

**PROBLEMS OF ORGANIZING THE PROCESS OF INDEPENDENT  
EDUCATION IN CHEMISTRY IN HIGHER MILITARY  
EDUCATION INSTITUTIONS**

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**Abstract.** This article describes the current state of independent preparation and organization of the independent educational process of cadets of the higher military education system, and the problems of improving the effectiveness of the educational process.

**Key words:** higher military education, independent training, independent education, practical chemistry.

**Independent work** of students - is a systematic activity aimed at mastering which is a certain part of the knowledge, skills and qualifications specified in the curriculum of a particular subject by a cadet (learner) based on the advice and recommendations of a subject teacher, independently in the audience and outside the audience.

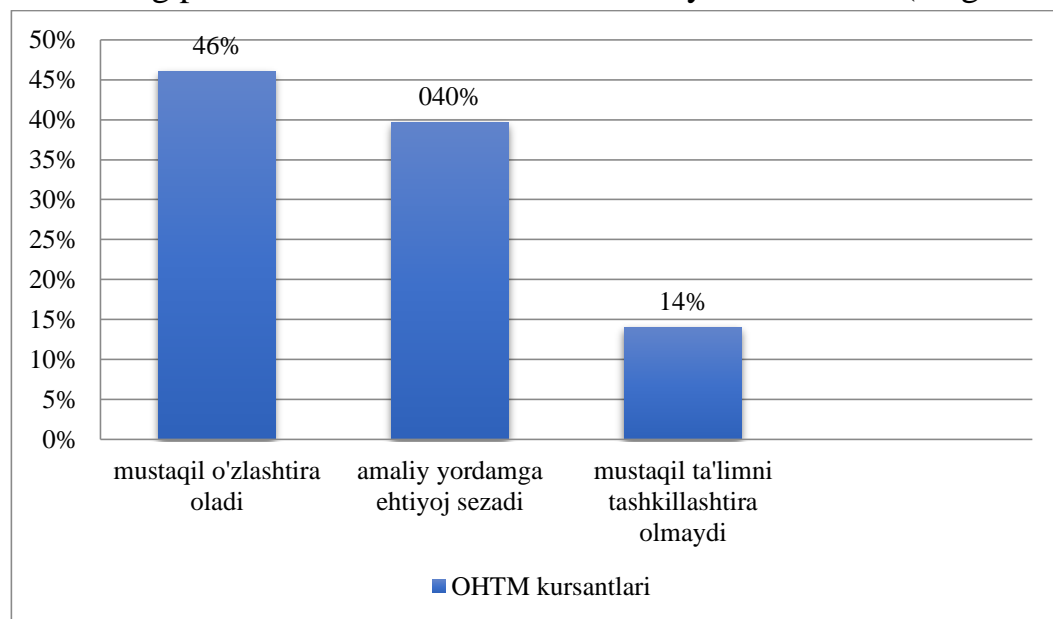
During this activity (process), it is desirable for the learner to find, analyze, extract information from effective sources and think freely and creatively.

The formation of the internal need for self-education and self-analysis is directly related to the socio-economic changes expected in the life of the country, meeting new conditions, new requirements and criteria. The process of progress and development becomes a condition for realizing the personal potential of personnel. It is impossible to solve the problems of modern continuous education of a person without increasing the role of independent work on educational material in the educational process. Applied chemistry is one of the important fundamental natural sciences, and in the formation of knowledge, skills and qualifications at the level of demand for this subject, there is a very high need for independent study and mastering of gaps and innovations in independent knowledge.

It would not be wrong to say that the issues of independent education and independent training of cadets in the higher military education system have a unique character. This situation can be explained by a number of reasons, such as the fact that cadets conduct military service along with education, and the principles of confidentiality of the higher military educational institution.

Unfortunately, the scope of the work carried out on the effective organization of independent training and independent training hours for cadets of military educational institutions and the achieved scientific innovations cannot be considered sufficient.

In particular, 117 cadets participated in the test-experimental work conducted by A.A. Vakula to determine the effectiveness of the independent education process of the cadets of the Ministry of Internal Affairs of the Russian Federation, and 46.4% of the cadets were able to independently master the subjects. It is known that 39.6% of cadets feel the need for practical help in this process, 14% of cadets cannot organize the independent learning process and abandon the work they have started (diagram 1).<sup>1</sup>



**Diagram 1. The results of the analysis of the effectiveness of the independent educational process of cadets (A.A. Vakula)**

It should be noted that the biggest factor in the process of independent learning is literature and data analysis. The effectiveness of independent education and independent training directly depends on the state of information materials and educational technical base in the higher military educational institution. Statistical data (obtained by A.A. Vakula) show that 79.6% of cadets of higher military education use the lecture materials of science professors during independent training and independent education, 54.7% of them use science textbooks, 40.3% use Internet resources. Only 36.4% of them study and analyze all the given educational questions. In addition, books and reading are considered the main source of information for cadets, 31.7% of them read the recommended literature independently, 49.4% of cadets learn information materials from seminars, 19.7% use materials from lectures. 23.4% of the respondents who participated in the experimental work stated that they go to the library once a week.<sup>1</sup>

As S.N. Pozdnyak noted, an important feature of the concept of "independent work" is the educational process of the independent, active, searching character of students' reproduction and other types of practical, research, project activities aimed at achieving important personal and professional goals. S.N. Popova stated that the concept of "student's independent work" is the main component of the educational

process, determines the formation of skills, qualifications and knowledge, methods of improvement, and ensures interest in creative work. It also represents a separate form, teaching according to the teacher's instructions, its implementation requires a creative approach and independent acquisition of knowledge.<sup>3</sup> Independent work of students is a type of educational and cognitive work. It is the completion of increasingly complex tasks by students with the guidance of the teacher in individual and time-distributed activities. Independent work should be coordinated with time aimed at self-organization in the context of personal characteristics of cadets and its semantic-content structure.

Researcher N. O. Khlupin, pedagogical literature on the problem of organizing independent work as a result of psychological analysis, revealed different positions to understand the essence of the concept.<sup>5</sup>

It is correct to say that the process of independent education of students of civilian higher educational institutions of the higher education system is fundamentally different from the process of independent education of cadets of the higher military education system. The decision of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev dated June 5, 2018 No. PQ-3775 "On additional measures to improve the quality of education in higher education institutions and ensure their active participation in comprehensive reforms implemented in the country" was announced. According to the new regulation developed according to this decision, 1st year students admitted from the 2018-2019 academic year will have 5 days of classes per week and 1 day will be allocated for independent research of students. This has a positive effect on students' independent research, efficient use of time and more work on themselves.

The researchers of our republic, in particular, I. Yu. Madatov, in the test-experimental works conducted in 2018-2019 with the students of the Pedagogy and Psychology undergraduate course of the Faculty of Pedagogy of Samarkand State University in 2018-2019 "blended learning technology" has proven to be effective for this process.<sup>2</sup>

In the scientific research conducted by M. Odilova, the issues and problems of using GAT (geographic information technologies) in organizing independent education were studied.<sup>4</sup> In this case, the complexity of the choice of experimental areas in studying the influence of various factors on the processes taking place in the environment, the extent to which the factors in the external environment affect the organism, and in most ecological studies, accurate information about the place is required. Therefore, the ability to collect and analyze information with the help of geographic information technologies (GAT) is reflected.

Today, due to the fact that the amount of hours allocated for independent education is significantly higher, it is the reason that many subjects are allocated for mastering in independent education hours.

For example, the total number of hours of applied chemistry for the courses "Tactical Command of Troops" and "Engineering of Tactical Command of Troops" of Chirchik Higher Tank Command Engineering Educational Institution is 60 hours, of which 12 hours lectures, 10 hours practical work, 8 hours laboratory work and independent study hours are 30 hours.

Important topics such as "Classes of inorganic compounds", "Catalysis", "Methods of metal corrosion and protection against it", "Classes of hydrocarbon compounds", which serve as an important foundation in the study of applied chemistry, are combined for mastering in the independent education process. It is established that these independent educational works can be submitted in the form of abstract, test, booklet, article, analytical report, case study.

During the years 2021-2023, our test-experiment and observation work on the development of cadets' military competence at the university shows that cadets face the following problems in the process of independent education:

lack of resources (books, presentations, electronic video lessons, etc.) that allow obtaining information and free assimilation;

imbalance of time allocation for free search, creative approach to the task performance process;

individual work, individual research, insufficient ability to complete an independent educational task under the participation, guidance and support of a professor, etc.

Under the influence of these systemic problems, cadets have insufficient mastery of the given topics, lack of development of competence in the essential understanding and application of knowledge to the required level.

In order to organize the above independent educational process and ensure its quality and effectiveness, it is appropriate to put forward the following suggestions and considerations:

1. To reduce the ratio of hours of classroom and independent education from 50:50 to the ratio (50:40, 50:30, 50:25) that reduces the hours and scope of independent education;

2. To create independent educational guidelines that serve as a special reference literature for organizing the independent educational process and the implementation of the assigned tasks, providing examples and examples of the specified independent educational forms;

3. Development of an effective mechanism of independent education evaluation system and creation of a methodology for practical application.

**Adabiyotlar ro‘yxati:**

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