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USE OF CASE STUDY TECHNOLOGY IN IMPROVING PRACTICAL COURSES IN NUCLEAR PHYSICS

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ABSTRACT
This article is devoted to the use of case-study technology in improving practical training in nuclear physics, and the aspect of increasing efficiency using case-study technology in passing practical training in the department of nuclear physics is analyzed.

Keywords: case study, individual, communication, intellectual, interoperability, paradigm, democratization, modernization, creativity, nuclear physics, practical training, problem solving, improved content, conservation laws, teaching methodology, pedagogy

Today's modern education system uses a variety of technologies to help each student acquire a thorough knowledge and consolidate their knowledge. The result of these processes is not to give students ready-made knowledge, but to focus on independent thinking and independent acquisition of knowledge on a given task. Therefore, today in the education system, special attention is paid to the use of problem-based learning, the effective use of problem-based learning technologies.

In particular, in recent years, the use of case-study technology, which has played an important role in the teaching of general and specialized subjects in higher education, has become widespread.

The results of many pedagogical experiments confirm that by applying the advanced pedagogical approaches used in the teaching of sciences (physics and astronomy), it is possible to attract students to science and increase their activity in independent work. One of such modern pedagogical technologies in teaching is case technology. A new approach underlies case-based teaching, which is widely used in the educational process of developed foreign educational institutions [1].

"Case study" is an English word ("case" - a specific situation, event, "stage" - study, analysis) aimed at the study of specific situations, the implementation of teaching based on analysis method. This method was first used at Harvard University in 1921 to study practical situations in economics. In a case, open information or a specific event can be used for analysis as a situation. Keys actions include: Who, When, Where, Why, How, and What [2].

A case is a description of a specific problem situation that is related to an object or event and is the result of applying knowledge in a specific field of science and finding solutions to a problem that arises. The content of the case is tailored to the specific needs of the study [1].

The educational practice of developed countries has accumulated a wealth of practical experience in the development of new, case studies based on the use of case-study technology, aimed at creating and solving problem situations, and this technology is the most popular in the world education system. is recognized as a learning technology. The following should be considered when using case-study technology in the teaching of physics.

The main goals and objectives of the technology are:

- To form students' right thinking and approach to a given situation or situation;
- Ensuring unity of theory and practice;
- Analyze different opinions and views on a given problem.

The case-solving steps by students are also important. World experience shows that if students' case-solving technology consists of two stages, they can be more effective in achieving their educational goals:

The first step is to work on the case individually (outside the classroom).

The second step is to work as a team (in the classroom) with the case.

As noted above, a case study is a method of teaching based on a problem-situational analysis of a real or artificially created situation that describes and directs learners to express a problem and look for appropriate solutions.

Case study is a set of optimal methods and tools that provide a guaranteed solution to the expected learning outcomes in the process of achieving the objectives of education, information, communication and management and solving the practical problem situation described in the case. is an educational technology that consists of.

Case-study technology is not only a methodological innovation in education, but its widespread use in the education system also depends on the situation in the modern education system. It can be said that this technology is mainly aimed at developing the general intellectual and interoperability potential of teachers and students, rather than the acquisition of new knowledge and skills.

The case method, as a type of teacher's thinking, takes the form of a separate paradigm, allowing the development of creative potential, unconventional thinking. This is, of course, the democratization and modernization of the education system, the broad path to pedagogical creativity, the formation of advanced thinking, as well as pedagogical ethics, the motivation of pedagogical activity.

Keys-stage educational technology is based on the following sequence of didactic principles, depending on its purpose:

1. An individual approach to each student, taking into account his needs and teaching methods. The principle is to get as much information about students as possible before organizing the learning process.
2. Maximum freedom in education (the ability to choose teachers, the choice of subjects, the choice of tasks and methods of solving them).
3. Provide students with adequate visual aids (scientific articles, video and audio tapes, products).
4. Rational transmission of theoretical material integrated around key issues.
5. Active collaboration between teacher and student. The student can ask the teacher a question at any time.
6. Emphasis on developing students' strengths.

Stages of implementation of the case method

The work Stages	**Form of activity and content**
Step 1: Introduce Keys and his information	individual audio-visualization; acquaintance with the case (in text, audio or media form); generalization of information; information analysis; identify problems.
Step 2: Identify the case and assign an assignment	individual and group work; determine the urgency hierarchy of problemssh; identify the main problem situation.
Step 3: Search for a solution to the problem by analyzing the main problem in the case, develop solutions	individual and group work; develop alternative solutions; analyze the possibilities and obstacles of each solution; selection of alternative solutions.
Step 4: Formulation and justification of the case solution, presentation	individual and group work; substantiate the feasibility of alternatives; preparation of creative-project presentation; highlighting the final conclusion and practical aspects of the situation solution.

In our opinion, the use of the following cases in the process of practical training in the department of nuclear physics will help to increase the effectiveness of the course.

Keys 1. What is radioactivity and what types do you know?

The problem (basic and minor problems)	Solution	The result
What is radioactivity and what are its types?	1. It is necessary to remember the phenomenon of radioactivity and its types. 2. It is important to remember by whom and how radioactivity was invented. 3. It is necessary to remember what is the composition of radioactive radiation. 4. It is necessary to consider whether the radioactive family and the species belong to the family. 5. It is necessary to draw conclusions on the basis of the above.	Students begin to think independently about the phenomenon of radioactivity and its natural and artificial forms.

Keys 2. Why is there no single model of the core?

The problem (basic and minor problems)	Solution	The result
Although there are several models of the kernel, why isn't there a single model?	1. It is necessary to remember the droplet model of the nucleus. 2. It is necessary to remember the Fermi-gas model of the nucleus. 3.Remember the shell model of the core. 4. It is necessary to remember other models of the core. 5. It is necessary to draw a conclusion on the basis of the above.	Students will learn that there is no single model of the nucleus by knowing the droplet model, shell model, Fermi-gas model, and other models.

Keys 3. What caused the Chernobyl NPP explosion?

The problem (basic and minor problems)	Solution	The result
Many years have passed, but humanity is still suffering from its consequences. What do you think is the cause?	1. Why are people and animals still dying in the Chernobyl zone? 2. Why are sick children born? 3. Why is the number of oncological diseases in people not decreasing? 4. Why is the mutation observed? 5. How long will it take for the effects of this disaster to end, and how can it be affected?	Students will learn the reason for the explosion of the nuclear power plant and how this explosion affects people, animals and plants.

In conclusion, this method has a wide range of educational opportunities, is associated with the acquisition of knowledge, skills and, in turn, allows to achieve high efficiency of education, the interaction of students. in the process, it creates conditions for the discovery and further development of new personal and interpersonal skills, professional qualities.

References

1. K.R.Nasriddinov E.N.Xudoyberdiyev N.B.Azzamova D.K.Nasriddinov., Electrodynamics as a Basis for Consolidating Knowledge of Electromagnetism. Solid State Technology, Vol.63, No.4, -P.5146-5152, 2020
2. K.R.Nasriddinov H.T.Yusupov D.K.Nasriddinov N.Bozorov Modern Concepts of Matter: Dark Matter, Dark Energy, Gravitational Waves Solid State Technology, Vol. 63, No.6,-P.9742-9755, 2020
3. E.N.Xudayberdiyev L.K.Samandarov K.R.Nasriddinov Improving the Effectiveness of Teaching Nuclear Physics Using the Principle of Historicity International Scientific Journal Theoretical & Applied Science, Vol. 91, No.11,-P.383-390, 2020
4. Kasimjanov R.V. The use of case study technology in improving of practical training in nuclear physics Polish science journal. ISSUE 12(33) Part 2. Wydawnictwo Naukowe "iScience" WARSAW, 2020 POLAND.
5. Voxidovich, Qosimjonov Ro‘zali. "IN PRACTICAL EXERCISES OF NUCLEAR PHYSICS." Berlin Studies Transnational Journal of Science and Humanities 2.1.5 Pedagogical sciences (2022).
6. Nasriddinov, K. R., and R. V. Qosimjonov. "YADRO FIZIKASIDA NOSTANDART TESTLARNING O „RNI VA AHAMIYATI." Academic research in educational sciences 3.6 (2022): 509-517.
7. Qosimjonov, R. V. "YADRO FIZIKASIDA TABIIY FANLAR BO’YIHCA FANLARARO INTEGRATSIYASINI AYRIM JIHATLARI." Academic research in educational sciences 2.CSPI conference 3 (2021): 916-919.
8. Эргашева, Мухайё Ганижоновна. "Актуальные проблемы ликвидации неграмотности среди женщин в Узбекистане в 1920-х гг." Universum: общественные науки 7-8 (67) (2020): 7-10.
9. Yusupova, Sevara Uktamovna, and Dilnoza Mashrabovna Shodiyeva. "NURSING ADULTS AND ITS CHARACTERISTICS OF PECULIARITIES." Мировая наука 12 (2018): 90-92.
10. Rasulov, V. R., et al. "Interband Multiphoton Absorption of Light in Narrow-Gap Crystals." European Journal of Applied Physics 3.5 (2021): 51-57.
11. Расулов, Р. Я., et al. "К теории трех и четырех фотонного линейно-циркулярного дихроизма в p-GaAs." «Узбекский физический журнал» 23.4 (2021).
12. Расулов, Вохоб Рустамович, et al. "МЕЖДУЗОННОЕ ТРЕХФОТОННОЕ ПОГЛОЩЕНИЕ В INSB." (2021): 143-148.
13. Расулов, Р., et al. "К ТЕОРИИ РАЗМЕРНОГО КВАНТОВАНИЯ В КВАНТОВОЙ ЯМЕ p-Te." Deutsche Internationale Zeitschrift für zeitgenössische Wissenschaft 22 (2021): 62-66.
14. Жумакулов, Х., & Жаров, В. К. (2019). О статистической безграмотности выпускников педагогических вузов и не только. In Международный гуманитарный научный форум" Гуманитарные чтения РГГУ-2019" Непрерывность и разрывы: социально-гуманитарные измерения" (pp. 119-123).
15. Хусанбаев, Я. М., & Жумакулов, Х. К. (2017). О сходимости почти критических ветвящихся процессов с иммиграцией к детерминированному процессу. O ‘ZBEKISTON MATEMATIKA JURNALI, 142.
16. Жумакулов, Х. К., & Салимов, М. (2016). О МЕТОДАХ ПРОВЕДЕНИЯ И СТРУКТУРЕ ПЕДАГОГИЧЕСКОГО ЭКСПЕРИМЕНТА. Главный редактор, 80.
17. Soboleva, E. V., Zhumakulov, K. K., Umurkulov, K. P., Ibragimov, G. I., Kochneva, L. V., & Timofeeva, M. O. (2022). Developing a personalised learning model based on interactive novels to improve the quality of mathematics education. Eurasia Journal of Mathematics, Science and Technology Education, 18(2), em2078.
18. Ummatovich, K. M., Erkinjonovich, O. S., & Rahimovna, S. F. (2019). The Role Of Small Business And Private Entrepreneurship In Civil Society. Frontiers in Finance & Economics, 16(2).

19. Xalmatjanova, G., & Sadikova, F. (2022). The Importance of the Cluster Method of Production in Agriculture. Texas Journal of Agriculture and Biological Sciences, 5, 10-13.
20. Jakbarovich, S. B., & Rahimovna, S. F. (2020). SMALL BUSINESS AND PRIVATE ENTREPRENEURS AS THE SOCIO-ECONOMIC BASIS OF CIVIL SOCIETY. MODERN VIEWS AND RESEARCH, 1, 36.
21. Садыкова, Ф. (2022). ҚИШЛОҚ ХЎЖАЛИГИ МУАММОЛАРИНИ ҲАЛ ҚИЛИШГА ЙЎНАЛТИРИЛГАН ИНВЕСТИЦИЯЛАР САМАРАДОРЛИГИ: https://doi. org/10.55439/ECED/vol23_iss3/a18. Экономика и образование, 23(3), 120-126.