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THE NEED TO DEVELOP THE COMPETENCE OF WORKING WITH SCIENTIFIC TEXT IN PHYSICS EDUCATION STUDENTS

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Abstract: The article is aimed at increasing the place of physics in the educational process and revealing the need to develop the competence of working with scientific text in physics education. The importance of working with a scientific text is substantiated by appropriate answers to the type of questions specific to the PISA international research standards.
Key words: Scientific outlook, technology, physics, PISA, scientific text, competence, reproduction, transformation.

INTRODUCTION

In today's technical and technological age, young people who think independently, have high intellectual potential and, most importantly, acquire modern knowledge through critical and logical thinking, are given wide opportunities in our country. Developing a scientific outlook is one of the urgent issues in acquiring modern knowledge.

In the educational process, the teaching of physics is considered as an important subject in the formation of the scientific outlook. Because teaching physics means teaching the structure of the Universe, introducing its founders, and explaining the essential understanding of the physical processes occurring in nature. [2,366-b]

Today, consistent work is being done on the development of physics education in our country. Based on the decision of the President of the Republic of Uzbekistan dated 19.03.2021 No. 5032 on "Measures to improve the quality of education in the field of physics and development of scientific research", a number of measures aimed at increasing the quality of education in the field of physics and the effectiveness of scientific research plans have been made and are being implemented. [1]

Physics is an ancient science, and it is constantly developing, incorporating modern knowledge and achievements. For example, from our understanding of the simplest processes in our lives (water expands in volume when boiling and freezing, rain, lightning, etc.) to the achievements of modern science: electricity, X-ray machines, radios, telescopes, space vehicles, telephones and communications , it's all physics. If we look at the education system of many developed countries, much attention is paid to physics, and it is taught integrated with other subjects. Here's some interesting information: Elon Musk, a man with unexpected ideas, strives to make people's lives easier with his inventions, is a big fan of space exploration and is known throughout the world as the "King of Technology". told the journalist: "Which university in the future will be in the field: do you think it is better to study physics or mechanical engineering?" "For one child, the most important thing is to study physics," he replied.

LITERATURE REVIEW.

Physics is the main subject for students in the formation of a scientific worldview, and the most necessary tools for this are physics lessons and scientific and theoretical literature. Students acquire knowledge about the Universe primarily through theoretical knowledge. Thanks to laboratory, practical classes and excursions, they will be able to see and consolidate the acquired knowledge directly through experience, as well as gain the skills to apply it in necessary life

situations. We call information that embodies scientific knowledge "scientific texts."
Today, students of our republic participate in international assessment programs. Since the main questions in a number of international assessment studies are aimed at assessing reading comprehension, finding solutions to life situations, creativity, logical and critical thinking skills, the development of students' "competence in working with scientific text" remains a pressing problem. The ability to work with scientific text is part of basic competence and is an important factor in determining reading literacy. For example, among the main areas of PISA research, natural sciences and reading literacy are considered leaders, requiring students to have a deep knowledge of the natural sciences (physics, chemistry, biology, geography) and the ability to find correct answers by reading and understanding text. Today, a lot of research is being conducted to prepare students for international assessment studies and to develop a competency-based approach to education. In particular, the issue of developing students' basic competencies based on the PISA international assessment program was considered by A.M. Matkarimov. widely covered in scientific research.

The implementation, purpose and tasks of the PISA evaluation program are covered in detail in the researches of such scientists as T. E. Havenson, Yu. D. Kersha, G. S. Kovaleva, E. A. Krasnovsky, L. P. Krasnokutskaya, K. A. Krasnyanskaya passed. From foreign scientists, the term competence was studied in the works of N. Norris, G. Weinert, S. Bjornavold, D. S. Rychen, L. H. Salganik, E. Klieme, J. Hartig, J. Erpenbeck & L. Von Rosentiellar. Issues on the development of educational standards based on the principle of the competency approach R.Arnold, W.Einsiedler, E.Klieme, R.Lersch, H.Müller, W.Stürzl, A.Rarrek, E.Werner, A.Schelten, A. .Researched in the scientific works of Riedl, G. Zimmer. [3, 6-b]

RESEARCH METHODOLOGY.

Why is it necessary to develop competence in working with scientific text in teaching physics? Before answering this question, let's think about competency-based education and its main aspects. Education based on a competency-based approach is characterized by preparing students to use the information received in standard and non-standard situations in educational and life activities. [4,1071-b]

Modern education requires students to acquire knowledge, skills and competencies, independently solve problem situations, through the conscious use of printed literature, textbooks and electronic educational resources.

The main essence of training based on a competency-based approach is the use of knowledge, skills and abilities acquired by students in the learning process, organized from professional subjects, in their personal lives, as well as in further professional and social activities. The orientation towards the formation of acquisition competencies is considered. In later life, students need to enter into personal, social, economic and professional relationships, take their place in society, solve problems that arise in this process, and most importantly, be competitive in their field and profession must have basic competencies. [5]

For students to achieve high educational effectiveness, it is important that we consistently develop their basic and specific competencies. Basic competencies are competencies that prepare students for general development as individuals, and specific competencies are formed only through academic subjects. Scientific text competence is important as part of basic competencies such as independent student learning, problem solving through reading and comprehension, scientific explanation of phenomena, planning and evaluating scientific research, and generating

hypotheses based on specific scientific evidence. various situations. is important in the manifestation of mental activity. For example, in order to study physics, which is considered the basis of technology and creativity, it is necessary to study a lot of physical literature. Based on the principle of the unity of theory and practice, the student solves important problems based on the theoretical knowledge he has acquired. The importance of the competence of working with a scientific text is incomparable in solving the test questions asked in all areas of the PISA international assessment of students. Because at different levels and types of test questions, students are required to offer their own solutions to problems in different life situations and find alternative answers based on their scientific knowledge.

ANALYSIS AND RESULTS.

For example, it is necessary to explain how the room air is heated with the help of a heating battery.

The answer to this question is explained in several steps.

Stage I - familiarization with its visible features

Stage II - tell what you see

Stage III - separation of interacting objects

Battery, water in it, room air - analysis of the condition of each of them:

- battery - solid, heated to 80-90 0C
- water is a hot liquid
- air - gas

The temperature of the water and the battery is the same, but the temperature of the air is less than theirs.

Stage IV - revealing the mechanism of occurrence of events:

- heated water transfers its energy to the battery;
- the battery heats up;
- the air in the room where the battery is located gradually warms up;
- as a result of this, its thermal expansion occurs;
- Warm air is affected by two forces: vertical upward Archimedean forces and downward gravity. But the Archimedean force is greater than gravity because the density of cold air is greater than the density of warm air.

Stage V - summary of analysis results:

The air near the battery heats up and expands as a result. Warm air is affected by Archimedean forces due to its greater density than cold air. Warm air rises, cold air takes its place; convection occurs.

Stage VI – conclusion:

The distribution of heat in a room is explained by convection, which occurs for three reasons:

• heat transfer of substances;

• thermal expansion of substances;

• Action of Archimedean forces;

As can be seen from this test task, the student must clearly and consistently answer the question asked in all aspects and justify it scientifically.

CONCLUSION.

Students consciously learn about nature and the world by studying physical concepts, physical phenomena, physical quantities, units of physical quantities in physics lessons and through scientific information in various media. The quality of acquired knowledge is assessed by the results that knowledge brings. Various criteria have been developed for defining, analyzing and measuring quality indicators. In connection with the development of students' cognitive abilities, V. P. Bespalko identified four levels of the result of serving knowledge and explained their meaning as follows:

Level I – introductory: students are distinguished by their ability to understand, distinguish and master this subject among other similar subjects. Acquisition at the familiarity level is often limited to general views and thoughts about the object of study, conversational responses are limited to "yes-no", "or".

Level II – reproduction: at this level, students master basic concepts at the level of the ability to verbally describe actions related to the subject of study, analyze various actions and various activities.

Level III - fully mastered knowledge and skills: in this case, the student has the skills to apply the mastered information in practice and acquire objective new information to solve any class work.

Level IV – transformational: involves students acquiring information capable of solving problems of varying complexity, applying acquired knowledge, skills and competencies. [6, 296-297-b]

In conclusion, we can say that the competence of working with a scientific text is an important competence in the student's acquisition of complex knowledge, skills and abilities corresponding to the highest levels of knowledge defined by Bespalko. Because: "A person, whether he is an ordinary mechanic or a qualified specialist, the secret of his success is to be able to communicate, to be able to use information to solve complex problems, to be able to adapt and get used to new things." demands and changing situations. It is about the ability to harness the power of technology that enhances human potential and performance and creates new knowledge and skills. [7]

References:

1. O'zbekiston Respublikasi Prezidentining 2021-yil 19-martdagi "Fizika sohasidagi ta'lim sifatini oshirish va ilmiy tadqiqotlarni rivojlantirish chora-tadbirlari" to'g'risidagiPQ-5032-sonli qarori. https://lex.uz/docs/-5338558

2. Qulboyev.Z., Olamni o'rganishda va texnikaning rivojlanishida mehanikaning ahamiyati. Academic research in educational sciences. 2021. 2 (9), 366-369-b

3. Matkarimov A.M., PISA Xalqaro baholash dasturi asosida o‘quvchilarning tayanch kompetensiyalarini shakllantirish. Pedagogika fanlari bo‘yicha falsafa doktori dissertatsiyasi avtoreferati. Chirchiq 2022, 6-7-b.

4. Qorayev S.B., TirkashevN.I., Kompetensiyaviy yondashuvga asoslangan ta’limning asosiy juhatlari. Academic Research in Educational Sciences. Volume 3, ISSUE 1,2022, 1072 p.
5. Qoraev S., (2016). Specific features of interdisciplinary coherence and interoperability. "Education, Science and Innovation," 2 (2), 45-50.
6. G‘oibova N.Z., Fizika o‘qitishda samaradorlikka erishish omillari. “SCIENCE AND INNOVATION” Scientific journal. November 2020, Volume 1, ISSUE 8, 296-297-p.
7. Binkley M., et al. (2011), “Defining Twenty-First Century Skills”, in Assesiment and Teaching of 21 st Century Skills, Springer Netherlands, Dordrecht,