру және білім беруде талап етілетін дағдыларды игерудің көрсеткіші болып табылатын оқушылардың функционалдық сауаттылығын арттыру жолдары қарастырылған. Бұл мақалада оқушылардың функционалдық сауаттылығының қазіргі деңгейі мен бұл мәселенің себептері мен салдарлары туралы айтылады. Сонымен қатар бұл мақалада зерттеудің практикалық және теориялық аспектілерін анықтайтын оқушылардың функционалдық сауаттылығын қалыптастырудағы отандық және шетелдік тәжірибе мен тұлғажырымды ойлар талданып, әдістемелік ұсыныстар берілген. Сондай-ақ, осы мақалада математика және жаратылыстану бойынша білім нәтижелері TIMMS және оқушыларды бағалау бағдарламасы PISA шеңберінде жүргізілген халықаралық зерттеулердің қорытындылары талқыланып, оқушылардың функционалдық сауаттылығын қалыптастыратын факторларды анықтадық. Сонымен қатар, математика мұғалімдерінің функционалдық сауаттылықты қалыптастырудағы ролін анықтау үшін сауалнама құралы қолданылды. Сауалнамадағы жауаптарды талдау кезінде бірнеше артықшылықтар мен кемшіліктерге көз жеткізілді.

Кілт сөздер: функционалдық сауаттылық, дағды, теориялық аспектілер, тұлғажырымды ойлар, әдістемелік ұсыныс.

**БАТЫРОВ, Ж.
ТЕОРЕТИЧЕСКИЕ АСПЕКТЫ ФОРМИРОВАНИЯ ФУНКЦИОНАЛЬНОЙ ГРАМОТНОСТИ
ШКОЛЬНИКОВ**

В статье рассматриваются вопросы формирования функциональной грамотности школьников и пути повышения функциональной грамотности школьников, что рассматривается как показатель усвоения необходимых в образовании компетенции. В этой статье также обсуждается текущий уровень функциональной грамотности студентов, а также причины это последствия этой проблемы. В также в данной статье анализируется отечественный и зарубежный опыт и концептуальные идеи в формировании функциональной грамотности студентов, что определяет практические и теоретические аспекты изучения, а также дает методические рекомендации. В этой статье также обсуждаются результаты международного исследования, проведенного в рамках TIMMS и Программы оценки учащихся PISA по математике и естественным наукам, и определяются фактор, формирующие функциональную грамотность учащихся. Кроме того, была использована анкета для определения роли учителей математике в формировании функциональной грамотности. При анализе ответов на анкету было выявлено несколько преимуществ и недостатков.

Ключевые слова: функциональная грамотность, навыки, теоретические аспекты, концептуальные идеи, методические рекомендации.

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Жакилова, С.О.
«7М015001 – Математика» оқу
бағдарламасының 2 курс магистранты,
Сүлейман Демирел атындағы университет,
Қаскелең, Қазақстан

**МЕКТЕП ОҚУШЫЛАРЫН СТЕРЕОМЕТРИЯЛЫҚ ЕСЕПТЕРДІ ШЕШУГЕ
ҮЙРЕТУДІҢ КЕЙБІР ӘДІСТЕМЕЛІК ЕРЕКШЕЛІКТЕРІ**

Түйін

Мақалада геометриялық денелерге қатысты стереометриялық есептерді шығарудың кейбір әдістемелік аспектілері қарастырылған. Көпжақтар мен айналу денелеріне арналған стереометриялық есептер геометрия пәнінен жоғары сынып бағдарламасының соңғы бөлімінде