

OPTIMIZATION SELF-LEARNING TESTING STUDENTS OF FOREIGN CITIZENS PREPARATORY DEPARTMENT IN THE STUDY OF MATHEMATICS

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Abstract

The article deals with the optimization of the control of independent work of foreign students at the preparatory department of a technical university. Studying at the Preparatory Department for foreign students is a special initial stage, which has its own peculiarities, because in a very short time they have to acquire not only a sufficient amount of theoretical and practical knowledge of mathematics, its application for solving professional problems. and a necessary part of the training and provides for a systematic observation of the teacher during the learning process at all stages of the educational process. It also gives the opportunity to establish and evaluate the knowledge of foreign students, determine the volume, level and quality of learning, identify successes in learning, gaps in knowledge, skills and abilities of individual students and the whole group to make necessary adjustments in the learning process, improve its content, methods, tools and forms of organization.

Keywords: students' independent work, optimization, control, self-education.

Introduction

Independent work of students is a part of their educational activity, in which mental activities can be distinguished. Mastering these actions will characterize the level of development of self-education as a whole [1, p. 252].

On the one hand, students' independent work independent work of students is considered a type of educational work without the guidance of the teacher, on the other hand, a means of engaging students in independent cognitive activity. Therefore, every teacher of mathematics is interested in gaining the effect of independent work of students, but then it must be realized that it will be achieved if independent work is organized and implemented in the process of teaching mathematics as a coherent system that integrates all stages of student learning in higher education.

The ability to learn mathematics independently, to supplement their scientific knowledge, the more to develop and transform them is formed only on condition of mastering students certain ways and techniques of independent work, the development of which contributes to the development of personal qualities of students.

Independent work of students is a method of teaching, during which the cognitive activity of students proceeds in full accordance with the individual characteristics, level of education, experience and specially created organizational conditions for this purpose. Independent work of students allows to remove contradictions between individual abilities and average level of perception and assimilation of educational material in a group. It allows to eliminate gaps in cognitive activity and plays an important role in shaping the personality of the future specialist. In traditional pedagogy, independent work of students is performed in the form of extracurricular or homework classes, which most often pursue the purpose of preparing for practical classes, mini-conferences or seminars, modules, tests and exams. The form of student reporting, as a rule, is a speech at the colloquium, writing an abstract, performing tests, calculation tasks, etc.

Reserch results

The control of mastering of the studied material of mathematical subjects should be carried out in the form of tests, independent works, calculation tasks, and also to develop questions for the colloquium, because:

- Teacher control provides for an individual approach to each student;
- allows to find out in more detail the level of knowledge of students;
- helps to find out what material should be further explained, etc.

The test is a means of pedagogical measurement. Teachers' perceptions of tests are quite diverse. Some teachers who lack knowledge of pedagogical measurement theory mistakenly believe that the test is a set of author's tasks specific to the form of the content of the control material of mathematical disciplines. Other educators are aware of the long way of constructing pedagogical tests, and have methods of statistically

substantiating their quality. Many teachers associate tests solely with tasks in which some of the suggested answers need to be chosen correctly. It should be noted that this is a long past stage in pedagogical measurements. All over the world, including in Ukraine, there have been numerous innovations in the content and form of test tasks, forcing students to move from presenting a ready-made answer to a given question to solving a learning task, actively constructing the content of the answer. This is a task with short regulated answers; requiring additions; essay; tasks with some additional context and more. For example, when teaching mathematics at the preparatory faculty of Vinnytsia National Technical University, a teacher can give several educational tasks:

Task 1. What are the wrong answers?

a) If the function $f(x)$ is continuous at a point x_0 and the derivative $f'(x_0)$ changes the character at a point x_0 , then x_0 - **minimum** point of function

b) If at each point in the interval $(a;b)$ $f'(x) > 0$, the function $f(x)$ **increases**;

c) If at each point in the interval $(a;b)$ $f'(x) < 0$, the function $f(x)$ **drops**;

d) At a point x_0 the sign $f'(x_0)$ changes from "+" to "-", then x_0 - a point **minimum**.

Answer: a) and d).

Task 2. Complete:

a) if the numerical sequence converges, then it is ...

b) the sequence can be defined on a finite subset of positive integers, then it is called....

Answer: a) limited; b) finite.

This method is needed to test not the reproduction of acquired knowledge, but the ability to apply them and productive skills in non-standard situations, including imitating future professional activity.

The solution of the educational task is not only an independent search for an answer, but also a new look at already known facts and phenomena, replenishment and extension of knowledge, establishing connections, similarities or differences between individual events. Recently, tasks as a widespread didactic tool in the teaching of mathematics have become increasingly strong place in the study of other sciences.

Doing an independent work or abstract encourages the student to continue to study in more detail any issue of the topic being studied, the most interesting of which; increases the incentive to use additional scientific literature; teaches to organize the collected material.

Planning the stages of educational activities, designing selected materials in the form of articles, presentations, reports, abstracts, defending or presenting their work, the student, preparing independently, trains all types of educational activities: reading, analysis, synthesis, comparison, etc. [2, p. 44].

Control test solutions are one form of control that allows you to know the overall degree of student preparation, because the questions stated in the test can cover all the material of the discipline. The more answers to the question, the better it stimulates students to reflect and analyze the material they have already learned in the educational process.

For a deeper development of mathematical subjects, it is necessary to solve a number of problems within the framework of the calculation tasks for each topic, which deals with different aspects of the study. The ability to simulate tasks as closely as possible to real-world situations that arise in practice will allow students to learn how to analyze the situation as a whole, taking into account many factors.

To increase the efficiency of mastering current material by foreign students of the preparatory department who study in a non-native language, the following methodology was developed and implemented in the lessons of the discipline "Mathematics". During each session, starting with the second, the teacher tests the foreign students, paying attention to practical and theoretical material [3, p. 36].

Control of mastering mathematical discipline is very necessary because it checks the level of preparedness of each student.

Students who have successfully completed the self-paced assignments and passed the interview, as well as have attended the full course of lectures and practical tasks, are allowed to take the exam or credit for the course.

From the experience of teaching mathematics, it is known that the most effective independent work of students becomes when the teaching of mathematics goes according to the individual plans of students and assistance in their preparation is provided by the teacher, especially in the initial stage of mastering independent work, but further assistance of the teacher is needed.

In order to plan the work, it is necessary to accurately and reasonably schedule it, to predict in advance the deadline. The existence of the plan, as well as regular, systematic control of the teacher in its implementation disciplines the independent work of students, prevents students from wasting time, contributes to the organization and orderliness of educational and cognitive activities.

To improve the effectiveness of self-study, teachers need to pay more attention to students at consultations designed to provide them with appropriate assistance in each mathematical discipline of the curriculum, as well as in solving various mathematical problems of practical and theoretical nature. Teacher consultations help to establish a kind of feedback through which students can learn the degree of mastering program material; closely related to lectures, seminars and practicals, preparation for tests and exams.

At the same time, within the framework of each semester, independent work of students implementation consultations should be held at the request of the students, that is, in accordance with their needs, or at the initiative of the teacher, if the students do not pay due attention to the independent work of students.

You can set specific days for mandatory consultations when faculty members of the Mathematics Department meet specifically to study and answer their questions on different topics of the course. Students should be trained to think that the consultations should be carefully prepared, the lecture notes should be prepared, and the literature should be addressed in order to ask questions of substance. While monitoring the implementation of the independent work of students, it is advisable to develop a number of criteria, in accordance with which it is assessed and which should be introduced to students in order to increase their responsibility for the results obtained. The final assessment for independent work is one of the components of the overall assessment obtained in the exam, or the condition for admission to the credit.

The final control phase involves working independently to create verbal and written texts, different in stylistic and genre affiliation. Its main tasks are to identify the degree of formation of all components of textual competence; determination of efficiency of the developed technological tools; planning [4, p. 353].

Conclusion

In this regard, the planning, organization and implementation of students' work without the guidance of the teacher - the most important task of studying at universities.

It can be said that students work independently, it is necessary to fulfill a number of conditions, which include the following:

- to ensure the correct combination of volume classroom and independent work;
- methodically organize the proper work of students in the classroom and beyond;
- to provide students with the necessary methodological materials in order to transform the independent work of students into a creative process;
- to control the progress of the VTS and to encourage students, its quality performance.

The implementation in the teaching of mathematics of the principle of professional direction is aimed at forming the mathematical aspect of the future professional's readiness for professional activity. In the content of this concept we include: the development of thinking and the formation of professionally meaningful techniques of mental activity; providing a mathematical apparatus for the study of special disciplines and vocational training; methodological preparation for continuous self-education in the field of mathematics and its applications.

Optimization of control by the teaching staff and during independent work by students is an ongoing complex control, which as a whole allows to reveal the final result of students' readiness in the study of mathematical disciplines.

REFERENCES

1. Nyam N.T Optimization of the process of self-education of students during the teaching of mathematics in high schools // Theoretical and methodological problems of modern education: materials VII intern. Research Practice Conf. December 30-31, 2011 p. 252-255.
- 2.. Bulakh I.E. Fundamentals of Pedagogical Assessment: Textbook / I.E. Bull // Part 1. - Kiev, 2006. - P.36-91.
3. Cleopa I.A, Dubova N.B The experience of organizing the process of studying mathematics by foreign students in the preparatory department [Text] / I.A Cleopa, N.B Dubova // Journal of Security Pedagogy. - 2019. - № 1. - P. 33-42.
4. Lubinets K.M. Organization of work with foreign students and development of international cooperation in the education of Ukraine / K.M. Lubynets, O.G. Kotova, R.V. Gurak. - Kiev: Edition of the European University, 2003. - p. 353

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