

**DEVELOPMENT OF INNOVATIVE ABILITY OF STUDENTS  
IS THE DEMAND OF THE TIMES**

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**Annotation:** In this article, it was highlighted as a problem based on the demand of the times that the development of research and research skills is important in the development of students' innovative abilities. In the article, it is justified that the organization of independent educational activities of students is necessary for research and research. The difference between research assignments and research assignments is that in the research method, the facts collected by students (experience, observation, work on literature) and their theoretical analysis are justified.

**Keywords.** innovation, ability, search, research, development, experience, observation, systematization, generalization.

**INTRODUCTION**

The method of research consists in independent analysis of factual materials, which are presented in the form of a teacher's conversation, and the organization of students' activity to discover the essence of new concepts and methods of activity. The essence of the research method is that the discovery of new laws and rules is not carried out by the teacher with the participation of students, but under the guidance of the teacher and with the help of the students themselves.

Statement of research. The method of research is to describe the educational material in dialogue form:

- a) use of some issues and tasks in the presentation of new knowledge;
- b) asking questions and tasks to analyze and summarize the educational material;
- c) apply cognitive issues for smaller research, prove conclusions, reject misconceptions;
- g) to organize round-the-clock discussions on independent knowledge of topics.

The research method is organized by the teacher mainly by setting a highly important theoretical and practical research task to the students. The difference between research tasks and research tasks is that in the research method, students work on the collected facts (experience, observation, work on literature) and their theoretical analysis, systematization and generalization, while discoveries and inventions are the result of the students' analysis and generalization of factual materials.

In the research method, the student independently performs logical operations and discovers the essence of new concepts and new methods of action. The progress of

the student's reasoning, the correctness or incorrectness of the conclusions is determined by the teacher in the process of talking with the student or when he reports the result of his research orally or in writing. [1,2,]

In learning based on the research method, factual material is given to the student by the teacher and analyzed together. The student reveals the essence of the new concept with the help of the teacher. The difference between research tasks and knowledge tasks is that students' independent educational-cognitive activity includes the cycle of collecting information and analyzing it, from independently setting problems to solving them, checking the solution, and applying new knowledge in practice. students should be able to conduct research in the same way as scientific research, observing, collecting and analyzing materials, and explaining and applying the laws and rules they discover. One of the characteristics of research assignments is the analysis of previously collected materials.

Research studies can be diverse according to the forms of organization: Student experience; participation in scientific experiments; excursion; study archives; preparation of documents, reading it in the presence of students. Programmed teaching is important in research development. [1,2,3,]

Features of programmed teaching education - organization of an educational process in which students independently acquire new knowledge and action skills with the help of specially prepared didactic tools. Programmed education is associated with a special type of student independent work, so it can be considered a form of independent learning, and a programmed manual can be considered a textbook for learning. [5,6,7 ]

## **CONCLUSION**

Programmed tasks consist of a system of tasks that require students to partially recall and partially acquire new knowledge.

Application of programmed tasks is as follows: each task consists of certain elements; each element is considered a part of the material, and questions and answers are expressed in the form of statements of new knowledge or exercises. The most common way to create elementary fractions is the multiple-choice method:

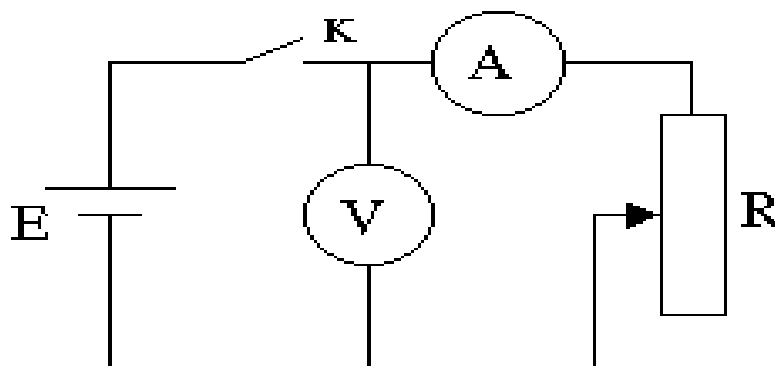
- a) consists of information in the form of conclusions and rules for which ready answers to questions are obtained;
- b) feedback necessary to control the correctness of answers.

From the experience of organizing problem-based education, it was found that there are two types of using traditional methods together with programmed education: [1,2,3,]a) some types of independent work of students and the use of programmed elements in the presentation of knowledge; b) known as a method of organizing students' cognitive activities application of a system of programmed assignments by subject or department

This method is promising due to the widespread use of such pedagogical methodological developments in programmed education. However, it is not appropriate to study all the materials of the educational subject in the form of planned tasks; in which there is almost no verbal communication between the student and the teacher, the student's speech is not developed, a large part of the educational material is learned by students using various types of education.

The use of such methods, under the guidance of the teacher, is of great importance both in terms of time and in terms of the size of the educational material, in the students' independent acquisition of knowledge and the formation of independent work skills and qualifications, and the students' ability to search and research develops Galvanic element battery 24 Ohm resistance. [3,6]

The following issues can be included. when connected, the current in the circuit was 1.5 A, and when the 12 Ohm resistor was connected, the current was 2.7 A. Find the EMF and internal resistance of the battery. If possible, try to do this in practice. To do this, use two resistors with known resistances and an ammeter.



1 – picture.

According to the condition of the matter, the electricity collected circuit diagram.

Given:  $R_1 = 24 \text{ Ohm}$ ,  $I_1 = 1.5 \text{ A}$ ,  $R_2 = 12 \text{ Ohm}$ ,  $I_2 = 2.7 \text{ A}$ ,  $e = ?$ ,  $r = ?$

Systematizing the sequence of solving the problem in the following order helps the student to clearly visualize the physical process taking place in the problem

### REFERENCES

1. Raximberdiyev, O., & Qodirova, M. (2023). TEXNIKA OLIY TA'LIM MUASSASALARIDA AMALIY VA LABORATORIYA MASHG 'ULOTLARNING O 'TKAZILISH METODIKASI. SCHOLAR, 1(14), 4-8.
2. .Султонова, Ў. Н. ў. н. “физикани ўқитиш технологиялари ва лойиҳалаштириш”. “техника ва технологик фанлар соҳаларининг инновацион масалалари” мавзусидаги халқаро илмий-техник анжумани.-.: 2020 йил 22 сентябрь.-410-412.
3. Султонова, Ў. Р., & Очилдиев, Ҳ. Б. (2023). ТАЛАБАЛАРНИ ННОВАЦИОН ҚОБИЛИЯТИНИ РИВОЖЛАНТИРИШ ДАВР ТАЛАБИДИР. SCHOLAR, 1(15), 31-36.
4. Очилдиев, Ҳ. Б., & Султонова, Ў. Н. (2023). МЕТОДЫ РЕШЕНИЯ ЗАДАЧ,

- СВЯЗАННЫХ С УСОВЕРШЕНСТВОВАНИЕМ ИНВАРИАНТНЫХ И ПЕРЕМЕННЫХ КОМПОНЕНТОВ МОЛЕКУЛЯРНОЙ ФИЗИКИ. SCHOLAR, 1(15), 37-42.
5. Султонова, Ў. Н., & Қодирова, М. (2023). ТАЛАБАЛАРНИ МУХАНДИСЛИККА ЙЎЛЛАШДА ФИЗИК МАСАЛАЛАРНИНГ АҲАМИЯТИ. SCHOLAR, 1(15), 24-30.
  6. Султонова, Ў. Н., & Қодирова, Н. Т. (2023). ФИЗИКА ФАНИДАН ТЎГАРАК МАШҒУЛОТЛАРИДА ГРАФИК ВА ЭКСПЕРИМЕНТАЛ МАСАЛАЛАР. Евразийский журнал академических исследований, 3(2 Part 4), 266-269.
  7. Султонова, Ў. Н. (2023). ТАЛАБАЛАРНИ ИЗЛАНИШ ВА ТАДҚИҚОТЧИЛИККА ЙЎЛЛАШ МЕТОДИКАСИНИ ТАКОМИЛЛАШТИРИШ. SCHOLAR, 1(2), 163-166.
  8. Султонова, Ў. Н. (2022). Физика Дарсларида Ва Тўғарак Машғулотларида Дидактик Ўйинлардан Фойдаланиш. Miasto Przyszłości, 29, 341-346.
  9. Sultanova, D. U. (2022). Topic: Innovative model of educational technology. International Journal of Early Childhood Special Education, 14(7).
  10. Sultanova, U. N., Kadyrova, N. T., Sulstonov, S. N., Jiyanova, S. I., & Payanova, F. K. (2020). Technology to improve the methods of teaching physics in higher education based on a competency approach (on the example of training technical engineers). European Journal of Molecular and Clinical Medicine, 7(11), 365-374.
  11. Raximberdiyev, O., & Qodirova, M. (2023). QUYOSH PANELLARI-ENG TEJAMLI ENERGIYA MANBAYIDIR. SCHOLAR, 1(14), 9-11.
  12. Raximberdiyev, O., & Qodirova, M. (2023). TEXNIKA OLIY TA'LIM MUASSASALARIDA AMALIY VA LABORATORIYA MASHG 'ULOTLARINING O 'TKAZILISH METODIKASI. SCHOLAR, 1(14), 4-8.
  13. Sulstonova, U. N. (2019). Formation of Basic Competences for Students by Solving Problems in Physics. European Journal of Research and Reflection in Educational Sciences Vol, 7(11).
  14. Sultanova, O. N., Qodirova, N. T., & Jiyanova, S. I. (2021). Solving Problems in Physics in the Training of Technical Engineers and Connecting Its Efficiency to a Competent Approach. CONVERTER, 2021(7), 903-910.
  15. Sulstonova PhD, U. N. (2021). THE IMPORTANCE OF EDUCATIONAL TECHNOLOGY IN TEACHING PHYSICS BASED ON A COMPETENCY-BASED APPROACH IN HIGHER EDUCATION. Central Asian Journal of Education, 6(1), 1-8.
  16. Султонова, Ў. Н. (2023). ТАЛАБАЛАРНИ ИЗЛАНИШ ВА ТАДҚИҚОТЧИЛИККА ЙЎЛЛАШ МЕТОДИКАСИНИ ТАКОМИЛЛАШТИРИШ. SCHOLAR, 1(2), 163-166.
  17. Abdullaeva, S., & Sulstonova, U. (2020). Use of MathCad software in the preparation of students majoring in engineering. International Journal of Scientific and Research Publications, 10(12), 650-653.
  18. Султонова, Ў. Н. (2023). ТАЛАБАЛАРНИ ИЗЛАНИШ ВА ТАДҚИҚОТЧИЛИККА ЙЎЛЛАШ МЕТОДИКАСИНИ ТАКОМИЛЛАШТИРИШ. SCHOLAR, 1(2), 163-166.
  19. Sulstonova, O. N., Qodirova, N. T., & Jiyanova, S. I. (2021). BASED ON STUDENTS'COMPETENCY-BASED APPROACH TO PHYSICS SOLVE EXPERIMENTAL AND GRAPHICAL PROBLEMS. Galaxy International Interdisciplinary Research Journal, 9(05), 336-340.
  20. Султонова, Ў. Н. (2023). ФАНЛАРАРО БОҒЛАНИШДА ИНТЕГРАТИВ ЁНДАШУВ. SCHOLAR, 1(17), 36-41.
  21. Sulstonova, O. (2023). OLIMPIADA MASALALARNI YECHISHDA INNOVATION YONDASHUV. SCHOLAR, 1(17), 42–46. Retrieved from