



## Technology of effective organization of independent education of masters of technical higher educational institutions

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**Abstract:** This article covers the matters related to designing self-education of masters of technical higher educational institutions. Here will be listed variety types of independent work, as well as components of pedagogically designing the process of master self-education. Apparently, the independent work of the master is one of the main components of self-education.

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### 1. Introduction

In recent years, higher school pedagogy has drawn a lot of attention to the need to improve the efficiency of self-education of students. To this end, a special policy of the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan was issued with a corresponding application, created by several scientific and methodological approaches to the organization of self-education, self-direction, self-training and self-teaching of students.

At the same time, monitoring the status of organizing self-education of students in tertiary education to

date shows that it is necessary to continue to pay close attention to identify the reasons for not switching current pedagogical powerful mechanism for the preparation of high-quality professionals and develop the most effective options for its full implementation.

As you know, 50% of total study time is devoted to self-education in the curricula of educational areas, including coursework and final qualifying work (Figure 1a), and to individual subjects, 33% of all time in average (Figure 1, b) is devoted.

<b>EDUCATION</b>	CLASSROOM TRAININGS	50 %	<b>EDUCATION</b>	LECTURE TRAININGS	33%
	INDEPENDENT TRAININGS	50 %		PRACTICAL TRAININGS	33%
				INDEPENDENT (LAB.) TRAININGS	33%

a b

**Fig. 1. Arrangement of self-education time in educational standards.**

### 2. Material and Methods

The essence of solving the matter of the organization of self-education can be reduced to the direction of the real and efficient implementation of these “50 and 33 per cent”s of time for profound assimilation of students' knowledge and skills provided

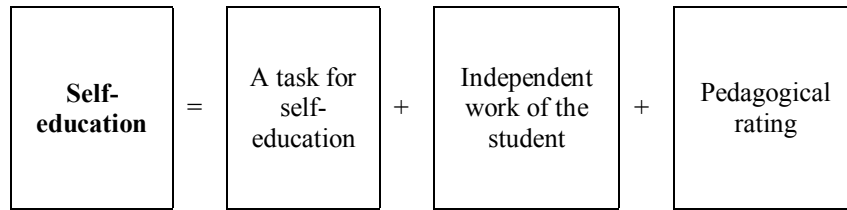
by the state educational standards and curricula of disciplines.

In the guidelines for the organization of independent work carried out by students as a part of self-education is given a huge list of varieties of such work:

- independently learning some of the topics of the subject from academic textbooks, introducing to academic sources;
- Preparing for a practical, seminary laboratory studies;
- Preparation of an essay on a specific topic;
- Doing coursework or a course project;
- Performing calculation-graphic work;
- Working on the layouts, models and literary or artistic works;
- Solving real-life problems;
- Creating tests, questions and problems;
- Preparing research papers, theses and lectures;

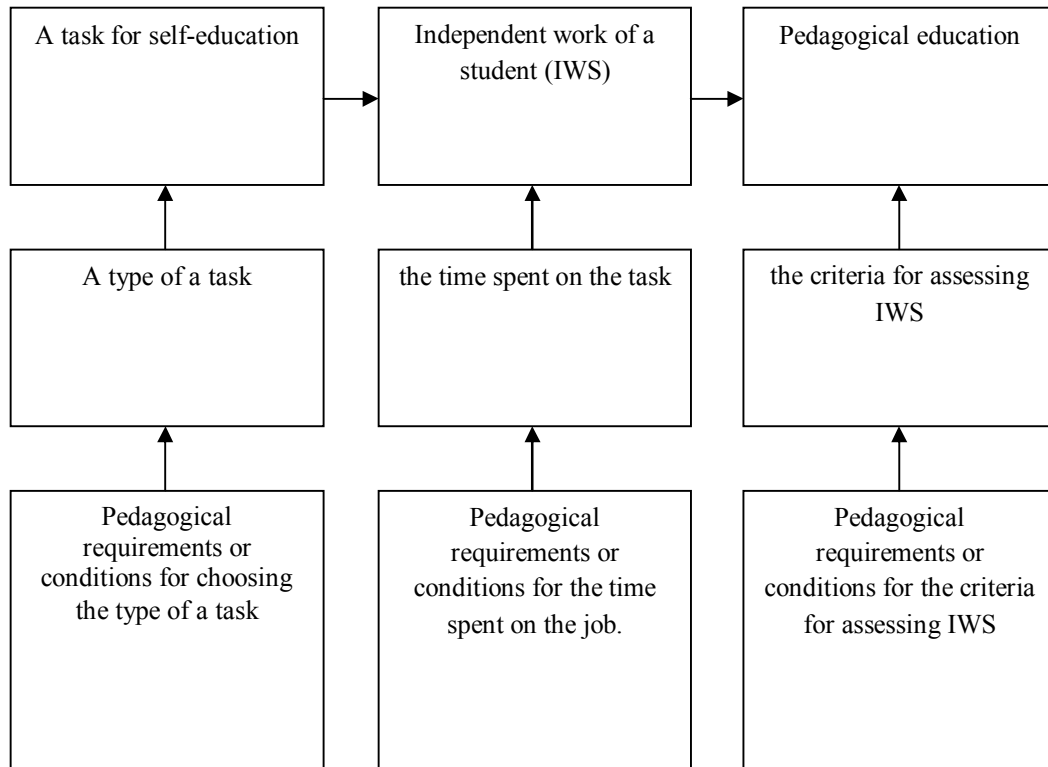
- Unconventional but practical solutions to problems and creative work;
- Doing homework, etc.

Of course, this list is not entirely applicable to all academic subjects. Because of the nature of the subject, the teacher may give preference to two or three, and preferably not more, types of independent student work. We should keep in mind that an independent work of the student is not yet self-education of the student. Independent work of the student becomes an independent education only when preceded at first by the self-educating task and followed by its pedagogical assessment (Fig. 2).



**Fig. 2 . Self-study of the student as one of the components self-education**

The formula given in Fig. 2 allows to specify the components that make up the pedagogical design of self-education of students: a type of a task, the time spent on the job and the criteria for assessing students' independent work, as well as pedagogical conditions or requirements for their development (Figure 3.).



**Figure 3. Components for carrying out the process of self-education of the student.**

### 3. Result

Let's proceed to design self-education of students in a particular academic discipline, taking place in the curriculum of a certain educational field.

1. Designing tasks for self-education. Designing tasks for self-education primarily involves clarification of the requirements and conditions for its production. These are:

- The name of the subject (e.g., computer science and information technology);
- The kind of education (e.g. undergraduate);
- The field of education (e.g. 5111000 - vocational education: the mechanization of agriculture)

Name of the subject, here, refers to the most characteristic features of the activity of the specialist, who is sufficiently fluent in specialty, homonymous with the name of the subject.

The type of education helps to clarify at what level of complexity self-education should be designed. In our example, you will need to take into account that the same title subject undergraduate students studied at secondary school, professional college or academic lyceum, before enrolling in university or institute. For example, the field of education subject «Computer and Information Technology» is trained in the 1st and 2nd semesters in volume of 234 hours, of which 82 hours is given to self-education on the subject.

Field of Education helps to clarify the content of self-education work on the subject depending on the specific specialty, obtained by the student. In our example, it is an engineer-teacher of a professional college from academic subjects related to agricultural mechanization.

2. Designing independent student work (ISW). Designing this section begins with clarifying requirements or conditions to calculate the time spent on its implementation:

- the semester in which a subject is taught (in our example - the first; however, we must take into account the fact that the subject will be studied in the second semester too);
- lectures (L, in our example - 38 hours);
- practical training (PT, in our example - 28 hours);
- self-education-self-training (ST, in our example - 41 hours).

Data of this kind will specify how much time should be given to the student for independently studying the theory of the subject, and how much time on the generation of skills and techniques of practical nature. In our example, the ratio is 24:17, which is approximately equal to (LZ):(PP) = 38:28.

3. Designing educational assessment DEA. Data that served as the design of the first and second sections of self-education will also serve as the design of educational assessment of the results of the independent work of the student.

The most common form of the independent work used in both theoretical and practical college and university subjects is to write 2-4 essays on a given topic in the volume of 7 - 8 pages each.

Unreliability of such practices is that the same volume is accepted not only by the DEA on discipline to which, let's say, 60 - 70 hours is devoted, but also by the DEA on discipline to which 20 - 25 hours is devoted. Each student spends 1-2 hours writing the already-prepared contents of the essay by hand; even less: 15 - 20 minutes if this work takes the form provided on the computer since in the latter case, the computer always makes it possible to find the right material and print it out quickly.

More worthy of note is the practice of organizing DEA by teachers of descriptive geometry. Study course is unlocked in the right quantity. The lecturer gives a lecture on the first block. The teacher of practical training gives individual tasks on the same block. At the workshops, students are engaged in solving their problems, and the teacher helps someone, shows the correct approach to another, explains something to someone else. The problems in the lecture hall remain unsolved. Completing and coming to the state of being a decent solution to the problem is left as independent student work. This action is repeated eight times a semester. All hours set by the curriculum for this subject (lectures, workshops and self-education) are spent rationally.

When organizing students' independent work on the subject "Computer and Information Technology" which we conduct, we preferred using a method just like this.

Teaching materials provided for students to learn in the 1st semester is divided into 4 blocks.

The lecture consistently explains the organization of work with such software as «Microsoft Word», «Microsoft Excel», «Power Point», «Microsoft Access» for 38 hours. While studying these topics, each student is given 4 exercises to study programs listed in-depth. Time spent on each task should be about 6 hours = 38:6.

The teacher from practical training gives students in the quantity of 4 individual tasks associated with the practical work on the above-mentioned programs in the appropriate hours (28 hours). Time to perform each task should take approximately 11 hours = 45:4. Of those 11 hours, 7 hours is spent on carrying out tasks in practical lessons in the classroom and 4 hours independently, if there are necessary facilities at home, if not, then in classrooms equipped with computers.

When assessing each task performed by a student (we assume that all tasks are written in the same complexity), we refer to the following generally accepted settings:

-for acquiring theoretical materials: max = 9 points (36: 4);

-for developing practical skills in students: max = 9 points (36: 4);

-also max = 28 out of max = 100 remains for final assessment on the subject.

#### **Acknowledgements:**

As a result, a model for self-education of tertiary students towards vocational education developed by us creates a positive experience of students' independent work, and also it increases their level of readiness for self-education.

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