

## **ORGANIZATION OF STUDENTS' INDEPENDENT WORK IN THE STUDY OF THE DISCIPLINE ENGINEERING AND COMPUTER GRAPHICS**

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### **Abstract**

This article discusses how to most effectively organize independent work for students studying the discipline “engineering and computer graphics”

**Keywords:** independent work, positive motivation, individually differentiated approach, individual style of educational activities, self-regulation, information vacuum.

### **Introduction**

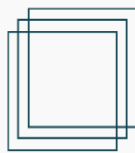
One of the most important sources of development and self-development of the student's personality is his/her independent work in the process of educational activity.

Independent work of a student in modern scientific research (A.A. Verbitsky, I.A. Zimnyaya, M.I. Kazakov, V.A. Yakunin) is considered as the highest form of educational activity aimed at the effective assimilation of the objectified experience of mankind, at the development and improvement of the cognitive sphere of the future specialist.

Higher educational achievements are possible only with high levels of the formed structure of students' own activities and their positive motivation. As V.A. Yakunin notes, in general, the task of the individually differentiated approach is to help the student find the most rational methods and ways of working by activating the most developed aspects of his personality, the ways that most best correspond to the individual psychological makeup of the student's personality. In practice, here we are talking about the formation of an individual style of educational activity, the formation of which, according to V.S. Merlin, really acts as a result of compensatory transformations in the structure of individuality.

A number of authors understand independent work as a system of organization of pedagogical conditions that ensure the management of educational activities that take place in the absence of a teacher (V. Graf, I. I. Ilyasov, V. Y. Lyaudis).

Of interest is the definition in which independent work is understood as "a type of activity of schoolchildren in which, in the conditions of a systematic decrease in the direct assistance of the teacher, educational tasks are carried out that contribute to the conscious and solid assimilation of knowledge, skills and abilities for the formation of cognitive independence as a personality trait of the student. (B.A.Vyatkin)



Independent work is subject to strict laws that determine the sequence of cognitive acts: acquaintance with information, its perception, processing, conscious acquisition of new knowledge at a level that allows you to apply this knowledge in educational or professional activities.

A person's ability to independently search for the necessary information, assimilate professional knowledge on its basis, the ability to creatively use it in various situations is a cultivated quality of personality. It is formed throughout a person's life and is especially intense during the period of education.

As noted by E.N. Shiyakov and I.B. Kotova, the most important condition for the effective organization of independent work is the development of self-regulation and self-management skills in trainees. Today, the basic principles of self-regulation of human activity (consistency, activity, awareness), its structure, basic mechanisms, and impact on productivity and personal development are already known.

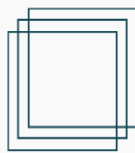
According to A.K. Osnitsky's research, self-regulation, which is manifested and in demand in educational activities, has a structure similar to self-regulation of all other types of activity. It consists of such components as perceived goals of activity, a model of significant conditions, action programs, evaluation of results and correction.

Self-regulation can be activity-based and personal. These two types of self-regulation do not exist in isolation, but are interdependent and interacting.

However, not all independent work can be effective enough. In order for it to become full-fledged, its organization must implement the functions of managing educational activities. I.A. Zimnyaya defines independent work as purposeful, internally motivated, structured by the subject himself in the totality of actions performed, controlled and corrected by him in terms of process and results, and defines the main requirements for independent work:

- 1) True Independent work as an independent learning activity can arise on the basis of an "information vacuum". It arises when a student has a need to learn, to master something new, unknown, necessary, important for himself, and there are no means to satisfy such a need in the educational process. This, in turn, presupposes the need for the teacher's directed work to create the prerequisites for the emergence of such a need in them;
- 2) Independent work is always based on new material for the learner, new cognitive tasks;
- (3) Independent work is predominantly of an individual nature (work according to individual plans that complement and therefore expand and deepen the knowledge acquired in training sessions during preparation for them).

Comparative Characteristics of Independent and Extracurricular Work

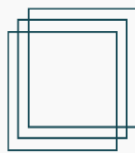


Extracurricular activities	Self-paced work
1) Broadens, deepens, improves knowledge	1) It arises as an independent educational activity on the basis of an "information vacuum", on the basis of the need to learn and master something new, unknown, necessary, and important for oneself.
2) Assumes the fascination of the forms, process and material of the work	2) Independent work is based on new material for the learner, new cognitive tasks. The very mastery of new material should be exciting, and not only and not so much the form of organization, strenuous, purposeful, exciting work
3) individual and collective forms	3) Predominantly individual form, work according to individual plans.

These differences can be compared, but they are not absolute. The organization of independent work raises a number of questions related to the readiness of the student himself as a subject of this form of activity. The first question is whether the majority of students are able to work independently. As many studies have shown, the answer to this question is generally no. Thus, according to the generalized data of M.I. Dyachenko and L.A. Kandybovich, 45.5% of students admit that they do not know how to properly organize independent work; 65.8% of respondents do not know how to manage their time at all, 85% do not know that it can be distributed. Even with some ability to work independently, students note that they are slow to perceive educational material by ear, as well as when reading and taking notes of educational texts. At the same time, comprehension, processing, interpretation and recording of educational information causes significant difficulties for them. Consequently, it can be stated that students are not psychologically ready for psychological work, that they are not aware of the general rules of its self-organization, and that they are unable to implement the actions they envisage. If we add to this the insufficiently high level of cognitive interest in a number of academic disciplines, it becomes clear that not all students are willing and able to work independently.

The organization of independent work as a form of educational activity requires special training in its techniques, forms and content. The program of such training may include:

- Diagnostics of students' cognitive need to expand and deepen the knowledge gained;
- Determination of their own intellectual, personal and physical capabilities;
- Determination of the purpose of independent educational work - immediate and distant (what it is needed for);
- Independent choice of the object of study by the trainee and its justification for himself/herself;
- Development of a specific plan, a long-term and short-term program of independent work.
- Determination of the forms and time of self-control.



The process of personal self-regulation is a higher level of regulation. This type of self-regulation is often referred to as self-determination (B.F. Lomov) It consists in the fact that at certain stages of its development, a person begins to consciously organize his life, independently determine his development.

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