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METHOD OF SHAPING STUDENTS ' ABILITY TO THINK LOGICALLY IN TEACHING PHYSICS

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Abstract:
The article provides information on the peculiarities of the PISA study in the formulation of logical thinking literacy in physics.

Keywords: PISA, physics, non-standard testing, productive testing, reproductive testing, logical thinking.

Introduction

In the process of introducing continuing education in our country, the content of education was updated, the DTs in educational programs and educational subjects was modernized. This in turn requires the modernization of other components of the educational process: teaching methods, tools and forms through the introduction of innovation.

Novator teachers, who continue to work pedagogically with the times, are gaining initial experience in the use of interactive methods, pedagogical and information and communication technologies in teaching without monand to the above requirements.

Meeting the need for such competitive personnel, Zamiri has such grandiose tasks as human capital, to put it simply, the discovery of Man and his potential, and the mobilization of him to achieve great goals. In particular, on the threshold of the new century, PISA (the program for Enterational Student Assessment) – an international program for assessing student literacy-was developed in order to promote general secondary education, the main link in world education on the basis of this organization.

In order to set priorities for the systematic reform of general secondary and extracurricular education in accordance with the decree of the president of the Republic of Uzbekistan, to qualitatively raise the spiritual and moral and intellectual development of the growing young generation to a new level, to introduce innovative forms and methods of education into the educational process, By 2030, the tasks of the Republic of Uzbekistan to achieve the number of the world's top 30 advanced countries in the international program of PISA, as well as to create a national system for assessing the quality of education aimed at assessing the literacy rate of students in reading, mathematics and Natural Sciences on the basis of organizing international research in the field of.

Within the framework of the concept, taking into account the special emphasis on the development of logical thinking, independent search for information, analysis skills and competencies of students in physics, the introduction of comprehensive programs and new state educational standards that meet the requirements of modern innovative economics, constant participation in international PISA and other programs for assessing the level of knowledge of students, The PISA study has the following distinctive features in physics and the following literacy results in physics:

• One of the large-scale international monitoring studies that assess logical thinking literacy of students in physics;

• Physics is attended by students from grades 6-8 who are studying in general secondary institutions;

• The competency level of students, that is, to what extent they are able to use the theoretical knowledge and experimental skills acquired in school in solving problems that can be encountered in life activities, is evaluated;

• Students ' functional literacy in the areas of physical sciences and global problem solving are evaluated;

• Contextual information that allows the study to obtain data in physics on the specificity of the educational system of the participating countries

In a person who is literate in physics, the following competencies will be formed

1. Scientifically viable explanation of phenomena
2. Design and evaluation of scientific research
3. Scientific interpretation of data and evidence

Scientific explanation of phenomena competence technologists, physical phenomenon knowledge, suggestion and evaluation of explanations of processes. The following abilities are demonstrated in this:

• Memorizing and using relevant knowledge in physics;

• Perception, creation and use of interpretive models and images;

• Making appropriate forecasts and justification;

• Proposing explanatory hypotheses;

• Explanation of the practical importance of scientific knowledge for society.

It is no secret that innovators and teachers working pedagogically in schools of general secondary education are experiencing certain difficulties when it comes to mastering certain experiments on the use of innovative technologies in the educational process, analyzing the results obtained, generalizing, identifying gaps in students ' knowledge, skills and qualifications, determining ways to eliminate them. The accent of the Test assignments compiled on the training courses are Test assignments at the reproductive level, allowing only knowledge of the knowledge, skills and qualifications specified in the working program to be determined. The accent part of the recommended assignments to determine skills and competencies is structured in the same way, indicating that the development of students ' independent and creative thinking skills is kept out of focus.

The situation described above is a sign that the process of reverse communication, that is, school and higher education, which is an integral part of the educational process in higher education institutions, is not organized at the required level.

Control tests used by students to identify experiences of creative activity, one of the main components of educational content, require mental operations by students: analysis, synthesis, comparison, comparison, generalization and inference, that is, creative thinking.

Keyes-stadi assignments and difficulty levels, which are based on the content of physical science in the content and development of creative activity experiences in students, are important for productive, partial-research and creative (creative) tests. It should be noted that in the educational process, novator-teachers should introduce standard and non-standard test tasks into the control structure, one of the main methods of qualimetry in the control and assessment of the acquired knowledge, skills, qualifications and competencies of students.

We offer to use the following non-standard test assignments, taking into account the above points:

I-DIFFICULTY LEVEL TESTS - (reproductive) (I) is a degree that requires learners to know the nature of an event, event, law, and terms, without processing the teaching material.

II-DIFFICULTY LEVEL TESTS - moderately difficult (productive) (II) is a degree requiring learners to make conclusions by analyzing objects, synthesizing, comparing, applying multiple laws and laws simultaneously and generalizing

Non-standard Test assignments in physics, which we proposed above, make it possible for future physics teachers to determine the knowledge, skills and qualifications indicated in the program on the basis of Test assignments at the reproductive, productive level, forming the competence of students to develop independent, creative and logical thinking skills.

References

1. А.А.Ахмедов, Э.А.Кудратов, Д.М.Холов. "Инновационные Технологии В Науке И Образовании" сборник статей победителей международной научно-практической конференции. 2016. Издательство: Наука и Просвещение. Пенза.
2. Б.Ф.Избосаров, А.А.Ахмедов, И.Р.Камалов. "Инновационные подходы к проведению лабораторных работ по физике". Новые технологии в образовании. 106-109.
3. E.N.Xudayberdiyev. "Bo'lajak fizika o'qituvchilarini tayyorlashda olamning fizik manzarasi bo'yicha tasavvurlarni shakllantirish". Academic research in educational sciences. 2021.
4. A.K.Kutbeddinov. "Generalization of uranium radio features in teaching natural sciencesak". Молодые ученые. 2023. 129-134.
5. I.R. Kamolov, G.I. Sayfullaeva -Formation of teacher's competence in the performance of laboratory and experimental works Journal of critical reviews. ISSN-2394-5125, 2020
6. D.I.Kamalova, S.N.Abdisalomova. "Zamonaviy innovatsion ta'lim". Journal of universal science research. Volume 1. Issue 1. 17 january, 2023. pp. 187-189.
7. Сарвиноз Тулкуновна Баракаева, Гулхаё Ихтиёровна Сайфуллаева, Сайибжан Садыкович Негматов, Нодира Сайибжановна Абед, Ихтиёр Рамазонович Камолов, Дилнавоз Ихтиёровна Камалова Методика получения композиционных образцов на основе термореактивных фурано-эпоксидных полимеров и органоминеральных наполнителей Universum: технические науки, 2021 1-1 (82) 42-45
8. L.K.Samandarov, E.N.Xudayberdiyev. Methodological problems of teaching the theory of particle-wave dualism for physics students. Theoretical&applied science. Теоретическая и прикладная наука. 256-262.
9. U.R.Bekpulatov. "Physical style of thinking-methodological basis for the formation of a scientific world view". Theoretical&Applied Science. 09(89). 183-188.
10. Ҳамроева Севара Насриддиновна, Камолов Ихтиёр Рамазонович. "Педагогика олий таълим муассасаларида бўлажак физика фани ўқитувчиларининг мантиқий фикрлаш қобилиятини stem таълим дастури асосида ривожлантириб ўқитишни такомиллаштириш". Science and innovation International scientific journal. volume 1. issue 6. UIF-2022. 2181-3337.
11. Каримова Ойниса Абдимуминовна. Активизация креативного мышления учащихся на уроке физики Традиции и новации в профессиональной подготовке и деятельности педагога. 227-229.
12. Azzamova Nilufar Buronovna, Nasriddinov Komiljon Rahmatovich. Electrodynamics As A Basis For Consolidating Knowledge Of Electromagnetism. Solid State Technology. 4(63). 5146.

13. У.Д.Шеркулов, А.М.Музафаров, Т.И.Солиев. Determination of mixing factors of daughter radionuclides in the uranium decay chain. Neuroquantology. September. 2022. Volume 20. Issue 11. London.
14. Sh.E.Khalilov, J.M.Khakkulov Z.Sh.Temirov. "Electrochemical Reduction Of Macroiones As A Surface-Active Nanocoating And Nanocomposites". The American Journal of Applied sciences. 2021.
15. Ж.М.Абдуллаев, Л.И.Очилов. "Изъятие пресной воды из подземных вод при помощи гелиоустановки водоносного опреснителя". Молодой учёный научный журнал. 2015/5. 274-276.
16. F.Nabiyeva. Issiqlik hodisalarini o'qitishga oid umumiy metodik tavsiyalar. «Science and innovation». 446-449.
17. Tursunboy Izzatillo ugli Soliyev, Amrullo Mustafoyevich Muzafarov, Bahriddin Faxriddinovich Izbosarov. Experimental determination of the radioactive equilibrium coefficient between radionuclides of the uranium decay chain. International Scientific Journal Theoretical&Applied Science. 801-804.
18. L.X.Turabova, D.I.Kamalova. Fizika fanini o'qitishda elektron o'quv qo'llanmalardan foydalanishning ahamiyati. "Polish science journal". Warsaw, Poland. Issue 4(37). April. 2021. pp. 222-225.
19. С.С.Канатбаев, И.Р.Камалов, Д.И.Камолова, Г.И.Сайфуллаева. "Universum: технические науки". Россия. Декабрь, 2016. №12(33). 38-40 стр.
20. Хушвақтов Бекмурод Нормуродович. "Innovative Fundamentals of Non-Traditional Teaching (on The Example of The Optics Department)" Journal of Ethics and Diversity in International Communication". e-ISSN: 2792-4017. www.openaccessjournals.eu. Volume.1 Issue.3.
21. A.R. Sattorov G. I. Sayfullaeva, Methodology of Application of Innovative Educational Technologies from Astronomy to Laboratory Activities 2021/10/29 European Journal of Life Safety and Stability (2660-9630) 125-128
22. O'.K.Sunnatova, G.I.Sayfullayeva. Making a vacuum cleaner using the stem education system in students' laboratory classes. Web of Discoveries: Journal of Analysis and Inventions. 2023. 43-47.
23. Sayfullaeva Gulkhayo Ikhtiyor Kizi, Shodiev Khamza Ruziculovich, Xaitova Shakhnoza G'olibjon Kizi Conditions For The Formation Of Teaching Innovation Activities Journal of Pharmaceutical Negative Results, 2023 2420-2423
24. Э. А. Кудратов Э. А. Аллаберганова, Г. М., Кутбеддинов, А. К., Каримов, А. М., Интерактивные методы обучения студентов естественных специальностей на основании радиационных факторов экосистемы. Педагогика и современность ISSN: 2304-9065
25. B. I Xojiyev, N.A. Ulugberdiyeva, AA Xo'jayev, AA Amonov Studying the transition processes in physics lessons Galaxy International Interdisciplinary Research Journal 10 (5), 873-876, 2022
26. Bobir Makhammadov The usage of android operating system mobile application terms in the russian language Proceedings of International Conference on Scientific Research in Natural and Social Sciences 2023/2/4 246-251
27. Khushvaktov Bekmurod Normurodovich Using fresnel bipprisms to explain the theme of light interference, science and innovation international scientific journal volume 2 issue 10 october 2023 46-48b, uif-2022: 8.2 | issn: 2181-3337 | scientists.uz

28. Хушвақтов Бекмурод Нормуродович Innovative Fundamentals of Non-Traditional Teaching (on The Example of The Optics Department) Journal of Ethics and Diversity in International Communication e-ISSN: 2792-4017| www.openaccessjournals.eu | Volume: 1 Issue: 3